

Coherence and cohesion in an ESL academic writing environment:
Rethinking the use of translation and FOMT in language teaching

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A thesis submitted in partial fulfillment of the requirements for the
Doctorate in Philosophy degree in Translation studies

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Abstract

For several years, the use of translation and specifically Machine Translation—including Free Online Machine Translation (FOMT) tools—in L2 curricula has been the subject of ongoing debate. Even though the use of such tools is commonly discouraged in L2 classrooms by educators, the persistence of English as a second language (ESL) students in utilizing the tools has inspired many scholars to investigate whether it is helpful to develop effective strategies that transform FOMT into a teaching/learning tool in the ESL/English for specific purposes (ESP) classroom. Specifically, scholars have examined how FOMT can impact or enhance the writing quality of ESL students' compositions in terms of coherence and cohesion. In line with the same research interests, this project examined ESL students' typical coherence/cohesion challenges in academic writing at an Ontario post-secondary institution offering courses in French. The study explored the writing behaviours, such as the use of technologies including FOMT, that influence these challenges. In addition, this project sought to ascertain whether ESL students can be trained to better achieve coherence/cohesion in academic writing and how this training affects their writing behaviours, with particular attention to the use of technologies such as FOMT. In doing so, the study employed a mixed-methods research design and collected survey data, writing samples and screen recordings from 6 high-intermediate-level ESL students. Survey data was also collected from 23 ESL instructors about ESL students' practices, including tool use. Semi-structured interviews were conducted with the students and 3 instructors who evaluated the writing samples. Based on the survey results, all the students demonstrated a positive attitude toward FOMT tools, and 5 students used the tools during the writing process in this project. In contrast, the instructors reported divided opinions about such tools for ESL writing purposes. The results showed that instructions can assist students with improving their text quality in terms of coherence and cohesion. As well, based on the results, FOMT can assist the students in constructing their texts during the writing process. The results demonstrated that this assistance can also have a subsequent positive impact on the coherence and cohesion levels in the produced texts.

Résumé

L'exploitation de la traduction, et plus particulièrement de la traduction automatique — y compris les outils de traduction automatique en ligne gratuits (en anglais, Free Online Machine Translation ou FOMT) — dans le cadre de programmes d'apprentissage des langues fait l'objet d'un débat depuis plusieurs années. Bien que les enseignants découragent souvent l'utilisation de tels outils dans les classes d'anglais langue seconde (ALS), la persistance des étudiants à les utiliser a inspiré de nombreuses recherches sur l'utilité de développer des stratégies efficaces qui transforment la FOMT en un outil d'enseignement et d'apprentissage dans les classes d'anglais langue seconde/langue de spécialité. Plus précisément, les chercheurs ont examiné comment la FOMT peut avoir un impact sur la qualité des rédactions des étudiants en termes de cohérence et de cohésion. Dans cette veine, ce projet a commencé par examiner les défis typiques de cohérence et de cohésion des étudiants en ALS dans un établissement postsecondaire de l'Ontario offrant des cours en français, lorsqu'ils rédigeaient des textes en anglais. Par ailleurs, l'étude a exploré leurs comportements durant la tâche de rédaction, par exemple l'utilisation de technologies telles que la FOMT, et l'influence que celles-ci peuvent avoir sur ces défis. Ensuite, ce projet visait à savoir si les étudiants en ESL pouvaient être formés pour atteindre un meilleur niveau de cohérence et de cohésion dans leur rédaction scolaire, et comment cette formation pourrait influencer leurs comportements et leur utilisation de technologies telles que FOMT. Ainsi, l'étude a fait appel à une approche multiméthodes et recueilli plusieurs types de données : des réponses à des questionnaires, des rédactions, et des enregistrements d'écran de 6 étudiants en ALS de niveau intermédiaire élevé. Des réponses à un deuxième questionnaire ont également été recueillies auprès de 23 enseignants en ALS sur les pratiques de leurs étudiants, y compris l'exploitation d'outils technologiques. Des entretiens semi-dirigés ont par la suite été menés avec les étudiants ainsi qu'avec 3 enseignants qui ont évalué les rédactions. Les résultats démontrent que tous les étudiants ont fait preuve d'une attitude positive envers les outils de FOMT, et 5 étudiants ont utilisé les outils pendant le processus de rédaction dans le cadre de ce projet. En revanche, les enseignants ont exprimé des opinions partagées sur ces outils à des fins de rédaction en ALS. Les résultats indiquent qu'une formation peut aider les étudiants à améliorer la qualité de leurs écrits en termes de cohérence et de cohésion, et que la FOMT peut aider les étudiants à construire leurs textes. Cette aide peut également avoir un impact positif sur les niveaux de cohérence et de cohésion des textes produits.

Acknowledgements

I am extremely grateful to many individuals whose supports, graces and blessings made this long Ph.D. journey possible.

First and foremost, I would like to express my sincere gratitude and immeasurable appreciation to Professor Elizabeth Marshman, my supervisor, without whom completing this journey would have been impossible. Her guidance, words of encouragement and dedication in each phase of this project inspired me to complete this journey. I am very humbled by her kindness, dedication and support and will always be grateful to her.

I would also like to express my very great appreciation to my co-supervisors, Professor Malcolm Williams and Professor Guillaume Gentil, who patiently and kindly guided me throughout this journey. I am extremely blessed with their support, insights and invaluable knowledge over the years and appreciate all they have done for me wholeheartedly.

I am grateful to the research ethics board (REB) at the university of Ottawa and the institution from which the data for this project is collected. I cannot thank them enough for their contributions, directions and support throughout this project.

Special thanks are dedicated to the institution that helped me in carrying out this project, and my student and instructor participants, who kindly volunteered to help me conduct this project. Without their willingness, dedication and support, this journey would have not been completed.

I extend my warmest gratitude to my dearest husband, Mehrdad, and my dearest son, Zadmehr, without their presence and unconditional love and support, I would have been lost and could have never accomplished this long journey. I am beyond grateful for having both of you in my life and I am honoured to celebrate this achievement with you.

Last but not least, I would like to extend my sincere thanks to my family members and particularly to my brother Behnam, who supported me throughout this journey. My mother and my late father taught me how to overcome obstacles in the most positive way, I am forever grateful for their love and encouragement that led me to pursue a Ph.D., a journey full of surprises.

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Glossary

Academic writing: a type of writing in school or postsecondary contexts that involves learning a new set of conventions, rules, and genres that pertain to the construction, display, and dissemination of knowledge and yet that vary from discipline to discipline (based on Dong, 1997, p.10).

Coherence: a property created by the logical, semantic, and syntactic interdependence of the constituent elements of a text or an utterance. In contrast to cohesion, which relates to language, coherence reflects conceptual interrelatedness within the text or utterance (based on Delisle et al., 1999, p. 124).

Cohesion: a linguistic property created by the grammar and linking words used to connect words within a sentence or sentences with each other in a text or utterance (based on Delisle et al., 1999, p. 124).

Cohesive devices: The ties in several types contributing to cohesion within a sentence or sentences with each other in a text or utterance (Based on Halliday & Hasan, 1976).

Computer-assisted language learning (CALL): the use of computer software in an “intelligent” manner for the purpose of teaching/learning a second or foreign language (based on Marty, 1981, p. 85).

English as a foreign language (EFL): a context in which English is taught/learned as a foreign language (based on Richards & Renandya, 2002, p. 70).

English as a second language (ESL): a context where English is taught/learned as a second language (based on Richards & Renandya, 2002, p. 70)¹.

English for specific purposes (ESP): a post-secondary context in which English is taught/learned for the purpose of addressing the communicative needs of academic and occupational groups (based on Hyland, 2007a, p. 391).

Foreign language (FL): a language not spoken in a country/community/context (based on Richards & Renandya, 2002).

Free online machine translation (FOMT) tools: a software tool, available online and free of charge, that automatically translates a source text in one language to a target text in another with minimal or no human intervention (based on Somers et al., 2006).

¹ See also “foreign language”.

Google Translate (GT): a free online machine translation tool provided by Google (based on Hermet & Désilets, 2009).

Intended learning outcome (ILO): the desired competency that is expected to be attained and demonstrated by a learner after teaching has occurred. Each ILO is presented as a statement and contains a generic verb. This verb addresses the content area to which the verb applies; or the levels of understanding or performance in those content areas that are to be achieved (based on Biggs & Tang, 2007; Biggs & Tang, 2010).

L1: the first language of learners (based on Richards & Renandya, 2002).

L2: a language being taught/learned other than the native language of learners (based on Richards & Renandya, 2002).

Machine translation (MT): a software tool that automatically translates a source text in one language to a target text in another with minimal or no human intervention (based on Somers et al., 2006).

Native speaker (NS) of English: a person who has been raised speaking English (based on Richards & Renandya, 2002).

Non-native speaker (NNS) of English: a person who has learned English after acquiring his/her native language (based on Richards & Renandya, 2002).

Postediting: a user's act of amending/ "fixing up" a machine-generated translation to achieve a desired level of quality and/or make the text sound more natural (based on Bowker & Ciro, 2019).

Translation: an interlinguistic procedure comprising the interpretation of the sense of a source text and the production of a target text with the intent of establishing a relationship of equivalence between the two texts while observing both the inherent communication parameters and the constraints imposed on the translator (based on Delisle et al., 1999, p. 188).

Translation Studies (TS): an established academic discipline that studies the theory and practice of translation (Munday, 2013, p. 1).

Introduction

For several years, **machine translation** (MT)², and **free online machine translation** (FOMT) **tools** in particular, have become the focus of much research as they gained popularity among student writers, teachers, and translators alike. While from a more traditional perspective, scholars have observed that these tools produce imperfect output (cf. Arnold, 2003; Bentivogli et al., 2016; Hutchins, 2005; Koehn & Knowles, 2017; Popescu-Belis, 2019), recent research (including that on neural MT [NMT], which will be explored in detail in the Literature review chapter), has reported that the quality of MT output demonstrates ongoing improvements (cf. Bentivogli et al., 2016; Munz et al., 2022; Park et al., 2021; Park & Lim, 2020; Sennrich, Haddow & Birch, 2015; Sun et al., 2020). Despite the debate, and the fact that the use of these tools has often been discouraged in the classroom (cf. Jolley & Maimone, 2022), FOMT is widely used by **English as a second language** (ESL) students. The persistence of ESL students in using FOMT has led some scholars to hypothesize that it may be helpful to develop effective strategies that transform FOMT into a teaching/learning tool in the ESL classroom, particularly in **English for specific purposes** (ESP) contexts (cf. Lee, 2020; Lee, 2021; Lee & Briggs, 2021).

This project aims to contribute to this growing body of research by focusing on the development of effective teaching/learning materials and activities that address two challenging facets of **academic writing** skills: **coherence** and **cohesion**. In pursuit of this objective, the study will examine the tools, methods, and strategies students use in ESP writing activities mediated by FOMT; the reactions of students to instruction; and the success of students in achieving coherence and cohesion in their compositions.

In addition to advancing knowledge about ESL/ESP teaching/learning, this project aims to contribute to the **Translation Studies** (TS) field and specifically to the training of translators. FOMT-mediated activities can raise awareness among trainee translators by casting light on potential gaps between machine-generated texts and manually³ translated texts, in particular, as far as coherence and cohesion are concerned. In light of such awareness, translation trainees will direct more attention to these challenging elements during the **postediting** process, which can positively impact their translation competence.

² Bolded words indicate terms that are defined in the glossary.

³ In the context of this study, manual translation means unassisted translation; a translation that is produced without the help of any source.

The next sections will discuss the motivation for this research, including my personal observations as well as the background literature. Subsequently, this study's research questions, hypotheses, and general methodology will be provided, followed by a discussion of the study's significance and scope. Finally, the outline of this thesis will be presented.

Motivation

This study is an action research project which has been inspired largely by observations that may be classified into two major categories: a) my workplace observations as an ESL/ESP instructor and b) my observations as a current graduate student in TS and as a former graduate student in applied linguistics and discourse studies (ALDS). The academic literature that will be explored below also serves as another factor that has motivated this project.

The debate on the use of FOMT in ESL/ESP classrooms

Based on my observations as an ESL/ESP instructor and on anecdotal evidence at different workplaces⁴, instructors at post-secondary institutions in Canada frequently discourage ESL students from using FOMT to translate from their **first language** (L1) to English and vice versa for ESL/ESP learning and writing purposes. This use of FOMT has been a subject of vigorous debate. Interestingly, this debate is raging in the case of trainee translators in translation classrooms as well, and it will be examined later in this thesis.

One main argument against this use of FOMT shared by the scholars is that it prevents learners from engaging in “real” learning. In addition, the scholars believe that these tools give a false impression of achievement or competence at both micro (e.g. grammatical and lexical correctness) and macro levels (e.g. coherence and cohesion) of language proficiency⁵. Overreliance on these tools is another frequently cited concern.

An argument for the use of FOMT is that it helps language learners to improve their academic writing, particularly in terms of developing the ability to write cohesively and

⁴ These include different institutions I have worked at, all of which classify as post-secondary contexts in Canada. It is important to bear in mind that the use of FOMT in ESL classrooms is not unique to any of the language schools I have worked at, nor is the controversy surrounding it. Rather, these schools reveal the symptoms of a trend occurring in numerous ESL classrooms throughout the country and beyond. For instance, in attending TESL (teaching English as a second language) conferences, I have noted the same observations shared by my colleagues at other institutions.

⁵ According to Brown and Lee (1994), at the micro level, learners need to master how to employ proper grammar and express ideas in different grammatical forms, while at the macro level, students need to demonstrate successful communication of meaning to their readers.

coherently in their **second language** (L2). For instance, ESL students can resort to their L1 skills to establish a baseline of coherence and cohesion in L1. Next, they can employ FOMT to translate and adapt the text to English, while using their critical thinking skills⁶ to adapt as necessary and learn from the experience. Through translation activities that shuttle between their languages, ESL students can gradually acquire the skills to logically organize ideas in their L2. Another common anecdotal argument is that in the “real world” graduates of language and translator training programs use FOMT tools to complete all kinds of tasks.

Observations as an ESL/ESP instructor

FOMT is being used more and more at one of the institutions at which I work, an Ontario post-secondary institution offering courses in French⁷. Ever since the institution incorporated *Capacité bilingue* (in the context of this institution, meaning bilingual capacity in French and English), as one of its intended competencies, some colleagues have said that this aspect seems to have encouraged them to modify and design activities in both English and French in some courses, such as Course A and Course B⁸. These modifications are perceived to have involved a greater use of FOMT.

As I observed curriculum and teaching/learning activities and had discussions with students and instructors, I noticed the importance and integration of a) translation activities in courses, and b) coherence and cohesion as contributing factors to the **intended learning outcomes** (ILOs) in course assignments. I also noticed that these elements were not always explicitly mentioned by instructors in either course descriptions or evaluation grids.

As the instructor of one of the ESL courses, I was asked for insights on a summary assignment in Course A (Course A is a mandatory course in the program, which is offered in both French and English and incorporates some bilingual activities). This bilingual activity had been integrated into the course outline in line with meeting the *Capacité bilingue* intended competency. Students, whose L1 was French, had been asked to listen to a lecture in English and

⁶ In the context of this study, I use “critical thinking”, according to Carr (1988, p. 69) who defined this concept as “to build responsible attitudes toward problem-solving which involves the learner to question, to analyze and to look beyond the superficial for all possible answers.” Therefore, in this paper, “critical thinking” is also used interchangeably with “critical awareness” or “critical evaluation” in different situations.

⁷ For confidentiality and anonymity reasons, the name of this institution is not provided throughout. Instead, “The Institution” will be used to refer to this organization.

⁸ Instead of providing the real name of the courses, the pseudonyms *Course A* and *Course B* have been chosen to preserve the anonymity of the instructor(s) and the specific program. While *Course A* is delivered in both English and French but requires students to submit their assignments in French only, *Course B* is delivered in English and requires students to submit assignments in English.

then produce a coherent and cohesive summary of the lecturer's main points in French. This task was challenging for both professors and students to identify, describe, understand, achieve and evaluate the required levels of coherence and cohesion. Both students and professors were also uncertain whether (or not) and (if yes) how FOMT tools might be used to support writing, in general, and coherence and cohesion, in particular.

Another course which involved the use of FOMT and posed challenges with respect to coherence and cohesion was Course B (Course B is a mandatory ESL course for students in some disciplines). It comprises several ESP writing tasks (reflections, summaries, proposals) without an explicit translational component. Students reported that their instructor allowed them to choose articles/videos related to their assigned subject in French, compose a summary in French, and use FOMT to produce their summary in English. However, the students reported problems with the MT-produced texts due to issues such as incorrect parts of speech, wrong pronouns for anaphoric references, and incorrect word choice. Their instructor had determined that a combination of such reduced the coherence and cohesion of the produced texts. The students said that they were uncertain about how to establish coherence and cohesion in their ESP compositions mediated by FOMT. Although coherence and cohesion were central to the students' tasks, these aspects of writing were not explicitly targeted in the assignment instruction. A lack of guidance may therefore have contributed to the students' confusion about how to employ MT in producing a coherent and cohesive ESP text (especially if MT contributes to a lack of cohesion and coherence).

As these anecdotes suggest, I have noted that FOMT activities and a focus on both coherence and cohesion in academic writing are present in ESL curricula, even if they are not explicitly mentioned in documents related to the courses (e.g. course plans). I have also noticed that there is room to clarify course expectations and the effective use of FOMT in assigned activities.

Observations as a graduate student

During my master's program in ALDS, I gained invaluable knowledge on the skill of academic writing and the significance of coherence and cohesion. The literature I studied shows that some ESL students' writing lacks clear organization of ideas for an English reader. This issue for ESL students has encouraged scholars in post-secondary contexts to focus on these linguistic phenomena and provide students with resources to handle them in ESL/ESP courses.

Later, as a graduate student in TS, I learned about FOMT tools, their advantages and limitations, and their use in educational settings such as ESL classrooms and translation training programs. I also gained knowledge about how coherence and cohesion can (increasingly) play significant roles in human and MT quality assessments.

Reading the literature in combination with my ESL/ESP instruction experiences inspired me to conduct two pilot projects⁹ on ESL students' and instructors' perceptions of the use of FOMT in ESL learning and writing. These projects provided insights from both groups of stakeholders. While ESL student participants, in general, found these tools helpful in learning and writing, instructor participants did not demonstrate a unanimous view of the tools (These findings are broadly consistent with the literature on learner and instructor perceptions of MT in language learning contexts). Some stated that FOMT may contribute to plagiarism and could hinder the students' language learning. Others thought that these tools could be useful for language learning but recognized that the curriculum for L2 learning and writing does not explicitly allow translation to be a part of the teaching/learning process in such classes. Because students thus feel obliged to "hide" translation tools from their instructors, instructors are unable to provide students with constructive feedback on the use of such tools. Instructor participants suggested that they could provide class instruction on how to postedit FOMT output for issues regarding lexical and structural incorrectness as well as coherence and cohesion. The students would then postedit texts to improve on the original FOMT output. This instruction and the related activities would serve as a hands-on lesson about the nature of FOMT and about aspects of good writing in English.

Academic writing and translation

The successful communication of desired meaning in a text has been the focus of many disciplines, such as applied linguistics and TS. In the field of applied linguistics, English as a second or **foreign language** (L2/FL) teaching makes academic writing a major focus, requiring students to successfully communicate meaning in various types of compositions in order to fulfill their program requirements (cf. Swales & Feak, 1994). In TS, the subfield of translation technology concentrates on the quality of the communication of intended meaning in texts translated by humans (Baker, 2018; Hatim & Mason, 2013) and in MT output (cf. Maučec &

⁹ Ethics approval had been received in the context of course work.

Donaj, 2019; Smith et al., 2016; Voita et al., 2019). Both L2/FL and TS scholars have explored how desired meaning can be communicated to readers clearly. Although many factors contribute to clear communication, considerable scholarly attention has been given to how the rhetorical organization of texts shapes the intended meaning of L2 written discourse (e.g. Connor, 1996, 2004, 2008; Kaplan, 1966, 2005), human translations (cf. Baker, 2018; Hatim & Mason, 2013; Károly, 2017; Williams, 2001, 2010, 2013), and machine translations (Guzmán et al., 2014; Joty et al., 2017; Taboada & Mann, 2006a, 2006b). In particular, the scholarship has highlighted that coherence and cohesion are essential to effective written communication (cf. Ahmad et al., 2019; Connor, 1984; Dastjerdi & Samian, 2011; Granger & Tyson, 1996; Paltridge, 1992; Rezaei & Lovorn, 2010) including police reports¹⁰ (Lyons, n.d.; Stolp, 2002; Yu & Monas, 2020).

Language teaching approaches and bilingual education

Various approaches to ESL teaching/learning have been adopted over the decades. During the late 19th century, the Grammar Translation approach required students to learn L2 grammar rules, apply them by translating sentences from their L1 and L2, and then compare and contrast the linguistic structures of each (cf. Cook, 2010; Matamoros-González et al., 2017; Richards & Renandya, 2002; Pym & Ayvazyan, 2016). However, this approach was later criticized, and other approaches (for instance, the Communicative Language Teaching approach) emerged, placing importance on the production of spoken language (cf. Cook, 2010; Matamoros-González et al., 2017; Pym & Ayvazyan, 2016) and pushing the structural elements into the background (Cook, 2010).

Regardless of these changes in teaching approaches, learners still commonly resort to translating between their L1 and L2 in writing (cf. Chung et al., 2019; Gentil, 2018; Hall & Cook, 2012, 2014; Kobayashi & Rinnert, 1992; Priya & Jayasridevi, 2018; Wei, 2020; Wei et al., 2020) especially in bilingual contexts. Advocates of bilingual education have different perceptions and definitions of translation in language learning, with definitions varying from linguistic understanding and formal glossing to a more spontaneous cognitively oriented activity known as translanguaging. Overall, however, they believe translation positively impacts language learning and specifically L2 writing (cf. Garcia et al., 2017; Wai, 2016).

¹⁰ This study has focused on summary reports based on two videos presenting police interactions. Therefore, the literature on the importance of coherence and cohesion in writing police reports are explored.

Translation in language learning has been highlighted by technological advances. With the computer age have come computer-assisted language learning (CALL) approaches, launched by Marty (1981), which integrate technology into L2/FL language learning. The presence of MT in classrooms reflects this change (cf. Jolley & Maimone, 2015, 2022; Károly, 2014; Kliffer, 2005; Lee, 2021; Lee, & Briggs, 2021; McCarthy, 2004). Unlike the content of many of the other commonly used electronic resources for language learning (e.g. online dictionaries or concordancers), the output of MT, despite ongoing improvement, is likely to include unpredictable grammatical and semantic errors (Arnold, 2003; Bawden, 2018; Hutchins, 2003; Koehn & Knowles, 2017; Popescu-Belis, 2019) that could subsequently impact coherence and cohesion levels in a text¹¹. Wong and Kit (2012) reported that human-translated texts were more lexically cohesive than MT-translated texts. In other words, the results of their study showed that lexical cohesion devices were employed at a higher frequency in human-translated texts, with a positive subsequent effect on the coherence of the text compared to MT-translated texts. Notwithstanding the criticism about MT output quality, in light of recent advances in MT systems, MT-generated texts demonstrate more coherence and more cohesion in comparison with the texts generated by the previous MT systems (cf. Bawden et al., 2017; Unanue et al., 2021; Xiong et al., 2019; Xu et al., 2021). However, cohesion management may still require postediting when meaning is needed beyond sentence boundaries (cf. Maruf et al., 2021), which suggests training may assist with such postediting.

Overall, the scholarship regarding MT points to growing interest in working with and evaluating MT. Scholars increasingly view MT as a mediating tool that enhances autonomous learning and stimulates critical awareness and problem-solving skills (cf. Lee, & Briggs, 2021; Niño, 2020). In light of the combination of such perspectives towards MT as a mediating tool, MT output has been used as material that L2 students postedit to deepen their understanding of the L2 (Lee, 2021; Lee, & Briggs, 2021; Niño, 2020) and to enhance their L2 writing (Niño, 2008, 2009, 2020). This has inspired the design of this project.

The above combination of insights from the academic literature and personal observations were sources of inspiration to rethink the role of FOMT in the Canadian context. This project will involve developing and testing teaching activities that guide the ESL students at The Institution to develop stronger academic writing skills in terms of coherence and cohesion. I

¹¹ It should be noted that MT language quality varies by language pair.

will also focus on the writing behaviour, such as the use of technology including FOMT, that these students demonstrate while completing their writing tasks.

Research questions

In light of the established role of coherence and cohesion in the ESL classroom and their place in the curriculum, I will seek to answer a series of research questions:

1. What are ESL students' typical coherence/cohesion challenges in academic writing?
2. What writing behaviours, such as the use of technologies including FOMT, influence these challenges?
3. Can ESL students be trained to better achieve coherence/cohesion in academic writing? How does this training affect writing behaviours, such as the use of technologies including FOMT?

The first research question will investigate students' current level of coherence and cohesion. The second research question will seek to identify the behaviours influencing the challenges involved, while the third research question will investigate changes in texts and behaviours and/or perceptions after the initial tutorial session. The details pertaining to each of these questions are provided in section 2.2. Research questions and objectives.

Hypotheses

The above-mentioned questions give rise to several hypotheses that are informed by the general literature on the subject, my professional experience, discussions with colleagues and students, as well as the pilot projects I conducted as a graduate student in TS (see Motivation section). The hypothesis corresponding to the first research question is:

1. ESL students' understanding of coherence and cohesion may be limited, making it challenging for them to construct coherent and cohesive texts.

The hypotheses relating to the second research question are that:

2. ESL students commonly translate by composing in their L1 and translating—especially by resorting to FOMT—into their L2.
3. Some ESL students may not execute adequate editing skills to construct coherent and cohesive texts, particularly when they employ FOMT in producing their drafts in English.

4. However, for some ESL students, composing in their L1 and then translating into their L2 with the help of MT may result in more coherent, more developed, and better organized texts than composing directly in their L2.

The hypotheses corresponding to the third research question include the following:

5. The teaching of coherence and cohesion can result in more coherent and cohesive texts.
6. For some ESL students, composing in their L1 and then translating into their L2 may remain as a preferred option and result subsequently in more coherent, more developed, and better organized texts than composing directly in their L2.
7. Some ESL students will demonstrate more developed levels of (post-)editing skills after instruction.

General methodology

This study employs a mixed-methods research design that probes the above-mentioned issues qualitatively and quantitatively. After the analysis of curriculum and course documents in The Institution, the collection of empirical data began.

The pool of participants comprised instructors and students who respectively taught or were enrolled (in a specific program) in this institution. The activities were carried out with approval from the ethics boards of both the mentioned institution and the University of Ottawa (Appendix A).

To answer the first research question, the following method was employed:

1. Collecting and evaluating the first set of writing samples for levels of coherence and cohesion before instruction (Appendix B).

To answer the second research question, the following method was executed:

1. Observing student writing behaviour using screen recording.
2. Gathering perceptions of students (Students' initial survey) and supporting information of instructors (Instructors' survey) through online questionnaires (Appendix C).

Initially, the first round of data collection comprised collecting students' perceptions (Students' initial survey) and instructors' supporting information (Instructors' survey) on the use

of tools by students for general ESL purposes via online questioners. Next, prior to providing any instruction, students constructed their first set of texts based on a video¹² demonstrating police interactions. Accordingly, the first set of screen recordings and writing samples in an online synchronous session were gathered. I collected the writing samples and then evaluated them according to two evaluation grids (Appendix D) designed for the purposes of this project assessing elements of coherence and cohesion. After evaluating the first set of writing samples and reviewing the screen recordings, teaching activities were designed and delivered to the students.

To address the third research question, the following five methods were employed:

1. Observing student writing behaviour using screen recording.
2. Collecting and evaluating the second set of writing samples for levels of coherence and cohesion before instruction.
3. Gathering changes in students' opinions and perceptions of the use of various tools in ESL writing and reactions to the project activities via a post-survey.
4. Studying students' reactions to the project activities and (perceived) differences in writing via one-on-one interviews.
5. Exploring judges'/evaluators' opinions and perceptions about any differences in writing via one-on-one interviews.

After the delivery of the teaching and learning materials in the second online synchronous session, a second round of data collection took place. A second set of screen recordings and writing samples (based on a different video demonstrating police interactions) was obtained and I evaluated the second set of writing samples. Both sets of writing samples were also sent to the judges¹³ by email (the three instructors who volunteered to evaluate the samples) without explaining to them as to which set was obtained earlier. After they evaluated both sets of writing samples, inter-rater reliability was verified to ensure the level of agreement between the scores assigned by the judges. The scores assigned to each student was then shared with the student participants by email prior to the third online synchronous session.

¹² The details pertaining to the selection of videos as the bases for writing the two texts are presented in section 2.5.1. Design and delivery of teaching and learning activities

¹³ The details pertaining to how the element of inter-rater-reliability was verified are presented in section 2.6.3.1. Procedure and 2.5.3. Participants.

During the third online synchronous session, students were provided with oral feedback regarding their writing samples and completed the post-survey (Students' post-surveys) as well.

Finally, semi-structured interviews (Appendix E) with the volunteer students and judges were conducted. (The design will be explained in more detail in Chapter 2: Methodology.)

Significance of the study

In general, it is hoped that the results of this study will provide insights into the potential design of L2 coherence and cohesion instructional materials; the integration of translation and language teaching; and the use of translation tools and techniques.

This study will contribute to designing and developing class materials, instructions, and assessment grids that are aligned with the ILOs of the course and assignments, in order to help students enhance their academic writing skills in terms of coherence and cohesion. The particular hope of this study is that the results will provide clarity on how the explicit teaching of coherence and cohesion can play an important role in meeting the ILOs in ESL courses.

More specifically, in light of the results, we hope to elucidate whether there is a clear policy considering the use of such tools in L2 classrooms. Additionally, the findings of this study will help provide answers to how FOMT can be integrated in ESL/ESP college classrooms as a resource for teaching/learning and especially for enhancing the coherence and cohesion of academic writing. This will be beneficial for instructors, who will be able to cast light on the strengths and weaknesses of FOMT and ultimately provide students with strategies to better manage it to develop coherent and cohesive texts. Subsequently, students will be able to improve their ESL/ESP writing.

Besides contributing to ESL/ESP education, it is hoped that the results of this study will inform translation education. For example, the results may be used to assist students in gaining not only translation competence but also technological competence especially in the use of MT/FOMT.

Outline of the Thesis

This thesis will continue with Chapter 1, which will review the literature relevant to this study. Chapter 2 will then introduce a detailed methodology, specifically covering how this study has been designed, how activities were developed and delivered, and how data was collected and analyzed. Next, Chapter 3 will explore the collected data and examine the corresponding results.

Finally, Chapter 4, Discussion and conclusion, discusses the findings of the study, casts light on some corresponding implications, presents some conclusions and, in light of the aforementioned, puts forward some recommendations for further research.

Chapter 1: Literature review

This chapter offers a synthesis of the literature related to academic writing, translation and the significance of coherence and cohesion in both fields. The section also explores the scholarship regarding MT/FOMT, and the challenges associated with them. The chapter begins by examining the skills of academic writing and translation, especially in terms of coherence and cohesion. It then gives an overview of how cohesion and coherence are evaluated in L2/FL and translation, including MT/FOMT. The next section covers a variety of widely used L2/FL teaching/learning approaches. It is followed by an examination of the role of translation—and FOMTs in particular—in teaching/learning and specifically in composing in one's L2. Next, the chapter will overview the output quality of FOMTs (e.g. common errors as well as limitations). The chapter will end with a brief summary of the key points illuminating the rationale behind this study.

1.1. Academic writing

While writing has been defined as an expressive medium through which a writer accomplishes a task (Hyland, 2003, p. 10), a more expansive definition is necessary for the purposes of this study. Gentil (2018, p. 2) provides such an inclusive description:

Writing has linguistic, cognitive, sociocultural, and technological dimensions, and encompasses a wide array of meaning-making activities that are mediated by tools (styli and clay tablets, pens and paper, keyboards and computers, hand-held devices with speech recognition and text messaging functionalities) as well as alphabetic, syllabic, and logographic encoding systems for inscribing messages as visible marks on a surface. While writing is mediated, it is also mediating in that it serves a variety of social purposes and facilitates complex forms of cognition, such as learning, problem solving, and knowledge construction.

This description is more complete, in the sense that it maintains that writing can be mediated by different tools and activities, such as—in the context of this project—FOMT.

Academic writing has drawn considerable scholarly attention (e.g. Canagarajah, 2002; Gentil, 2005, 2006, 2018; Hyland, 2004; Paltridge, 2004; Swales, 2011; Swales & Feak, 2004; Tardy, 2011, 2017). Understood as a type of writing found in academic contexts, it involves a complex set of skills and practices, which vary according to the discipline, genre, and context.

With globalization has come the notion of education in academic institutions where the medium of instruction is English and where L2 students need to compose different types of papers in English during their studies in order to achieve their program objectives (Swales &

Freak, 2004). According to Matsuda (1998), the desire to better understand the ESL writing needs of international students in American universities has led to L2 writing emerging as a subfield of applied linguistics and Teaching English as a Second Language (TESL). The teaching/learning of L2/ESL writing has become a major focus of attention, and the research has shown that L2/ESL writing is not an easy enterprise (e.g. Biber & Gray, 2010; Crossley et al., 2014; Crossley et al., 2016; Roscoe & McNamara, 2013; Tardy, 2010). These findings have encouraged many researchers to probe the set of skills required to accomplish a writing task successfully at different levels. Zhu (2006) explains that the teaching team should analyze ESL students' academic writing and then design tasks based on their students' competence. At a mechanical level, students must be able to competently paraphrase, summarize, synthesize, and employ proper words and grammar. While this is certainly true in writing summaries (Yuan Ke & Hoey, 2014), many other types of academic writing also require these skills.

At a global level, students must demonstrate mastery of the ILOs of their discipline-specific programs and establish rhetorical relations leading to successful communication of organized meaning¹⁴ in different types of compositions (Biber & Gray, 2010; Connor, 2003; Llach, 2011; Zhu, 2004, 2006). To produce academic writing that reflects rhetorical organization, students must “develop effective paragraphs through the creation of topic sentences, supporting sentences and transitions” (Hyland, 2003, p. 6). Moreover, to establish a coherent text, students must employ linguistic knowledge to properly and pragmatically use linguistic devices. From a computational linguistics perspective, Crossley et al. (2016) have shown that cohesion markers can enhance coherence and overall organization¹⁵. Students must build cohesion by using “connective phrases, clarifying undefined referents, and threading ideas throughout the text” (Roscoe & McNamara, 2013, p. 4).

Adding to the idea of mechanical and global levels, Tardy (2010) refers to a strategic level, which involves skills related to following certain requirements, such as selecting and sifting through outside sources and then incorporating pertinent information.

¹⁴ According to Biber and Gray (2010, p. 19), it is a “misconception” that writing, as opposed to speaking, is “decontextualized and explicit” and that it is therefore easier to organize ideas in writing. They contend that, in fact, writing is “compressed and inexplicit” (p. 19) and that it is therefore more difficult to organize ideas successfully and communicate the desired message clearly.

¹⁵ These researchers have therefore asserted that the ability to build cohesion should be listed among the ILOs of a writing course.

One of the dominant themes emerging from the above review is how cohesion and coherence are essential to effective writing. With this in mind, this study aims to discover how to develop effective teaching/learning materials and activities that enhance the ability of students to write cohesively and coherently.

1.2. Translation

This project aims to identify how to enhance ESL students' overall ESP writing in terms of coherence and cohesion, particularly when translation (and specifically MT) is used in the writing process as a mediating tool. To this end, it is important to examine how translation is defined. Regarding translation as a process resulting in a product, Delisle et al. (1999, p. 188) defines translation as

an interlinguistic transfer procedure comprising the interpretation of the sense of a source text and the production of a target text with the intent of establishing a relationship of equivalence between the two texts, while at the same time observing both the inherent communication parameters and the constraints imposed on the translator.

This definition sheds light on how the target text (TT) should reflect the sense of a source text (ST). In turn, this notion draws attention to the debate surrounding “word-for-word”/literal” translation, which promotes the dominance of the ST (e.g. Berman, 2000; Schleiermacher, 1813), and “sense-for-sense”/free” translation, which promotes the power of the TT and favours target language expressive patterns and reader expectations (e.g. Nord, 1997; Reiss & Vermeer, 2014). These understandings differently influence the way a translated text is evaluated (Munday, 2013; Snell-Hornby, 2006).

Regardless of whether a translation is “literal” or “free,” translation is defined as a phenomenon which occurs when a ST in one language becomes a text in another language. But what if there is no written ST? For example, this project will involve its participants in watching a short video in French and summarizing it in English (see section 2.4.2.3 Writing samples). Since the video may include illustrations and gestures but not necessarily written or oral discourse, would the participants be translating when they write a summary of the movie? To understand their task as translation, another definition must be used. Jakobson (1959, p.233) provides such a definition, stating that “an interpretation of verbal signs by means of signs of non-verbal sign systems” is “intersemiotic” “translation, or transmutation”. According to Munday (2013), Jakobson’s term *intersemiotic* refers to the idea that communication comprises different signs and sign systems and that language is one such system. Munday points out that

translation should not always be associated with verbal languages; it can include various modes of communication, such as films and music (p. 9). Munday essentially implies that “vice-versa” can be added to Jakobson’s definition: translation can be understood as “an interpretation of verbal signs by means of signs of a non-verbal sign system” *and vice versa*. In the case of this project, the non-verbal system includes elements of a short video, which may include illustrations and gestures but not necessarily written or oral discourse, and the verbal sign system is the students’ written summary.

1.2.1. The functionalist approach to assessing translation quality

Translation quality assessment (TQA) has been the focus of many TS researchers (e.g. Angelelli, 2009; Baker, 2018; Colina, 2002, 2003, 2008, 2009; Hatim & Mason, 2005, 2013; House, 2015; Nida, 1964; Robinson, 2012; Reiss & Vermeer, 2014; Williams, 2001, 2004, 2009, 2013), who have assessed translation differently based on the nature of translation that is assumed by the approach they use. This study does not provide a detailed review of the various approaches to translation and the various criteria they use to evaluate the quality of a translation. Instead, this study focusses on functionalism because in functionalism, translation has been considered a purposeful and intentional human action, involving the transfer of verbal and non-verbal signs from one language to another (Nord, 2014, p. 11).

Functionalism perceives translation quality from a new angle, which sheds light on the functional relationship between the ST and TT at different levels. Vermeer has been considered the leading light of the functionalist school, contending that the “purpose” (function) of a translation is its most significant element (Munday, 2013). In fact, it is the purpose of a translation that should determine the strategies and methods deployed by the translator (Nord, 1997; Reiss & Vermeer, 2014). If the TT meets the requirements determined by the functions of the text in the target culture, the translation will be considered a “proper” one (Reiss & Vermeer, 2014). This means that a translation may serve a different function than the ST (Reiss, 1983) and that the same ST can be translated differently to serve the various communicative purposes of the TT receptors (Nord, 1997; Reiss & Vermeer, 2014).

According to the functionalist model, the translator uses the intended communicative function as a guideline to choose a particular translation process and make systematized decisions on how the “elements of the source language should be preserved in a unified and principled way” (Colina, 2003, p. 12). Therefore, depending on its function, a translation can be

classified into four main types: interlinear, literal, philological, and communicative. Interlinear translation aims at reproducing the ST on a word-for-word basis. Literal translation aims at achieving lexical and grammatical equivalence at the sentential but not textual level (Reiss, 1983, p. 302). The goal of philological translation is to achieve equivalence at the lexical, grammatical, and stylistic levels of the receptor's language. Finally, communicative translation seeks to imitate the ST offer of information in such a way that the receptor audience has a linguistic experience like that of the ST audience. In other words, communicative translation is not expected to be identical to the original, avoids "foreignness in the choice of words and sentence structures" (Reiss, 1983, p. 302), and communicates the intended message in a clear, simple, natural, and brief way (Newmark, 1988). A communicative translation tends to be equivalent to the syntactic, semantic, and pragmatic features of the original (Reiss, 1983, p. 302). However, due to differences between languages and sociocultural contexts, syntactic, semantic, and pragmatic equivalence may not exist simultaneously (Reiss, 1983). After all, communicative translation is not just a matter of "source language terms" being reflected "by target language forms"; it is not simply a language transfer exercise, but an action motivated by a communicative goal across cultural and linguistic barriers (Colina, 2002, p. 6). In line with this argument, Károly (2017, p. 21) adds that, in terms of "time and/or background knowledge" the audience of the translation may be different from that of the source text.

This functionalist notion of communicative translation is relevant to this project. Firstly, in the study, the intended function and readership of the source language (a video in French about police interaction) will differ from those of the target text (a narrative summary paragraph written in English). While the function of the video is to give information about a past incident, the function of the summary paragraph in English will be to narrate the sequence of events and also learn and develop coherence and cohesion and to provide material for an evaluation of those aspects of writing competency. Moreover, while the audience of the video is the public, the readership of the summary will consist of ESL instructors. Secondly, participants will not be required to produce a translation identical to the original source; rather, students will be required to adopt pragmatic features of the video, such as the major points and the order of their presentation. Thirdly, the participants will be asked to compose in the narrative¹⁶ style (to write

¹⁶ According to Andrews (1995) in the narrative mode, the author puts together a sequence of events to tell a story or establish a general statement.

the sequences of the events in like manner that they occurred in the video) outlined by the writing instructions. In other words, they should write in a style employing clear, concise, and simple language that, as Reiss (1983, p. 302) puts it, avoids “foreignness in the choice of words and sentence structures”.

Providing guidelines on how translation can be taught, Colina (2003) states that, from a communicative translation perspective, teachers of translation should raise awareness among their students that translation is a process and not a product. Students should therefore organize their translation activities according to a framework comprising four fundamental components: pre-translation, reading comprehension, focus on language, and post-translation (Colina, 2003). Instructors should encourage students to focus in the pre-translation stage on the communicative function that the translation should accomplish rather than on the linguistic function of the ST. In addition, instructors should also inform their students that, in the stage of reading comprehension, a global comprehension of the ST is necessary and the necessary details pertaining to the global comprehension are essential. In the focus-on-language stage, students should ensure that ideas are presented in a logical manner that clearly demonstrates what the main idea is and supports it with details. Finally, in the post-translation stage, students should accomplish certain goals that develop their self-confidence as translators.

In some respects, Colina’s (2003) framework can guide this project. Prior to translating the content of video—in other words, during the pre-translation stage—I outlined the expected communicative function of the TT to students: the TT is an English summary paragraph intended to be coherent and cohesive for the target readership, who are ESL instructors. I went on to point out that the intended function of the TT was different from the intended function of the video, which distributed news to a different target audience, that is, the public. I then explained that the global meaning of the video should shape the summary paragraph. Having encouraged students to develop a global comprehension of the video’s content, I instructed students to focus next on the summary paragraphs, examining whether their ideas are organized clearly, cohesively, and coherently.

Once students have written the summary, its quality will need to be assessed. From Angelelli’s (2009) functionalist perspective, the quality of a translation can be measured based on four main competencies: linguistic, textual, pragmatic, and strategic. Textual competence has two subcomponents: cohesive competence and rhetorical organization competence. Cohesive competence

is “the ability to use linguistic devices to connect sentences, ideas,” and rhetorical organization competence is the “ability to organize a text in the most appropriate way to achieve its aims in a given community” (Angelelli, 2009, p. 32). Angelelli emphasizes the fact that understanding and following the conventions of rhetoric are indispensable to rhetorical competence. With the use of MT technology skyrocketing, the quality of MT-generated texts has also been evaluated from the angle of rhetoric (e.g. Guzmán et al., 2014; Joty et al., 2017; Taboada & Mann, 2006a, 2006b).

1.3. Rhetoric¹⁷

Because both L2 writing and translation require a rhetorical organization of ideas, this aspect of writing will be examined below.

Overall, rhetoric is understood to be a means by which writers project themselves into their texts for the purpose of organizing ideas and communicating the desired meaning with readers successfully (Hyland, 1998, p. 225). Also known as “communicative competence” (Widdowson, 1979, p. 13), rhetoric is an essential component of writing through which authors can effectively persuade their audience (Bazerman, 1989). Aristotle understood rhetoric to involve two main principles: stating a point firstly and proving it subsequently (Andrews, 1995). According to Andrews (1995), Aristotle taught that this process comprises six main components:

- exordium (introducing an argument)
- narrative (developing the argument)
- division (dividing the argument into separate points for clarity)
- proof (providing evidence/examples in support of the argument)
- refutation (demonstrating disagreement with another argument/claim and accordingly proving that it is not true)
- epilogue (giving a conclusion to wrap up a discussion/argument).

Other scholars have described the breakdown of rhetoric differently. For instance, Corbett and Connors (1999), also drawing on Aristotle, have reported the break down of rhetoric into five major principles, among which are *inventio* (discovery of arguments) and *dispositio* (the order in which parts of written discourse are arranged). Meanwhile, some experts have highlighted

¹⁷ The concept of rhetoric being discussed here is a reflection of what Andrews (1995, p. 30) refers to as “the arts of discourse” as opposed to “political rhetoric.”

components of rhetoric, such as coherence and cohesion (e.g. Hatim, 2014; Scarton & Specia, 2015).

From another perspective, rhetoric consists of ethos, pathos, and logos (Higgins & Walker, 2012). Ethos illustrates the projected character of the speaker/author, displays his/her persuasiveness, and gains credibility for him/her. Pathos is a persuasive effect that elicits an emotion in the audience (happiness, sadness, etc.) Finally, logos is the “clarity and integrity” of the argument. It is interesting to note that, when Hyland (1998, p. 228) takes ethos, pathos, and logos into account, he uses the term *metadiscourse*. Metadiscourse¹⁸ includes textual devices, such as logical connectives, to organize ideas cohesively, coherently, and convincingly. In this project, the logos aspect of rhetoric will be reflected in how cohesively and coherently participants write their summary paragraphs.

1.3.1. Rhetoric in L2 writing

Many scholars in applied linguistics have cast light on the significance of rhetoric in L2 writing (e.g. Connor, 2003, 2004, 2008, 2011; Connor, 1996; Kaplan, 1966, 2005).

Kaplan (1966) proposed the contrastive rhetoric hypothesis, which emphasizes that the organization of a text in an L1 (other than English) varies from the organization in English due to cultural differences between the languages. In developing this hypothesis, Kaplan (1966, p. 1) defines rhetoric as

a mode of thinking or a mode of finding all available means for the achievement of a designated end. Accordingly, rhetoric concerns itself basically with what goes on in the mind rather than with what comes out of the mouth... Cultural anthropologists point out that given acts and objects appear vastly different in different cultures, depending on the values attached to them.

He then refers to logic as the basis of rhetoric and contends that a culture constructs, shapes, and “evolves” logic. He claims that rhetoric is not universal “but varies, from culture to culture and even from time to time within a given culture,” being “affected by canons of taste within a given culture at a given time” (Kaplan, 1966, p. 2). Kaplan concludes that English rhetoric/“thought patterns” are different from non-English rhetoric/thought patterns. Therefore, ESL compositions demonstrate thought patterns that contrast with English thought patterns. This hypothesis may be reflected in this project, since the ESL participants may have difficulty producing a summary

¹⁸ The definition of metadiscourse which is provided here is situated towards the purpose of this study while acknowledging that this term is a broad concept.

paragraph with an English logical structure, which states a point, proves it with examples, and finally presents a concluding remark.

The logical flow of written texts has since been examined in further depth by other scholars, and the contrastive rhetoric hypothesis has been criticized. Suggesting that more is involved in L2 writing than Kaplan's hypothesis accounts for, Connor (2011) introduces the term *intercultural rhetoric*. Intercultural rhetoric is "the study of written discourse between and among individuals with different cultural backgrounds" (Connor, 2011, p. 2). The production and evaluation of an L2 text depends on more factors than the L1 culture since, as Connor asserts, writing is task- and situation-based. Therefore, in analyzing the logic and organization of an L2 text, the social context should be taken into account.

1.3.2. Rhetoric in translation studies

Unsurprisingly, given the fact that both applied linguistics and TS focus on effective written communication, TS scholars (e.g. Al-Qinai, 2000; Baker, 2018; Brunette, 2000; Hatim, 2014; Hatim & Mason, 2013; Stecconi, 2012; Taboada, 2004; Venuti, 2012; Williams, 2001, 2009, 2010), including MT researchers (e.g. Taboada & Mann, 2006a, 2006b), have also made rhetoric a focus of research.

Baker and Saldanha (2009) mention that a translation should consist of a sequence of sentences serving a rhetorical purpose at large and that rhetorical devices result in translations that are coherent, cohesive, and ultimately clear. In a similar vein, Hatim and Mason (2013, p. 145) regard rhetorical purpose as the "hallmark of all texts" and hold that every translation should serve a rhetorical purpose, which will affect the reader's judgment of translation quality. Similarly, Baker (2018) states that rhetoric controls the interpretation of a translated text. By the same token, Williams (2001, 2009, 2010, 2013) has shed light on the significance of the rhetorical organization of translations and its prevailing effect on establishing coherence and cohesion.

While rhetoric has been examined extensively, coherence and cohesion in particular have been popular lines of inquiry, probably because they are "critical skills for academic and professional success" (Crossley & McNamara, 2010, p. 984) and reflect "the need for broader educational curricula," requiring students to establish successful communication in different types of academic assignments (Campbell, 1995, p. 99). As a result of this need, many scholars have shed light on the significant roles of cohesion and coherence in texts to help students and

translators better adapt their writing to target reader expectations and thus enhance comprehension (e.g. Crossley et al., 2016; Hatim, 2014; Hatim & Mason, 2005, 2013; Hyland, 2007b; Kubota & Lehner, 2004; Matsuda, 1997, 1998, 2013; Silva & Matsuda, 2013; Williams, 2001, 2009, 2010).

In light of the aforementioned literature, coherence and cohesion have also been chosen as the focus of this study. For additional motivations regarding this choice, see the Motivation section (The debate on the use of FOMT in ESL/ESP classrooms) as well as the discussion of MT (1.12. Machine translation in L2 settings). However, an important point to bear in mind is that this project focusses on evaluating a summary as a specific text type. This choice of text type is significant, as it is a key factor in determining which features of coherence and cohesion and which propositional functions are required for effective L2 writing. Therefore, prior to exploring the concepts of coherence and cohesion, and the features associated with them, an overview of the text types/modes of discourse will be provided.

1.4. Modes of discourse/text types

According to Faigley and Meyer (1983), an understanding of discourse is indispensable when examining its fundamental components, such as types of text/modes of discourse. Achieving this understanding is important, because the communicative goals in different modes of discourse/text types are different and therefore require different rhetoric strategies subsequently. Accordingly, we will examine the modes of discourse/text types used in writing (to explore which mode is used in this project) as well as the types of texts recognized in translation studies (to explore the text type that is translated in the creation of the summary paragraph in this study).

Faigley and Meyer point out that the study of text types can be considered the “oldest department of rhetoric” (1983, p. 305). Scholars over the years have classified texts based on a variety of criteria (e.g. based on intention: “to address the understanding, imagination, passions, or to influence the will” Campbell, 1823, p. 14–16). For instance, Aristotle lists 28 different *topoi* (lines of argument) that can occur in many text types and be used to classify texts. Another classification is that of Bain (1866), who prefers to use the phrase “modes of discourse” to classify texts and names four major modes: narration, description, exposition and argumentation (as cited in Faigley & Meyer, 1983). While popular when first developed, this classification has since been critiqued, as the purposes of these text types seem to overlap; in each of these text

types, elements of the other modes are also present (Andrews, 1995; Faigley & Meyer, 1983). Following this, other classifications that focussed on assessing academic writing skill, such as that of Rosa and Eschholz (1982, as cited in Faigley & Meyer, 1983) emerged. They categorize essays into nine major types: illustration, narration, description, definition, process analysis, classification, comparison and contrast, cause and effect, and argumentation (Faigley & Meyer, 1983). This system of essay classification is relevant to the current study. For instance, from a cause-effect perspective, students composed the summary paragraphs that relate a series of incidents caused by interactions between police and other individuals as shown in the videos.

In more recent models, scholars have categorized modes of discourse based on two major functions (Faigley & Meyer, 1983). Andrews (1995) divides modes of discourse into the major categories of narrative and argumentative. He explains that in the narrative mode, the author puts together a sequence of events to tell a story or establish a general statement whereas, in an argumentative mode, the author aims to persuade the readership. He then explains that although these modes are categorized separately, they can serve a common function, which is a persuasive one. Therefore, the narrative mode can also act as an argumentative mode through presenting logical connections between the events (this will be further explained in 1.5.1.1., Text macrostructure), as well as creating cohesion by communicating the intended meaning clearly. Andrews then refers to different types of academic writing and states that in order to enhance students' writing skills in terms of expressing ideas logically, instructors can ask them to compose summaries. He refers to summaries as the "foundational element of argument" (p. 144), which help students construct logical patterns by arranging and rearranging statements.

Andrews' method of classifying the modes of discourse and the importance he attributes to summaries in developing writing skills can provide guidelines for this project as well. His classification can be applied to help identify the modes of discourse used in this project. The participants compose an incident report in the form of a summary paragraph whose mode can be deemed narrative in its primary sense. However, since they also need to put together the ideas coherently and cohesively, the mode of discourse in this case can be considered argumentative as well (i.e. because "reasoning" in narrating the ideas can contribute to and be indicative of an "argumentative" mode). These narrative summary paragraphs can be taken as persuasive sequences of ideas advancing a major idea. Ultimately, in writing the summary, we analyze whether the participants were able to construct a logical pattern of statements based on the video

they watched and, in so doing, created cohesion and coherence to achieve the ILOs of the assignment.

The abovementioned text type categorization can also be used to explore how texts are classified in translation, which is further relevant to this project as students were translating French video content into an English summary paragraph.

1.4.1. Text typology in translation studies

In classifying text types in translation, I draw on a functionalist perspective due to the potential relevance of functionalism to this project and the notion of communicative translation explained in the section, entitled Functionalism. Reiss (1981, p. 124) asserts that in a translation process it is necessary to identify whether the communicative function of a TT is in line with the communicative function of its ST. In probing the communicative function, she refers to three types of texts: informative, expressive and operative. Each of these presents a different communicative function. Reiss explains that while the communicative function in informative texts is based on the communication of content, this function in expressive texts is reliant on how the content is artistically organized. Colina (2003, p. 14) also refers to these categories and provides a police report as an example of an informative text; in such a report, the purpose is only to inform the reader of facts. For operative texts, the communicative function is dependent on the persuasive character of the content. However, Reiss also explains that these three basic forms may not always appear in their “fully realized forms” and therefore can appear in a mixed or hybrid form (1981, p. 124). She adds that there are special cases where there could be variations between the intended function of the ST and the intended function of the translation. In this case, she stresses that a translation typology should replace the text typology and should address this question: “To what end and for whom is the text translated?” (p. 131). To this end, she develops a translation typology broken down into three main categories: grammar translation (aimed at assessing the lexical and grammatical knowledge of language learners), interlinear versions (aimed at reproducing the ST for research purposes), and summary translation (aimed at the “communication of contents relevant for a certain further use”) (p. 131).

Reiss’s third category is embedded in this project, since summary translation is precisely what the participants are doing. As for the text type the participants produce, using Reiss’ (1981) text typology, these summaries can be considered informative texts: they provide the salient points from the video, and they can be seen as a form of police report, which Colina (2003)

explicitly categorizes as informative. Essentially, this project involves its participants first in an intersemiotic translation process and then engages them in a summary translation, which in turn will take the form of a narrative, informative text.

Having now established the text type expected to be produced in this project, we must examine how coherence and cohesion can be achieved in such a text.

1.5. Coherence and cohesion

Below, I will describe the concepts of coherence and cohesion separately, before going on to discuss their interaction in the production of an effective and comprehensible text or translation and then introducing ways that these can be evaluated in writing and translation.

1.5.1. Coherence

Delisle et al. (1999, p. 124) differentiate between coherence and cohesion. They explain coherence “is a property of a text or an utterance created by the logical, semantic and syntactic interdependence of its constituent elements.” They add: “in contrast to cohesion, which relates to language, coherence reflects conceptual interrelatedness within the text” (p. 124). Mona Baker (2018, p. 235) defines coherence as “the network of conceptual relations which underlie the surface text.” She also notes that, while cohesion can contribute to the overall flow of a text, it cannot necessarily be regarded as the sole factor in creating coherence. She uses the conjunctive *therefore* as an example. The word by itself cannot reveal the relationship between two clauses; the reader should also be able to identify the semantic cause-effect relationship between the components of the text. This, according to Baker, implies that there is an interrelationship between coherence and cohesion. In a similar vein, Krein-Kühle (2002) reiterates the opinions of other scholars in stressing that the establishment of coherence is not “text-immanent”; rather, it is inferred when the units of a text are connected semantically, pragmatically and thematically. Pinker (2015) defines coherence as follows: “A coherent text is a designed object: an ordered tree of sections within sections, crisscrossed by arcs that track topics, points, actors, and themes and held together by connectors that tie one proposition to the next” (p. 186). Lee (2002, p. 137) asserts that coherence can be perceived in two different ways: “as internal to the text” and “as internal to the reader.” In other words, it can be constructed by the textual features as well as by

the reader of the text. In both cases, whether it is perceived as text-based or reader-based, three main factors are at play in creating coherence: the writer, the text and the reader (Lee, 2002).

According to Lee (2002, p. 139), coherence comprises five major features: connectivity of the surface text, information structure leading to topical development, propositional or coherence relations, macrostructure and metadiscoursal features. In the context of this project (cf. section 2.5. Data collection), the following coherence features that fall under coherence relations are relevant: text coherence (looking at how text macrostructure has been obtained), paragraph coherence (identifying whether a topic has been introduced, has progressed and has been concluded) and sentence coherence (examining the logical sequence of propositions, which also plays a part in paragraph structure). The following will explore these features in detail.

1.5.1.1. Text macrostructure

Based on Toulmin's (1964) argument macrostructure, Van Dijk and Kintsch (1983) define text macrostructure as a textual feature that plays a significant role in comprehension. Others define it as "the overall semantic structure" of a text (Williams, 2001, p. 332), or "the organizational scaffolding upon which the text content is constructed" (Johns & Paz, 2004, p. 40). Van Dijk and Kintsch (1983) add that, at a global level, a text comprises macropropositions, or statements representing events, actions and ideas, which should hang together logically in order to establish its content macrostructure (i.e. paragraphs). Finally, they explain that when macropropositions are placed together at the highest level of a text, they form the text superstructure (e.g. persuasive writing) (Williams, 2001). This in turn creates a global meaning that communicates the gist and essential points to the reader in a coherent and step-by-step manner (Van Dijk & Kintsch, 1983). This means that all sub-ideas in a text should be interrelated in a clear and logical manner so that the main idea or ideas are present beyond the sentence level and can be subsequently communicated. By the same token, Widdowson (1979, p. 146) states that, to achieve an effective text macrostructure, language users should realize what argument they intend to make at the global level and then arrange the ideas in a step-by-step and hierarchical manner to build and reinforce the core idea of the text. In a similar vein, Yuan ke and Hoey (2014) highlight the importance of text macrostructure in reading comprehension and writing. They emphasize that the notion of macrostructure is essential in summary writing, since it requires students to identify the main points of an article at a global level and write the ideas in

their own words such that the same intended meaning is transferred to the reader in both article and summary.

Considering the scholarly emphasis on the notion of macrostructure in reading and writing, and in summary writing in particular, the relevance of this concept for the current project is clear. In composing a narrative/argumentative summary paragraph and establish a text macrostructure, students need to focus on the logical sequencing of propositions to communicate the gist of the video they are summarizing.

To establish the macrostructure of a text, Van Dijk and Kintsch (1983) cite three cognitive models. We refer to only one of these models, since it is more relevant to the purpose of this project. This model is based on the application of macrorules, which include “the rules of deletion (deleting propositions that are not macrorelevant from the text), generalization (substituting a general concept or macroproposition for a number of specific ones), and construction (substituting a general event for a sequence of specific ones)” (p. 158). These macrorules allow the reader to follow the flow of information in a text. To grasp the flow of information and identify the logical ordering of the propositions, Van Dijk and Kintsch also refer to connectives, which help establish coherence and cohesion in a text. In the context of this study, all three of the abovementioned macrorules are pertinent: deletion was used when participants selected specific propositions from the video, because they were instructed to avoid minor details and explanations (c.f. Appendix J). Generalization was used when they put two or more propositions together to generate a macroproposition, which portrayed a relationship between some of the sequences of events that occurred in the video. Finally, construction was used when they put together a sequence of propositions to create a macroproposition containing the main idea of the video content. While the relevance of the abovementioned macrorules to this project has been outlined, it should be noted that applying them may be easier if the source is a text than a video. A text may allow the readers/writers to choose among the propositions in an easier manner (as it is written) and decide on the particular propositions to be deleted in the process of writing a summary. However, when the source is a video, the writers do not have a written text primarily; therefore, they need to watch the events/sequences, recall which sequence was introduced prior to the other sequences, take notes of them, construct the discourse and finally decide which propositions should be kept and which ones to be removed based on their

recalls and notes. As a result, writing a summary based on a text as the source of information is easier than writing a summary based on a video.

As noted earlier, the summary paragraphs created for this study may reflect both a narrative mode of discourse and an argumentative mode in the sense that “reasoning” can contribute to the establishment of the argumentative mode. We also learned that, as with other modes, an argumentative mode requires the development of a text macrostructure, which is indispensable to the logical sequencing of ideas (in the case of this study, clearly relating a series of incidents between police and several individuals). Having discussed how macrostructure can be established, it is also necessary to look at how arguments at this level should be constructed. We can refer to Toulmin’s (2003) theory of argument macrostructure.

1.5.1.1.1. Argument macrostructure

Toulmin (2003) mentions that at a macrostructure level, several elements are indispensable to the construction of an argument: claims, data, warrants, qualifiers, rebuttals and backings (see Figure 1 below). A claim is simply the conclusion of an argument, and data is defined as the facts and examples that support a claim and help create the foundation of a claim. Toulmin (2003, p. 87) explains the relationship between data and claim as “if data then claim,” and he calls this an explicit relationship. He defines a warrant as a general and implicit statement indicating how/why data can contribute to the foundation of a claim. He provides the example depicted in the diagram below (p. 92). The diagram, based on the proposition that *a man born in Bermuda will be a British subject*, shows how data, in this case the fact that Harry was born in Bermuda, can be used to support claims through warrants. In the diagram, the warrant *a man born in Bermuda will generally be a British subject* helps establish the explicit link between data and claim.

As for qualifiers, Toulmin describes them as statements or phrases that impact the degree/strength of a claim’s force. Rebuttals refer to statements relating to exceptional circumstances or conditions that impact the general “authority” of a warrant. In the diagram below, *unless both his parents were aliens/he has become a naturalised American* are just such statements. Finally, the last element Toulmin lists as critical in constructing an argument, backing, is a statement giving credibility to a warrant in order to establish how the given data has laid the foundation for the construction of a claim.

In the current study, these elements will be used as guidelines to identify the successful construction of argument in the summary paragraphs. The focus on how meaning is constructed at a global level can also draw attention to how meaning is constructed at a lower textual level in paragraphs.

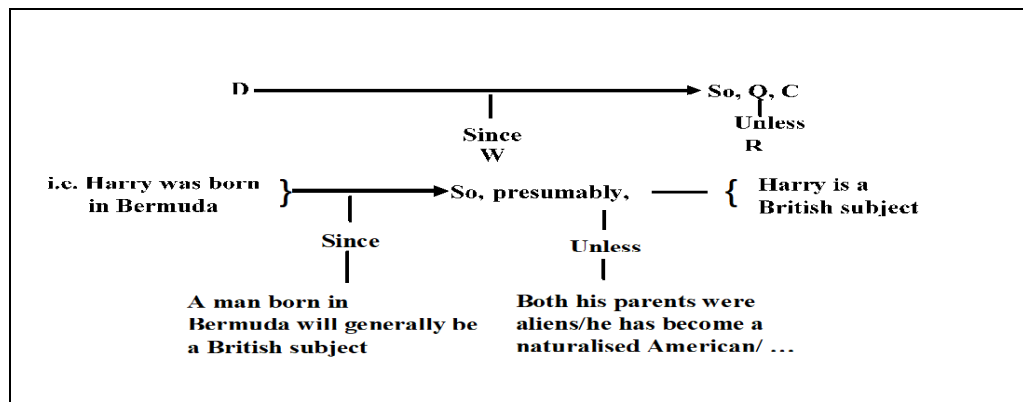


Figure 1. Argument macrostructure

1.5.1.2. Paragraph structure

Williams and Colomb (1990) explain that to achieve coherence within a whole text, all its sections and subsections should show connectivity of ideas and progression of meaning. They then refer to paragraph as a significant part of a text and elaborate that the reader of a text should be able to see how everything in a paragraph is connected to the main idea meant to be transferred by the text as a whole. To this end, Williams (1990) states that in a text all the paragraphs should: “a) begin with one or two short, easily grasped sentences that frame what follows, b) state the point of the paragraph, c) name the key things that thread through what follows at the end of the point sentence” (p. 119). He adds that all the sentences in text sections/paragraphs should reflect relevancy to: “a) background or context, b) points of sections and the whole, c) reasons supporting a point, d) evidence, fact or data supporting a reason, e) an explanation of reasoning or methods, f) consideration of other points of view” (p. 118).

Williams and Colomb (1990) also highlight that a coherent paragraph “usually has a single sentence that clearly articulates its point” (p. 82), which they call a topic string. They emphasize that topic strings introduce *issues* and make a *point* at the end. They also introduce the concept of thematic strings and explain that to preserve paragraph coherence, this articulated point by means of the topic string should not shift randomly throughout the paragraph, as this

will cause the reader to be “dislocated” (p. 51). Rather, the writer should use the thematic strings to develop the main point throughout the paragraph. In addition, they add that in discussing and developing the issue, the point of discussion should be made at the end, for the sake of clarity.

In defining the concept of coherence, Pinker, (2015) refers to how a text is organized. He mentions that a text can look like a tree in the way that its components are connected: text has a hierarchical structure comprising small units such as clauses, sentences, paragraphs and larger ones such as chapters of a book. He also refers to the “paragraph break” (p. 145), which gives readers a short rest to breathe and reminds them of what they have read so far and what is left. According to him, coherent paragraphs can be compared to the branches of a tree, which are visually separate and divided, but ultimately connected overall. He says the reader should see connections between all the text constituents and know, for example, why one clause/sentence comes after another clause/sentence. He asserts that this connection should continue among all sentences, paragraphs and sections of a text and be seen in the text as a whole. This brings us to the question of how progression of meaning throughout a paragraph can be achieved through what are called propositional functions.

1.5.1.3. Propositional functions/coherence relations

Pinker (2015) points out that achieving coherence is indispensable to propositional relations in discourse. He explains that discourse comprises “arcs of coherence that pinpoint how one statement follows from another” (p. 160), and these arcs reflect a logical relationship among the propositions. He then presents five main categories (p. 160–166) for the relations among propositions. The list includes resemblance relations, which embed similarity and contrast, as well as elaboration relations, which include exemplification, generalization, and exception; contiguity relations, in which there is a before-and-after/after-and-before sequence; cause-and-effect relations, with the subcategories of result, explanation, violated expectation and failed prevention; attribution; and, finally, anticipation of a reaction (see Appendix F, Tables 4–8 for examples of each category). Pinker concludes that a coherent text is a text in which these propositional relations are clearly observable in all sentences and sentence components (e.g. clauses).

By the same token, Widdowson (1979, p. 89) states that in a text, sentences should be “used in combination to form stretches of connected discourse.” He then emphasizes that in teaching writing, instructors should bring students’ attention to how sentences should be

combined to demonstrate propositional relations in the text, thereby achieving coherence. This, too, parallels the aim of my project. Specifically, students are reminded that in producing their summary paragraphs, they need to combine their ideas in a coherent manner that clearly illustrates the propositional relations in their summaries and consequently creates coherence.

Reflecting on the importance of coherence, Lautamatti (1982) reminds the audience that coherence can be perceived from two angles: propositional coherence and interactional coherence. Lautamatti (1982) explains that propositional coherence manifests itself in written language and is constructed based upon the organization of the sequences of propositions in the text. However, according to Lautamatti (1982), interactional coherence can be found more in spoken discourse where sequences are uttered in a logical manner in verbal interactions. To clarify, we can refer to following example in a verbal communication.

A: *It's getting late*

B: *I know*

This means that, while propositions are not overtly linked at the sentence level, the meaning is transferred successfully due to the type of discourse (oral). The relevance of this point to the project is that the texts that students produce are expected to present logical sequences of propositions in the written discourse; therefore, we are seeking propositional coherence. This means that in evaluating the sample texts produced by the students, the angle of interactional coherence will not be taken into account.

1.5.2. Cohesion

To capture the concept of cohesion, Halliday and Hasan (1976) first define what a text is and proceed to explain how a text should exhibit texture, which can demonstrate the concept of coherence as well. They explain that a text should not be perceived as a structural unit, but “is best regarded as a semantic unit: a unit not of form but of meaning” (p. 2). Thus, a text is related to a clause or sentence not by size but by its semantic realization and therefore “is realized by, or encoded in, sentences” (Halliday & Hasan, 1976, p.2). A text is a meaningfully constructed component of discourse, and therefore clauses/sentences should be connected interdependently in terms of meaning and should contribute to creating a meaningful unit overall.

This semantic interdependence among sentences is what creates texture within a text (Halliday & Hasan, 1976). An important feature, texture can be established through cohesive relations between sentences, which provide the fundamentals for the two major concepts of

coherence and cohesion. In order to define cohesion, Halliday and Hasan (1976, p. 3) use the term *tie* and explain that, cohesion can be seen in terms of the kinds and number of ties in a given segment of a text, and list two major types of cohesive relations: grammatical and lexical. These two types of cohesion will be a focus of this project.

1.5.2.1. Grammatical cohesion

The ties contributing to grammatical cohesion are divided into reference, substitution, ellipsis and conjunction. These four groups are discussed below.

1.5.2.1.1. Reference

According to Halliday and Hasan (1976, p. 37), reference can be seen from two major perspectives: a) based on a general concept in the linguistic system, or b) based on the specific form it takes within a given text. They explain that it cannot be interpreted semantically in its own right but instead relies on something else, to which it refers, for interpretation (p. 31).

A) General classification

As a general concept within the linguistic system, Halliday and Hasan distinguish three main types of reference (p. 30): personal, demonstrative and comparative. Personal reference is recognized through the category of *person* and realized through the function it serves in the speech situation; it is generally expressed through personal pronouns, possessive determiners and possessive pronouns. Demonstrative reference can be recognized with the help of *location*, on “a scale of proximity (i.e. near, far, neutral)” (p. 37). Finally, comparative reference is expressed through *identity and similarity* (p. 37) (see Appendix F, for examples of each type).

B) Specific classification

Halliday and Hasan divide the classification into the two main groups of situational (exophora) and textual (endophora) reference, with textual reference being further subcategorized into anaphora and cataphora.

1.5.2.1.2. Situational reference

Situational references are those that refer to the context, situation or environment in which the text occurs. This means that, without context, one may not be able to interpret what is stated. For instance, the authors refer to how some pronouns such as *he*, *she*, and *this* are

“context-bound,” and take their meaning from the situation in which they are used. They cannot be interpreted outside of the context that generated them. We can refer to the following dialogue for clarity purposes:

Daughter: Do you think *I* can wear my *jean jacket* for Sara’s wedding ceremony?

Mother: *I* am not sure if *this* is a good choice

Their function in language is to “contribute to the creation of text” (p. 37) in the sense that they connect the language to the context in which it takes place. Nevertheless, they do not connect one sentence to the next, nor do they link the preceding and proceeding units of a text to one another semantically.

1.5.2.1.3. Textual reference

Unlike exophoric references, textual or endophoric ones do contribute to text cohesion through the use of pronouns to reference an item within a text (Halliday & Hasan, 1976). For instance, by making anaphoric references, which reference something previously mentioned, a writer can avoid repetition. In the example *I saw a man in the street. He had a black jacket*, the word *he* refers back to the preceding expression *a man*. In other words, the co-text (as opposed to context) signals the meaning. Cataphoric references “go in the opposite direction” (p. 17), meaning that references allude to a part of the text that will be introduced later on. For instance, in the example *when she started teaching, Sara felt excited, she* is a cataphoric reference to *Sara*, which appears later in the text. Halliday and Hasan also refer to demonstrative references and mention the words *this* and *that* are used by the speaker/writer to point to a referent. For instance, *this* is my high school friend and *that* is my neighbour.

1.5.2.1.4. Substitution

When an item in a text is replaced by another, this is an instance of substitution. An example of substitution occurs in the sentence *I stopped using Facebook, as social media are time-consuming*, whereby *Facebook* is a noun and it is replaced by a generic noun *social media*.

1.5.2.1.5. Ellipsis

Halliday and Hasan (1976) distinguish instances in which an item in a text is replaced, as in substitution, from instances in which an item is omitted, which is an ellipsis. Ellipsis is exemplified in this sentence *She started her doctoral study in 2014, but I started in 2016*. The

words that are omitted in the second clause of this sentence, *my doctoral study*, can be extrapolated from the context provided by the antecedent clause, but the lack of repetition creates cohesion. However, the authors stress that both substitution and ellipsis are cohesive relations that are distinct from references. The former demonstrates a “relation between linguistic items, such as words or phrases on the lexicogrammatical level, whereas the latter is a relation between meanings on the semantic level” (p. 89).

1.5.2.1.6. Conjunction

Conjunction is another form of grammatical cohesion that can be distinguished from reference, substitution and ellipsis. Williams (2009, p. 36) mentions that these others contribute to establishing “relatedness of form”; conjunctive elements help to build semantic relations. In this regard, Halliday and Hasan (1976, p. 226) explain:

[C]onjunctive elements are cohesive, not in themselves but indirectly, by virtue of their specific meanings; they are not primarily devices for reaching out into the proceeding text, but they express certain meanings which presuppose the presence of other components in the discourse.

They further note that conjunctive elements are textual and create connections between and within sentences (between propositions and clauses within sentences). They list these elements in four main categories: additive, adversative, causal and temporal (see Appendix F, Tables 9–11).

1.5.2.2. Lexical cohesion

Lexical cohesion refers to the selection of vocabulary in a text that occurs in a systemic way so as to create a cohesive effect; it consists of two major components: collocation and reiteration (Halliday & Hasan, 1976). Halliday and Hasan label collocation as a type of cohesion that is constructed when lexical items co-occur in a text and are “in some way or other typically associated with one another, because they tend to occur in similar environments” (p. 287). Baker (2018) explains that creating this type of cohesion is complex and refers to a list of possible collocational associations: “a) various kinds of oppositeness of meaning, b) associations between pairs of words from the same ordered series, c) associations between pairs of words from unordered lexical sets, d) associations based on a history of co-occurrence” (Baker, 2018, p. 216) (Appendix F, Table 12).

The second type of lexical cohesion, reiteration, occurs when lexical items are repeated in the text (Halliday & Hasan, 1976) through repetition, synonyms, and subordinate or general words (Appendix F, Table 13).

In addition to grammatical and lexical cohesion, there are two more significant ways to achieve cohesion that are relevant to this study: thematic strings (cohesion established at a paragraph level) and sentence cohesion (cohesion established at the sentence level through sentence structure). These will be explained below.

1.5.2.3. Thematic strings

How cohesion can contribute to overall meaning and coherence is clearly presented by Williams and Colomb (1990). They state that in a cohesive paragraph, when a new topic is introduced, it will be followed by thematic strings. They define these strings as the sequences of conceptually related words, “themes,” that run through a paragraph (p. 84). These strings are the “core” ideas that progress through the paragraph and are related to the main topics that a text intends to communicate at a global level (Williams & Colomb, 1990). Therefore, they assist in communicating the global meaning. By the same token, Pinker (2015, p. 182) refers to thematic consistency; this occurs when the author lays out a topic and then develops it by “introducing a large number of concepts which explain, enrich or comment on the topic,” thereby constructing cohesion and subsequently coherence. Williams (1990) uses the following example to show how two new themes (*social classes* and *aspects of divisiveness*) can be successfully introduced and explained,

[I]nflation of prices was bound to be *socially divisive*. The growth of population, itself the main cause of increase in prices, ensured that **those who suffered most**, were *those most dependent on earning of wages*. But there were others, perhaps only a minority, at all *social levels* whose **income failed to keep pace** with the rising cost of living, a situation **not made easier for them to bear** by the rise in the standard of material living which characterized the Elizabethan period. (p. 91).

To better capture how these thematic strings should appear in writing to establish cohesion, an examination of sentence structure necessary.

1.5.2.4. Sentence cohesion (sentence structure)

Determining how cohesion is established at a sentence level, subsequently contributing to cohesion and coherence at the paragraph level, requires an examination of how clauses are made to consistently hang together. In this regard, scholars have focussed on two main

structures/systems that exist within a clause (as a meaningful unit of a sentence) and contribute to conveying a message: a) theme-rheme and b) given-new information structures (Halliday, 1970; Hatim & Mason, 2013).

1.5.2.4.1. Theme-Rheme

In theme-rheme, theme sheds light on “the take-off point of the clause” (Halliday, 1970, p. 357), sharing what the clause is going to be about and standing as the point of departure for the message, while rheme is the new information provided about the point of departure (Eggins, 2004; Halliday, 1970; Halliday & Matthiessen, 2004; Hatim & Mason, 2013; Williams, 1990). The theme-rheme structure of a clause is regarded as an essential element in the construction of coherence and cohesion in a text and in shaping the intended message. In particular, Eggins (2004, p. 324) mentions that this structure helps the text to stay focussed and in turn cohesive, as it contributes to the consistent succession of thematic elements. Eggins (2004, p. 299) provides this example: *[T]he compelling sound of an infant’s cry makes it an effective distress signal. However, cries are discomforting.* She explains that the underlined parts (*the compelling sound of an infant’s cry* and *However, cries*) are the themes and adds “everything that is not the theme” and is not underlined make up the rhemes (p. 300). Halliday (1970) emphasizes that the existence of theme-rheme structure establishes thematic function and makes clauses significant components of a text. Hatim and Mason (2013) also state that theme-rheme organization of a clause manifests a system called thematization, contributing to the construction and transfer of a message in a clause.

1.5.2.4.2. Given-new

In addition to thematization, Hatim and Mason (2013) also name a system known as given-new information as a way to create sentence cohesion (p. 215). This system comprises three components: a) predictability and recoverability of information, b) saliency of information, and (c) shared assumptions. The first component prevents the reader from being confronted with unpredictable information in the text, and Hatim and Mason (see Figure 2 based on p. 215) provide an example from the excerpt below: *this is not saying much.* They clarify that *this* is recoverable from the previous sentences in the excerpt and refers back to a concept that was already introduced and discussed. On the other hand, when new information is unknown to the

reader and unrecoverable from the available information in the preceding sentences in a text, this is called the unpredictability of the information in discourse.

Lebanon

For the tenth time give us a chance
From our Levant correspondent
.....The latest peace plan for Lebanon signed in Damascus on December 28th, has a slightly better chance of success than the nine previous plans hopefully pressed upon that sad country since the civil war began more than a decade ago. This is not saying much. One of the signatories has already just survived an assassination attempt by disgruntled people within his own following. But there are reasons for hope. First... .

Figure 2. Excerpt 1

Hatim and Mason (2013, p. 215) also explain the concept of given-new information in the sense of saliency based on Chafe's (1976, p. 30) explanation, which defines given information as the "knowledge which the speaker assumes to be in the consciousness of the addressee at the time of the utterance" and new information as "what the speaker assumes he is introducing into the addressee's consciousness by what he says." They provide an example (see Figure 3) of when a new "entity" has been established, which here is the names of three organizations: The Muslim Brothers, The Muslim Society and Al Jihaad. There is no reference to/reactivation of the previously introduced entity to which they refer, in this case *the most important Islamic organizations in Egypt*, but the link is still clear.

....The book provides an analytical historical exposition of the most important Islamic organizations in Egypt. The Muslim Brothers, The Muslim Society and Al Jihaad are the organizations which have all been involved in violent clashes with the government.

Figure 3. Excerpt 2

With respect to shared assumptions, Hatim and Mason (2014) cite Prince (1981, p. 230), who explains that a shared assumption occurs when "the speaker assumes that the hearer knows, assumes, or can infer a particular thing (but is not necessarily thinking about it)." They refer to *this* in sentence two of Excerpt 1 (see Figure 2), the meaning of which is inferable from the preceding sentence.

In the context of this project, the above system along with the examined scholarship regarding the establishment of cohesion will be of help in determining how cohesion can be established and identified at sentence level, thereby contributing to paragraph cohesion and

subsequently to coherence. Given the context of this study, it is also necessary to explore how these two elements have been evaluated in the two fields of L2 writing and TS, beyond theory, at a more practical level.

1.6. Evaluating coherence and cohesion in L2 and summary writing

In the field of L2, Crossley and McNamara (2016) assess how the textual features of cohesion and coherence offer a good baseline of quality. They add, the quality of an essay can improve with increased cohesion, which also correlates positively with overall coherence. For the purpose of this project, the role of coherence and cohesion in assessing the L2 text quality will be explored first. To gain a comprehensive picture, the role of these two elements in assessing the quality of summary writing will be examined as well.

1.6.1. Coherence and cohesion in L2 writing

Alarcon and Morales (2011, p. 115) stress that when students do not apply these two linguistic features in their L2 compositions, a sense of direction is not established in the text, causing challenges for the reader in following chain of arguments or narration. As a result of this problem, many studies have been designed employing rubrics to evaluate L2 texts in terms of coherence and cohesion, following various methods (e.g. Connor, 1984; Dastjerdi & Samian, 2011; Dumlao & Wilang, 2019; Granger & Tyson, 1996; Hinkel, 2001; Liu & Braine, 2005; Paltridge, 1992; Rezaei & Lovorn, 2010; Tywoniw & Crossley, 2019; Zarepour, 2016; Zhang, 2010).

Some studies have compared and contrasted the L2 compositions of two or more groups (e.g. Connor, 1984; Hinkel, 2001) in terms of coherence and cohesion. For instance, Connor (1984) undertakes a comparative study in which she examines the influential role of coherence and cohesion in essays composed by a group of ESL students compared to essays written by a group of native English speakers. Connor takes into account Halliday and Hasan's (1976) taxonomy of cohesion and rates students' essays based on the degree of cohesion used as well as types of cohesive ties. To measure coherence, Connor considers whether an argument regarding a given topic is well developed, progresses and is properly justified. The results show that in terms of measuring essay cohesion, the **cohesive device** (CD) repertoire of the ESL students was more restricted than that of the native speaker (NS) students. As for coherence, Connor

concludes that ESL students are not nearly as successful in the progression of their arguments and in inducing a conclusion.

In another comparative study, Hinkel (2001) employs two groups of participants—ESL and English NS students— and compares how they use cohesive devices in their academic compositions. The results show that, in general, the ESL group had a more restricted knowledge of features contributing to the construction of a “unified” text than the NS group. Additionally, although the advanced ESL writers in this study employed higher rates of cohesive devices than the NS students, this did not result in a coherent flow of information (p. 126). Accordingly, the results of the study suggest that ESL students should be provided with comprehensive instructions regarding the proper employment of cohesive devices in academic writing. In a more recent study, Tywoniw’s and Crossley (2019) report that L2 writers may use a greater number of cohesive devices in their texts, as they may assume this strategy assists in producing more “sophisticated” texts (p.124); however, this impacts the quality of their texts negatively.

In a similar vein, Dumlao and Wilang (2019) spotlight the role of coherence and cohesion (albeit with more of a focus on the element of cohesion) in improving text quality and how constructing a text that reflects “a whole body of thoughts” (p. 204) needs to be considered as a criterion when assessing a text. They employ ESL and English NS students and, after evaluating the texts produced by the two groups, stress that ESL students did not achieve a balance in using a wide variety of CD types; their use was limited to specific types. For instance, they highlight that the ESL students’ “over-reliance” on the additive “and” in connecting the ideas was dominant in the produced texts (p. 204); whereas NS students employed “and” in connecting the ideas noticeably less frequently. As a pedagogical implication, they encourage exposing L2 writers to a wide range of discourse markers that not only encourage the students to avoid “over-reliance” on specific markers, but also motivate them to expand their L2 vocabulary repertoire (p. 208).

Other studies employ single groups of participants (e.g. Ahmad, 2019; Candelo et. al., 2018; Emilia & Bangga, 2018; Faradhibah, 2017; Granger & Tyson, 1996; Meisuo, 2000; Rahimi, 2011; Zarepour, 2016) whose L2 compositions are assessed based on the use of cohesion markers. For instance, focusing on both elements of coherence and cohesion, Granger and Tyson (1996) use a group of ESL students with French as their L1 and determine that French learners of English either overuse or underuse discourse connectors in their ESL compositions,

resulting in texts lacking in cohesion, which also impacts coherence. They conclude that students should be made more aware of the significance of coherence in producing L2 compositions and of the importance of mastering cohesion markers. With the same emphasis and in a more recent exploration, Faradhibah (2017) analyzes a sample of texts produced by the Indonesian university students. Based on the study results, the scholar emphasizes the development of grading rubrics that measure these two features and stresses the need for more focus on teaching these two elements in EAP writing classes. Faradhibah (2017) explains that ESL students need to enhance their knowledge in terms of adding a topic sentence, developing the topic, and including a concluding sentence to improve ESL coherence, as well as employing transition markers to enhance ESL cohesion in their texts.

More from a cohesion perspective, the results obtained from Rahimi's (2011) study show that ESL texts collected from a sample of undergraduate Iranian university reflect the use of additive device "and" at a higher frequency than for other connectors (p. 70). The author stresses that, while the use of CDs in the text is pertinent to high-quality writing, they need to be employed appropriately and in a wide range to result in higher levels of cohesion. Rahimi (2011) mentions that the employment of CDs in a wide range in each category will subsequently impact coherence and clear communication of the ideas at a macro-structure level.

The significance of cohesion in L2 writing has been addressed by several other scholars, with a more critical emphasis on the restricted CD repertoire of ESL students. For instance, the assessment of students' texts performed by Emilia and Bangga (2018) reveals that students tend to employ some CDs in higher frequencies than others. They note that pronoun references and lexical references are used in higher frequencies by the students than conjunction (p. 522). By the same token, in a mixed-methods study, Ahmad (2019) focuses on the textual analysis of ESL cohesion in the papers collected from participants. After analyzing the results, Ahmad (2019) finds that lexical items/references (i.e. repetitions) were "predominantly" employed by the students with a heavy reliance on repeating the same lexical items. Based on these findings, Ahmad (2019) concludes that ESL students may possess restricted lexical range, which subsequently does not allow them to find and employ other lexical items such as synonyms in their writing. Similar results were also reported previously by Braine (2005) whose study findings show that their ESL undergraduate student participants overused lexical items in establishing cohesion, with a heavy reliance on the repetition of words and the rare use of

synonyms in the samples. There are relatable findings in Meisuo's (2000) study of samples of Chinese undergraduate students.

Shedding light on the importance of coherence and cohesion, scholars have stressed how explicit instruction in these elements can assist ESL students with constructing better quality texts. For instance, Candelo et. al. (2018) collected essays from participants whose L1 was Spanish. The results of their analysis demonstrate that students were more successful in establishing coherence by including the main idea and developing it throughout the paragraph than when they used CDs to connect the ideas at sentence level. They highlight the fact that teaching these two features of academic writing, coherence and cohesion, is essential in helping students construct better quality papers. However, they also emphasize that teaching cohesion can even be more important to ensure student success. Such emphasis is also manifested in studies by Murphy (2005) and Zarepour (2016), who attract attention to the idea that establishing cohesion in L1 may differ from establishing cohesion in L2. Therefore, they highlight the role of L1 cohesion interference in L2 writing and place emphasis on the explicit teaching of CDs. Interestingly, from a comparative/contrastive angle, Murphy (2005) focuses on the role of attribution markers in establishing and developing arguments in texts. The author mentions that in some languages such as Italian, there is less variety of argumentative markers such as markers of attribution than in English. This variation, according to Murphy, may pose challenges for an ESL writer who possesses less knowledge about CDs (markers of attribution, specifically) to construct a text that is expected to present a development of the main argument based on facts.

Waller (2015) contends that the learners should be able to differentiate between coherence and cohesion, states why they should be pursued in writing, and points out how they both contribute to a high-quality text. Waller also notes that while cohesion should not be perceived as coherence, it is embedded in coherence. The author argues (p. 31) that students should be provided with lessons clarifying the elements of coherence and how a coherent text delivers a "unified" theme. Waller explains that cohesion should also be explained to students and that CDs should be presented to the learners and used in practical work.

As we have seen, several scholars (e.g. Ahmad, 2019; Emilia & Bangga, 2018; Liu & Braine, 2005; Meisuo, 2000; Waller, 2015) suggest explicit instruction in CD types alongside their uses in texts. In light of their study findings, they encourage L2 instructors to supplement

their writing courses with teaching and learning activities targeting L2 coherence and, specifically, cohesion and CDs.

1.6.2. Coherence and cohesion in summary writing

Just as coherence and cohesion play significant roles in L2 writing in general, these two elements are deemed indispensable in summary writing (cf. Šnajder, et. al., 2019) and, in particular, in L2 summary writing (c.f. Golparvar & Khafi, 2021; Strobl, 2017; Wang et. al., 2012). For instance, Šnajder et. al. (2019, p. 46) refer to the analogy used by Chapman and Mudar (2013) that regards summary writing as “gist reasoning” and emphasize that in order to construct a full text-level comprehension in the mind of the audience/reader, a summary should portray the text macrostructure, paragraph structure, propositional functions as well as cohesion features¹⁹. In L2 summary writing, coherence and cohesion are also foregrounded by Golparvar and Khafi (2021) as the indispensable elements of high-quality texts. In a similar vein, Strobl (2017, p. 294) highlights the role of cohesion in L2 summary writing and calls for a constructive pedagogical approach towards cohesion in L2 textbooks. Strobl (2017) stresses that L2 learners should be provided with comprehensive feedback regarding their cohesion problems in L2 writing.

As stated earlier, this project emphasizes the features of coherence and cohesion in a summary report (which is in fact a report that students write based on a video demonstrating police interactions). Due to the nature of the video that the students watched, it is also important to explore these elements in writing a police report as well. Lyons (n.d.), in particular, directs attention to the writing quality of police report and explains (p. 18) that a police officer should write a report that presents “the occurrence of a crime, allegation of the occurrence of a crime, or non-criminal incident” coherently. Accordingly, the author calls for more training courses teaching the officers how to establish coherent content that contributes to a good-quality report. Stolp (2002) also emphasizes that the officer in charge of writing an incident report should demonstrate the ability to write coherently, with the sentences being expressed clearly in the report. Both Lyons and Stolp cast light on the weaknesses in the writing ability of officers and suggest training courses in which the training officers can enhance their writing ability. In a

¹⁹ It should be noted when watching a video as a source text, the writer may need extra work to do to uncover the underlying structure and create a coherent and cohesive summary in L2. Therefore, this makes the task of summarizing and producing a coherent and cohesive summary for the purpose of this project more challenging than producing a coherent and cohesive summary based on a text.

similar vein, Yu and Monas (2020) address a writing skill gap or “dislike” for writing (p. 35) in law enforcement, based on their observations. They mention that officers are perceived as “action people” who are required to engage in various trainings and other activities; however, improving their writing ability as an essential part of their training (as they are involved with paperwork and report writing) does not seem to be addressed.

As stated earlier in this paper, the two elements of coherence and cohesion do play a significant role in translation as well, and their evaluation has also received scholarly attention. The following section will examine this subject matter.

1.7. Evaluating coherence and cohesion in translation

We examine the scholarship below to cast light on the importance of coherence and cohesion—among many other factors—in evaluating translated texts. In particular, as far as MT-generated texts are concerned, it is important to bear in mind that in light of recent developments in MT systems (including the introduction of neural machine translation [NMT]), MT-generated texts demonstrate higher levels of coherence and cohesion than do texts generated by more traditional MT systems. (These advancements will be explored in section 1.9.1., Machine translation and postediting). The following will provide an overview of the scholarship emphasizing the role of coherence and cohesion in translation, in light of which we will also gain a better understanding of how these elements inform the construction of an evaluation grid for the purpose of this project.

A number of scholars have delved into the significance of coherence and cohesion in translation, and how to assess it (e.g. Angelelli, 2009; Hatim & Mason, 2014; House, 1986; Károly, 2017; Krein-Kühle, 2002; Williams, 2001, 2009, 2010, 2013). Angelelli (2009) asserts that these two concepts should be considered in assessing whether meaning has been conveyed successfully. Hatim and Mason (2014) also refer to coherence and cohesion as significant factors reflecting “conceptual and sequential connectivity of surface elements” (p. 195) respectively. They emphasize that a translator should maintain these two concepts alongside other principles of translation quality assessment to ensure that the TT successfully transfers the message.

House (1986, p. 18) asserts that coherence and cohesion contribute to the “act of communication” embodied in the translation process and contends that the translation process embeds “shifts” in textual and discoursal relationships. She further explains that these shifts are of two kinds: shifts in cohesion and shifts in coherence. The shifts in cohesion and coherence are

echoed by Károly (2017), as well. Both authors believe that shifts in cohesion occur when the type of cohesion marker changes and the level of explicitness in the TT is either decreased or increased relative to the ST; this in turn results in a shift in text meaning with a subsequent negative effect on textual coherence. Shifts in coherence occur when the ST has lost its meaning potential in translation or when any change has happened to the ST's meaning potential. However, Károly (2017, p. 76) emphasizes that "the nature and the distribution of shifts may vary from language to language and, within that, from register to register or text type to text type." For instance, in this sentence *education contributes to success, but does not guarantee happiness*, if "but" as an adversative marker in the ST is translated to "and" which is an additive marker, a shift in cohesion will occur. While this shift appears to target cohesion, it also results in confusion for the reader, since the reader cannot follow the logic of the text. Therefore, a shift in cohesion, in the context of this example, can lead to a shift in coherence as well. Another example of a shift in coherence can be seen in a Persian slogan. The ST includes *Mard, Mihaan, Abaadi*, which should be translated as "Man, Fatherland, Prosperity" to preserve its meaning potential. In particular, the word "Mard" means an adult male human which should be translated as "Man". However, in some translations of the above-mentioned slogan, this word is translated to "Mankind", which cannot necessarily embed the meaning potential of the word "Man" (an adult male human) and therefore cannot be a proper equivalence. This subsequently results in a change to the ST's meaning potential.

Based on a functionalist approach to translation, Károly (2017) examines the characteristics of translation "as text" (p. 18) among which coherence and cohesion are deemed as important criteria/ "standards". The author explains that cohesion must be established by means of grammar (at clause and sentence levels) and also between the sentences that construct a text as a whole. She asserts, cohesion establishes and preserves the continuity of "explicit linguistic elements on the textual surface" (p. 19). Relevant to the notion of cohesion, Károly (2017) directs attention to coherence as another criterion in evaluating translation as text. She mentions, as far as coherence is concerned, the reader/listener seeks relations among the concepts beyond the textual surface. She refers to coherence as a "relative quality" and a "gradual phenomenon" (p. 19) which is connected to the notion of cohesion but also requires cognitive processes in the receiver's/reader's mind. The author emphasizes that coherence is

understood based on an interaction between the text and the receiver: the text conveys a message and the meaning making processes occur in the mind of the receiver to decode the message.

Károly (2017, p. 33) mentions that in evaluating the quality of a translation, there are several factors that contribute to the “(re)establishment/production” of coherence and cohesion in the TT. Among several other factors, she refers to the role of text types and genres and explains each text type requires the translator to pay attention to distinct features pertaining to each text type to “(re)produce” continuity of meaning at the “textual surface (e.g. cohesion)” and at the global level, coherence (p. 33).

Williams’ efforts (2001, 2009, 2010, 2013) to construct grids based on the concepts of coherence and cohesion in TS are worthy of attention. According to Williams (2009), translation quality assessment can embed a wide range of features, such as the analysis of argument structure, which includes coherence and cohesion as the macro-textual elements. In another study, Williams (2010) calls coherence and cohesion the “heart of instrumental translation” and stresses that, in translator training programs, instructors should raise awareness among students about the proper use of cohesion markers to enhance target language quality. Williams (2013) also considers coherence and cohesion (embedded in the content quality criteria) in developing his grid for the assessment of students’ translation competency and performance.

With the use of MT skyrocketing in the translation field, the quality of MT-generated texts has become a focus for many scholars, who examine how such tools can be enhanced to produce better output (e.g. Althaus et al., 2004; Barzilay & Lapata, 2008; Foltz et al., 1998; Karamanis, 2004; Lapata, 2003; Marcu, 2000; Vasconcellos, 1992). In one of the earlier such studies, Vasconcellos (1992) analyzes MT output in terms of coherence and cohesion and states that these two linguistic features “give fabric to a text and make it easier to grasp” (p. 299). In the same vein, Barzilay and Lapata (2008) reflect on a problematic aspect of MT output mainly related to textual coherence in such texts; they focus on how to improve the overall coherence of a text, coining a term “global coherence” (p. 1) and emphasize the significance of “local coherence,” which they interpret as “text relatedness at the level of sentence-to-sentence transitions.” Finally, they construct a rubric that can be used as the basis of evaluation for the textual coherence of a text produced by MT.

In another study, Wong and Kit (2012) gather a corpus of two datasets: MT output and human-translated texts. They compare the two datasets and find a higher frequency of lexical

cohesion devices in human translation than in MT output. They conclude that MT-generated texts can reflect a higher overall quality if more lexical cohesion devices are utilized, which has a subsequent positive effect on the coherence of the output text. In light of this, they propose the inclusion of lexical cohesion in sentence-level evaluation metrics in MT to assist in developing MT output quality at document level. However, they add that the extensive use of cohesion devices is not necessarily synonymous with developing the level of cohesion in MT texts. They explain (p. 1067):

[A] frequent use of cohesion devices in a text is not necessarily appropriate, because an excess of them may decrease the quality and readability of a text. Human writers can strategically change the ways of expression to achieve appropriate coherence and also avoid overuse of the same lexical item. To a certain extent, this is one of the causes for the unnaturalness of MT output: it may contain a large number of lexical cohesion devices which are simply direct translation of those in a source text that do not fit in the target context. How to use lexical cohesion devices appropriately instead of frequently is thus an important issue to tackle before we can adopt them in MT and MT evaluation by a suitable means.

In their attempt to enhance the output quality of MT, Xiong et al. (2013) focus on the enhancement of coherence and cohesion in MT-generated texts. They emphasize that a factor contributing to these two phenomena in a text is the presence of lexical chains, which they define as series of words related semantically and portraying lexical cohesion in a text. Accordingly, they introduce lexical chain models as an element playing a role in the enhancement of a MT-generated text quality at document level.

The aforementioned literature demonstrates that in order to identify the quality of a text—whether in translation or in L2 writing—coherence and cohesion are among the many factors that should be included in evaluation grids. The combination of insights provided by the above-highlighted literature makes it clear that this study requires some form of evaluation grid to determine the quality of coherence and cohesion. To this end, an examination of grids being used for L2 writing and translation quality assessment purposes is necessary to gain insights into how to best construct a grid for the purpose of this project. The following section will serve this purpose.

1.8. Observations that have informed the development of a grid for this project

To create a suitable evaluation grid for this project, my first step is to determine which textual features are commonly used to evaluate coherence and cohesion in writing, and in ESL

summary writing, in particular. To this end, I looked at some of the grids employed to evaluate students' writing quality in general and in terms of coherence and cohesion, in particular. Specifically, as noted before, in Course A, students are required to produce coherent and cohesive summaries in French based on a lecture in English. However, based on discussions with students and overviewing the instructions they shared, these two elements were not stated explicitly in this course's evaluation grid, nor is how these are to be achieved. For instance, one criterion reads: "Capacité à interpréter en français et à résumer la présentation en anglais de l'invité". In fact, this combines two requirements: "Capacité à interpréter en français la présentation en anglais de l'invité" (a translation task and/or an assessment of L2 listening comprehension) and "résumer la présentation de l'invité" (a summarizing task, which is generally acknowledged in the literature as restatement of the main points of the original in a brief and clearly expressed manner (e.g. Yuan Ke & Hoey, 2014, p. 89) with careful attention to coherence and cohesion). Another criterion reads as follows: "Respect des consignes de présentation d'un travail de niveau collégial." This requires students to follow the instructions regarding how an assignment should be presented at college level. Unfortunately, the intended meaning of this criterion is unclear and raises the question of whether "satisfactory presentation" is limited to correct linguistic features such as mechanics (e.g. punctuation, capitalization), form and spelling, or encompasses successful communication of meaning, which can include elements such as logical organization of ideas and transitions from one sentence to another and one paragraph to another.

In Course B, as stated earlier, the evaluation grid does not provide students with clear guidelines on how to achieve coherence and cohesion. Students must turn to the course package, which comprises a course book and an instructional package, in hopes of finding more directions on how a summary should be written and how the two elements of coherence and cohesion can be maintained in the writing process. In the course book, there are very brief instructions on how students should compose a summary as a part of their formal report assignment. However, these instructions overlook how to start the summary, how to develop the topic sentence and how to communicate the message successfully at a textual level.

After reviewing the instructional package, there again seems to be lack of clear guidelines for writing the summary paragraph. There are some guidelines at the end of the package that suggest how cohesion can be established, thus creating a coherent text. Unfortunately, however,

this section does not clarify how these guidelines can contribute to establishing coherence and cohesion in the specific writing task. More significantly, the package does not clearly state whether these elements contribute to ILOs for the course in general or for any assignment in particular.

In the spirit of making a positive contribution to teaching and learning, I would like to consider how the above-mentioned gaps can be filled, particularly for Course B, which has informed this project. With this in mind, I studied the assessment framework known as constructive alignment. I also gathered and reviewed the evaluation grids for assessing summary texts highlighting coherence and cohesion as factors contributing to the overall quality of the texts. I have also gained some insights from the Course B course book. Based on all of this, I hope to make useful contributions to pedagogy with this project. To this end, I will explain the constructive alignment framework that informs the construction of the evaluation grid used in this project, provide a short overview of the grids currently being used for writing and translation assessment, and conclude with some relevant insight gained from reviewing the instructional materials corresponding to Course B.

1.8.1. The constructive alignment assessment framework

The constructive alignment framework comes from a portfolio assessment experiment performed by Biggs (1994) in an educational psychology course (Biggs & Tang, 2007). Students were required to submit a portfolio of items demonstrating how psychology can help in teaching (Biggs & Tang, 2007). The portfolio elements were supposed to include critical reflections of the students on their own learning and to state how they could project this learning into teaching (Biggs & Tang, 2007). Biggs relied on the constructivist approach towards learning and stated that knowledge is constructed based on learners' own activities (Biggs & Tang, 2007, 2010, 2015). He emphasized that teaching and learning should be outcomes-based and, inspired by this, the constructive theory alignment came into being (Biggs & Tang, 2007, 2010, 2015). They mention the following guidelines in the design of teaching and learning activities, as shown below (Biggs & Tang, 2010, p. 4).

1-	Write ILOs explicitly, at both program and unit levels.
2-	Write ILOs in form of statements that differentiate between “declarative” and “functioning” knowledge.
3-	Include a generic verb in the ILOs that explains what students will be able to do at the end of the program/unit.
4-	Create a learning environment using teaching/learning activities that address that verb and therefore are likely to bring about the intended outcome.
5-	Use assessment tasks that also contain that verb, thus enabling you to judge with the help of rubrics if and how well students’ performances meet the criteria.
6-	Transform these judgments into standard grading criteria.

Figure 4. Stages in the design of teaching and learning activities

The theory captures three main angles and asserts that these angles should be “aligned intrinsically” (Biggs & Tang, 2007, p. 53). Primarily, the approach calls for the inclusion of a clear ILO statement establishing what task students are expected to accomplish and how well, where they were previously unable/“partially” able to accomplish it (Biggs & Tang, 2007, 2010, 2015). They add that the ILOs should comprise a statement that explicitly says what students are expected to demonstrate at the end of the course/program and an appropriate verb that clearly reflects the topic knowledge and what the learner *can do* (Biggs & Tang, 2010). Additionally, this framework emphasizes that teaching should be practical and engage students in real learning activities linked directly to the ILOs (Biggs & Tang, 2007, 2010, 2015). Finally, this framework requires teachers to choose assessment tasks that involve students working toward the ILO—an evaluation in which the students are not asked to simply “write answers in an invigilated exam room” (Biggs & Tang, 2007, p. 7). Integrating these three principles, Biggs and Tang developed the constructive alignment framework, which they refer to as an outcome-based teaching and learning framework. They assert that teaching and learning activities should be geared towards constructing knowledge, and it is the ILO that should specify the kind of activity necessary to effectively engage the students. They also insist that instead of specifying which topics should be covered in the classroom, we need to focus on what students should learn and how. To this end, they stress that the topics addressed in the curriculum should be translated to the outcome statements, which are reflected not only in the teaching/learning activities, but also in the choice and construction of the assessment tasks.

They further assert that an evaluation rubric should be developed to assess students' tasks. This rubric should contain criteria that reflect the alignment between the assessment task and the intended learning outcomes. They explain that such a criterion-referenced rubric helps students understand how they are required to address an ILO and thereby successfully accomplish the tasks set to them. They add that each criterion can be associated with a letter grade equivalent to a percentage point that demonstrates students' level of performance and accomplishment pertaining to ILOs (i.e. A+, A, A-).

Biggs and Tang (2007, 2010, 2015) also clarify that a task should be designed based on the ILOs that are ultimately supposed to be accomplished. In the first case, they offer some guidance, such as a framework within which certain components associated with each ILO exist. They explain that for each of the components, a range of points/marks should be allocated, clarifying that a qualitative assessment has been performed based on a quantitative scale. In the second case, by using a rubric designed to address each ILO, the instructors can come to a judgment about the degree to which the specific ILO has been achieved by a student.

For this study, based on the above-mentioned guidelines, there should be a link between the desired outcomes (demonstrating competency in producing a coherent and cohesive summary report), the teaching/learning activities used to establish these ILOs, and the assessment task (the creation of a summary paragraph). This means that I needed to design teaching and learning activities based on the desired outcomes of this project (demonstrating understanding of a coherent and cohesive summary report), which are explained briefly in the general methodology section and in detail in section 2.5.2.3. Writing samples: pre- and post-instruction. In addition, the summary assignment task is in line with the curriculum expectation of Course B; therefore, it is not decontextualized and it does reflect the expected criteria and the design of my teaching/learning activities (i.e. how to achieve coherence and cohesion in a paragraph). Finally, a rubric was developed that reflects this alignment and makes coherence and cohesion contributing to the ILOs in the assignment explicit.

1.8.2. Evaluation guidelines being used for ESL and translation assessment

In considering how the above-mentioned gaps may be filled, I have also looked at the evaluation grids being used at one of my workplaces, where I measure the writing quality of ESL students' texts based on coherence and cohesion (see Appendix G). These rubrics seem to take into account coherence features (macrostructure, paragraph structure, propositional functions) as

well as cohesion features (i.e. grammatical cohesion), providing guidance to students in achieving both. Furthermore, based on my teaching observations at different levels, the course materials used there seem to include step-by-step guidelines on teaching and maintaining these concepts in academic writing.

Despite the gaps mentioned above, the course book for Course B also provides some useful insights that I have relied on in designing the grid for this project. The course book directs students to never forget two major components in developing a paragraph: the topic and the concluding sentences. The book emphasizes that the key ideas addressed and developed in the paragraph should be stated directly and clearly in these two parts. In this statement, although not explicitly stated, the importance of paragraph coherence—which can also embed sentence coherence, as well as theme-rheme and given-new structures—is clear. The book also states that the ideas should be linked in order to show logical relationships, referencing different types of conjunction such as additives. Here, we can also infer that conjunctive relations and coherence relations are emphasized.

In developing the grid for this study, I also examined a grid developed in a translation course at the University of Ottawa for translation quality assessment (see Appendix H, Table 1) and was influenced by the criteria explored in evaluating texts in terms of rhetorical features, and coherence and cohesion in the literature (cf. section 1.7. Evaluating coherence and cohesion in translation), in particular Williams' (2013) model of translation quality assessment (see Appendix H, Table 2). The rationale for looking at Williams' model is that it not only takes into account textual and semantic features in evaluating a text but also focusses on how well the ILOs in a given translation course are reflected. In light of the above-mentioned pedagogical insights, the project grid was developed (see Appendix D); it will be explained in detail in section 2.5.1. Design of teaching and learning activities.

The above-mentioned scholarship cast light on the significant role of coherence and cohesion in both academic writing and translation. In section 1.7, Evaluating coherence and cohesion in translation, we also learned that while MT output has been the target of scholarly attention in terms of coherence and cohesion, there have been improvements in the quality of MT systems with a subsequent effect on improving the coherence and cohesion levels of MT-generated texts. In the section that follows, we will examine the advances in MT to better understand how MT has developed. Afterwards, for the purpose of this project, we will examine

L2 teaching approaches to better understand how scholars perceive the role of translation (as well as MT) in L2 learning and writing.

1.9. Advances in MT and implications for professional translation practice and training

The widespread use of computers in educational settings has resulted in Computer-Assisted Language Learning (CALL) approaches, which encompass different software tools and electronic reference works. In both L2/FL and the translation field, these include monolingual and bilingual concordancers, online dictionaries, and MT/FOMT tools, such as Google Translate (GT).

Machine translation is “a mode of translation where a computer program analyzes the source text and produces a target text” (Delisle et al., 1999, p. 156). The process is performed with or without minimal human intervention (Somers et al., 2006). FOMTs—available at no cost, easy to use, and widely accessible—are understandably popular (Niño, 2008). Although the quality of their output was reported to be very low (e.g. Clifford et al., 2013; Garcia & Pena, 2011; Jolley & Maimone, 2015; Károly, 2014; Kliffer, 2005; Niño, 2008; Shei, 2002; Xu & Wang, 2011) due to linguistic and semantic issues (see section 1.9.2. Machine translation in the translation industry), there have been recent advances in MT systems (cf. Bawden et al., 2017; Koehn, 2017; Unanue et al., 2020; Xiong et al., 2019) with subsequent improvements in the quality of their output. Regardless, the (variable) quality of FOMT output has been exploited by L2/FL instructors, who have students edit FOMT-generated texts to enhance their awareness and understanding of linguistic issues as well as to improve their writing (see section 1.12. Machine translation in L2 settings). Instructors of translation have similarly integrated MT into their curriculum to enhance their trainees’ postediting skills and translation competence (see section 1.9.3. Machine translation in translation training programs).

Because FOMT texts are prevalent and are used similarly in L2/FL and translation education (e.g. Clifford et al., 2013; Garcia & Pena, 2011; Jolley & Maimone, 2015; Károly, 2014; Kliffer, 2005; Niño, 2008; Shei, 2002; Xu & Wang, 2011), this project will focus on FOMTs not only for translation training but also for L2/FL learning purposes. The current section will explain the different types of MT and explore some literature on MT in the translation industry, addressing MT’s main applications—in particular drafting for postediting and production—and examining the advantages and limitations of these applications. Finally,

section 1.9.3. Machine translation in translation training programs will explore the literature surrounding the use of MT in translation training programs.

1.9.1. Machine translation and postediting

As explained above, MT utilizes an automated system in the process of producing translations (Hutchins, 1995). However, precisely how this process occurs depends on the MT system's architecture²⁰. The earliest models of MT systems (rule-based machine translation, RBMT) employ bilingual dictionaries and incorporate several linguistic rules, such as rules for syntactic analysis, lexical transfer, syntactic generation, morphology and lexical rules, emphasizing word correlation between source and target languages (Hutchins, 2007, p.11). RBMT was replaced by statistical MT (SMT), which relies on the analysis of bilingual and monolingual corpora to build statistical measures in the translation process (Hutchins, 2007). Finally, NMT (another corpus-based approach) integrates neural language models based on the human brain and produces a better quality of translation than RBMT and SMT (Koehn, 2009). The frequency of errors committed declines from RBMT to SMT to NMT (e.g. Bentivogli, et al., 2016; Chatterjee et al., 2017; Fomicheva et al., 2020; Koehn, 2017; Sennrich et al., 2015), in particular, in terms of global meaning and coherence (cf. Bawden et al., 2017; Unanue et al., 2021; Xiong et al., 2019). However, despite improvements, MT systems are still reported to produce errors in their output (Popescu-Belis, 2019) and cohesion management may still need (human) correction when context is needed beyond sentence boundaries (cf. Maruf et al., 2021), which suggests training may assist with editing the output. When a machine-generated translation is edited and amended by a user to reach the quality of human translation, this task is called postediting (Ortiz-Martínez & Casacuberta, 2014). However, again depending on the context, the level of postediting and corrections made to MT output may differ (Allen, 2003; Hu & Cadwell, 2016; TAUS, 2016). According to the Translation Automation User Society (TAUS) (2016), postediting can be performed at two levels: full postediting and light postediting. The former could comprise several criteria such as correctness of grammar, syntax and style, and is intended to achieve a "high" quality translation (i.e. one comparable to human translation),

²⁰ This project will not concentrate on the evolution of these systems; instead, it will focus on the linguistic challenges in MT in general, rather than how each of the models handles them.

whereas the latter could include criteria such as the accuracy of the message and correctness of semantics, with the aim of obtaining a “good-enough or understandable” translation quality (Hu & Cadwell, 2016; TAUS, 2016).

1.9.2. Machine translation in the translation industry

By providing a gist (approximate) translation, MT can help non-translators understand a “text written in a language they do not (fully) understand” (Hutchins, 2007, p.9). Hutchins (2005) calls this use of MT for comprehension the assimilation function. Unlike users who do not understand both languages, translators use MT to accelerate the translation process when drafting translations (Bowker & Ciro, 2015; Church & Hovy, 1993; Garcia, 2011; Hutchins, 2007; Marshman, 2014; O’Brien, 2012). Because this use of MT ultimately leads to production/publication, Hutchins (2005) calls it the dissemination function. Language learners tend to use MT to translate texts in their L2 for quick comprehension, but in addition to this, their instructors have them use MT in the same way that translators do (albeit at a lower skill level). This difference in the way MT is used makes its role both unique and sometimes contentious.

Although MT has significant advantages (such as its ability to produce a quick draft), it has disadvantages as well. The disadvantages related to this study include, for instance, some errors that are due to what MT experiences as ambiguity in the source text. Such ambiguities can be lexical: for example, in *our Jimmy has grown another foot*, it is not clear to MT whether *foot* is meant to refer to a *limb* or *unit of measurement* (Arnold, 2003, p.119). The fact that words have different meanings and translations in different domains makes translating their domain-specific meaning challenging for machine systems (Koehn & Knowles, 2017). In geography, a *bank* can mean sloping land alongside a lake or river. In aeronautics, a *bank* is a specific tilt of an aircraft. In finance, *bank* can refer to an institution. MT does not necessarily have the capacity to distinguish which term is correct in the L2. Similarly, ambiguous parts of speech can also lead to MT errors (Bentivogli et al., 2016; Hutchins, 2005). Even within the same domain, *bank* can be a noun or verb, as in *I bank at the bank*. It can be challenging for MT to recognize whether a word like *tree* is a verb, noun, or even an adjective in the source language and to produce a correct translation.

Other ambiguities that lead to errors are structural in nature (Arnold, 2003; Hutchins, 2003; Koehn & Knowles, 2017; Popescu-Belis, 2019). These include ambiguities of attachment in cases like *Pauline writes her friends in Paris* (Arnold, 2003, p. 120), where MT cannot

determine whether Pauline or her friends are in Paris. Meanwhile, some structural ambiguities blur the scope of conjunction, as in *homeless women and children* (Hutchins, 2005, p. 8–9), where MT may have difficulty determining whether the adjective modifies both nouns and how it should then be translated to agree with the noun or nouns it modifies.

Not unlike ambiguities of attachment and scope of conjunction such as those described above, some MT errors arise because of difficult sentence structures. Anaphoric references are one such challenging structure; when the antecedent to a pronoun is difficult for MT to identify, the pronoun may be translated incorrectly (Bawden, 2018; Arnold, 2003). For instance, in *the police refused to let the women demonstrate because they advocated violence*, it is not clear whether the pronoun *they* refers to the police, the women, or some other group that the author may have discussed earlier (Arnold, 2003, p. 119). To the list of structural challenges leading to MT errors, Koehn and Knowles (2017) and Hutchins (2005) add long, complex source text sentences. Longer sentences may require more cohesive devices to ensure understanding by the reader. Koehn and Knowles (2017) and Hutchins (2005) explain that, in this case, MT breaks the source language sentences into small components and fails to draw from the greater context of the sentence. In such occurrences, MT may miss the addition of cohesive devices to establish connectedness throughout. Interlinguistic differences in sentence structures can also pose problems as in *Paul misses Mary* and *Mary manque à Paul* (Arnold, 2003, p. 120).

In addition to those errors that arise from ambiguities and difficult sentence structures are the errors that result from MT's inability to apply extrasentential and extralinguistic information. The inability of the system to take context into account can lead to issues with coherence and cohesion (Arnold, 2003; Bawden, 2018; Hutchins, 2003; Koehn & Knowles, 2017; Popescu-Belis, 2019)²¹. This can occur, for example, when intersentential chains of related words are overlooked. Bawden (2018, p. 2) provides the following illustration: *Goldilocks was tired. Very tired*. In this case, the translation of *tired* is challenging for MT, since it is an element that depends on two sentences. The correct translation here would be *Boucle d'or était fatiguée. Très fatiguée*. However, the system translates it as *Boucle d'or était fatiguée. Très épuisée*. MT's inability to apply extrasentential and extralinguistic information might also lead to translated pronouns not agreeing with their true antecedents (Bawden, 2018) and translated adjectives not

²¹ To ensure higher translation quality, Bawden (2018) and Popescu-Belis (2019) suggest that the MT system should take context into account by not translating sentences independently of each other. Of course, this has long been acknowledged, but is much easier said than done.

agreeing with the nouns they modify (e.g. Althaus et al., 2004; Barzilay & Lapata, 2008; Foltz et al., 1998; Bawden, 2018; Bawden et al., 2017; Karamanis, 2004; Lapata, 2003; Marcu, 2000; Popescu-Belis, 2019; Vasconcellos, 1992). For example, in *I am so glad that I can lie down on this comfy bed*, the translation of the word “glad” into French is determined by the speaker’s gender (*contente* for a female speaker and *content* for a male speaker) (Bawden, 2018, p. 2). Without extrasentential or even extralinguistic information, MT cannot identify the gender of the speaker and thereby ensure a correct translation.

Mistakes in the source text itself (omissions and errors of agreement, spelling, punctuation) are another cause of errors in the MT text. For example, if the source text misspells *from* as *form*, the incorrect word is likely to appear in the translation. Meanwhile, if *the Commission vice president* is spelled without a hyphen between *vice* and *president*, the phrase may be translated as *le président du vice de la Commission* instead of *le vice-président de la Commission*.

The causes of errors in the MT text described above are the relevant challenges to this project as well. For example, if the composed summary text includes a difficult sentence structure, it is challenging for MT to detect the antecedent to a pronoun in such a sentence; as a result, the pronoun may be translated incorrectly. Or, the texts produced by the participants include structural ambiguities, the scope of conjunction becomes a challenge for MT.

Having mentioned the challenges described above, it is important to bear in mind that similar to how grammatical and lexical errors in L2 texts can interfere with coherence, errors in MT output could certainly create coherence problems.

1.9.3. Machine translation in translation training programs

In an attempt to equip translation students/trainees with the necessary skills to work in technological translation environments, many scholars encourage the integration of MT into translation training (cf. Kenny & Doherty, 2014; Massey & Ehrensberger-Dow, 2017; Mellinger, 2017; Moorkens, 2018; Rico & Gonzalez Pastor, 2022; Udina, 2019; Venkatesan, 2018; Yang et al., 2021). For instance, Moorkens (2018) designed a comparative practice exercise for translation students to compare SMT and NMT output. According to the author, the participants gained experience in assessing the translation quality of the MT output as well as in practicing the task of postediting. Moorkens (2018) suggests such practices should be integrated into translator training curricula to “empower” students, assist them in gaining technological

competence and ultimately help them to gain and develop translation competence. As well, Kenny and Doherty (2014) emphasize that translation trainees should be provided with the knowledge and set of skills to work with MT tools and also learn about the deficiencies of such tools. They state that when provided with these, trainees can adopt and gain competencies in working with different tools required by the translation market.

Udina (2019) also delves into the role of MT postediting in teaching and learning translation. The scholar alludes to the saying that “we are taught by our mistakes” (p. 1100) and explains how, while postediting MT output, translation trainees are involved in a process of detecting errors and analyzing them. Udina (2019) adds that this engages them in practising grammar, vocabulary, coordination and in general using language correctly in a text. According to her, this enhances their linguistic and translation knowledge and assists them in gaining useful experience in working with MT.

Focusing on the “usability” of MT, Yang et al. (2021) conducts a study hiring postgraduate translation students. In light of the results of their study, they emphasize that MT should be a part of translation education curriculum because it empowers translator trainees’ knowledge and improves their translation efficiency.

Based upon a more recent study, Rico and Gonzalez Pastor (2022) investigate the perceptions of a group of translation educators about the integration of MT in translation education at the University of Valencia. The results of their study shed light on a general consensus about the use of MT in translation education programs due to various reasons. For instance, the participants believed that the use of MT assists students with enhancing their post-editing skills and being more prepared for their professional career as translators.

Notwithstanding the advantages addressed by the scholars, some disadvantages have been pinpointed by other researchers as well. Because these disadvantages share common ground with the disadvantages that are attributed to the use of MT in L2 settings, we will explore them in section 1.12.2. Machine translation in L2 and translation settings: On the downside.

In light of the overview of academic writing, translation and the significant contribution of coherence and cohesion in both, as well as exploration of MT systems, as stated earlier, the next logical step is to look into different approaches to using translation in L2 teaching/learning. This will assist in gaining a better picture on how writing as a skill can be taught and enhanced and whether translation can be considered as an aid/approach in the writing process.

1.10. Translation in L2 teaching and learning

The history of L2/FL teaching/learning is reflective of various approaches towards how the nature of language teaching has been conceptualized through different theoretical lenses (Pym & Ayvazyan, 2016). Some of the most popular frameworks receiving scholarly attention are the Grammar Translation approach, the Communicative approach, and approaches showing positivity towards the role of translation in L2 teaching/learning/writing. The benefits and drawbacks of each of these will be carefully examined to better grasp how these perspectives lend themselves to the development of the pedagogy of language training.

1.10.1. The Grammar Translation Method

From the 17th century into 20th century, a “cross-lingual” (Cook, 2010, p. 22) model of foreign language teaching was utilized as the dominant way of teaching modern languages in European secondary schools. This strategy entailed analyzing the grammatical and rhetorical structures of classical Latin and ancient Greek (Cook, 2010; Pym & Ayvazyan, 2016). The ultimate goal of this approach was to enable students to read the target literature or achieve/enhance mental discipline and intellectual development as a result of learning a foreign language (Richards & Rodgers, 2014). This translation approach focussed on learning Latin grammatical rules deductively (through repetition and memorization and grammar drills) and translating between L1 and Latin, as well as sometimes modelling parallel bilingual texts as the basis of practising writing and producing writing chunks (Cook, 2010; Richards & Rodgers, 2014; Pym & Ayvazyan, 2016). The dominant focus of this approach is on “rote” learning of reading, writing and grammar, while speaking and listening are marginalized (Cook, 2010). In sum, the method focusses on teaching the language systems, rather than on how to use the language for real-life purposes (Colina, 2003), and it cannot be utilized in classes comprising learners with different L1s (Cook, 2010). This glaring weakness led to the emergence of another teaching method known as the Direct Method, which encompasses approaches such as the Communicative approach.

1.10.2. The Direct Method and the Communicative Approach

In the Direct Method, there is a shift in emphasis from a “cross-lingual” and “bi-lingual” method of teaching to an “intra-lingual” and “mono-lingual” method of teaching (Cook, 2010, p. 7). This means that, with this method, L2 instructors should gear their teaching towards the

target language and prohibit learners from utilizing L1 for any purpose (i.e. translation, explanation or commentary) in the process of L2 learning and writing in the L2 learning process. This Direct Method comprises two dominant types: form-focussed and meaning-focussed methods (Cook, 2010). The former method emphasizes that L2 learning should be based on learning L2 grammar rules, introducing a structural approach to language teaching. This again gave rise to much criticism, and the focus switched to establishing successful communication in L2 and acquiring L2, regardless of conscious attention to forms (Cook, 2010). This method was called the meaning-focussed method (Cook, 2010) and encompassed the Communicative approach. Accordingly, the idea of “communicative competence” as the central goal of language teaching was proposed, stressing the idea that FL learning can be accomplished when instructional materials are embedded within communicative activities (Cook, 2010). Thus, the communicative model stressed the idea that L2/FL teaching should be conducted solely in the target language, emphasizing that language learners who shift between L1 and L2 in the classroom can be regarded as linguistically incapable individuals (Cook, 2010; García & Wei, 2014; Pym & Ayvazyan, 2016). Accordingly, throughout the 20th century, the L1 linguistic repertoire was marginalized during the learning process. However, despite the emphasis on eliminating L1 from L2/FL classrooms, the use of L1—and, in particular, translation—in L2 learning and writing persisted in the language classrooms. This status quo has persisted and gained more visibility in bi/multilingual environments.

1.10.3. Bi/multilingualism, translation and language teaching

According to Cook (2010), one of the factors that gave rise to the visibility of bi/multilingualism could be widespread immigration, where many immigrant families have chosen to live in English-speaking contexts, and thus resort to negotiating between languages for the purpose of communicating meaning. In these English-speaking contexts, this reality is also reflected in ESL classes where learners move between their home languages and English to communicate. However, instructors generally forbid students to employ their L1 in ESL learning. Another instance of a bilingual environment is the French Immersion program in Canada, in which students resort to English to learn French and vice versa—however, once again, instructors are required to separate the two languages of instruction (they are required to teach in only one language), since it is assumed that this action will assist students in gaining proficiency in each language separately (Gentil, 2018).

Despite mainstream curricular designs, instructors have recurrently observed learners employ their L1 in L2 learning. Particularly, they report that students resort to translation in L2 compositions. Although such uses by learners have not been strictly forbidden, shuttling between L1 and L2 has never been incorporated to L2 curricula (Cook, 2010). In sum, despite the visibility of bilingualism, and the observation of L2 students employing their L1 and in particular translation in their work, translation in language teaching is still marginalized, as it seems to be perceived in contrast with real-world language and activities (Cook, 2010). According to Cook (2010, p. 37), this perspective is debatable, since translation in language teaching can provide “insights to language form” and can be considered “a lively communicative activity.” More importantly, Cook (2010, p. 37) argues, “it is hard to imagine” translation can be separable from the bilingual or multilingual activities students perform in the process of learning an additional language.

In line with Cook (2010), many other scholars have advocated the role of translation as an assistive activity for the purpose of L2 learning (e.g. Brooks-Lewis, 2009; Byram & Hu, 2013; Cummins, 1981, 2008; Gentil, 2018; Gosden, 1996; Hall & Cook, 2012, 2014; Károly, 2014; Kelly & Bruen, 2015; Kerr, 2014; Kobayashi & Rinnert, 1992; Polio, 1995; Priya & Jayasridevi, 2018; Scott & Fuente, 2008; Storch & Wigglesworth, 2003; Uzawa, 1996; Van Weijen et al., 2009; Vermes, 2010; Wai, 2016; Wang & Wen, 2002) and L2 writing, in particular. In the section that follows, the scholarship highlighting the role of translation in L2 writing will be explored. As mentioned earlier, one of the aims of this project is to monitor students’ writing behaviour (which may include translation); this review, therefore, will bring light to the role that translation can play in the writing process.

1.11. Translation and L2 writing

In the previous section, the debated role of translation in L2 learning was briefly reviewed. L2 learning also intersects with L2 writing, which also entails the role of translation in the writing process. Delving into the role of translation in L2 writing incorporates examining the notion of transfer in L2 learning. In the section that follows, the notion of transfer will be examined.

Transfer, in its broad definition (Bardovi-Harlig & Sprouse, 2018), is considered to be the influence of the learner’s L1 on L2 learning. Transfer occurs when learners apply some linguistic features from their L1 to their L2, and/or when they employ L1 learning strategies or “good

habits” (Bardovi-Harlig & Sprouse, 2018) in the course of their L2 learning/writing process (e.g. Cook, 2010; Chung et al., 2019; García & Wei, 2014; Pym & Ayvazyan, 2016; Wei, 2020). In situations where the influence of the learner’s L1 leads to “immediate” acquisition or the use of L2, the act of transfer is perceived positively and as “facilitation” (Bardovi-Harlig & Sprouse, 2018), and in some other situations, when the influence of the learner’s L1 causes errors in the use or acquisition of L2, it is regarded negatively and as an “interference” (Bardovi-Harlig & Sprouse, 2018; Wei, 2020).

The notion of transfer in bilingual learning has been addressed from various perspectives. For instance, some scholars have focused on the cognitive abilities of the learners and shed light on the concepts of language-dependent versus language-independent abilities that the learners demonstrate in the process of communication (e.g. Marian & Fausey, 2006; Marian & Kaushanskaya, 2011; Marian, 2020; Olivares, 2002; Saalbach et al., 2013). Olivares (2002) emphasizes that a bilingual learner may resort to strategies that are language-dependent; for instance, the learner may need to recall L1 linguistic features such as syntax and lexicon to be able to transfer to L2. Olivares (2002) further adds that for constructive learning to occur, the bilingual learner should “decode” the message/text in L2 to be able to understand the content of the text. According to Olivares, this cognitive process requires language-dependent abilities such as recalling grammar and vocabulary in L1 to represent knowledge in L2. In some situations, this knowledge representation “costs” some errors when learners recall words or grammar from the L1 linguistic system to form communications in L2, as highlighted by some scholars (e.g. Marian & Fausey, 2006; Marian & Kaushanskaya, 2011; Marian, 2020; Olivares, 2002; Saalbach et al., 2013). This “costly” knowledge representation may occur when learners are involved in activities where the language of instruction differs from the language of application (i.e. teaching a concept in L2 and designing activities in L1). Based on this scholarly exploration, it could be reasonable to observe some learners as they resort to translation to decrease the “cost” of errors. As far as this project is concerned, the participants received instructions in L2, but were asked to construct a summary report based on a video in L1. This suggests that the participants may have resorted to translation, from a language-dependent perspective, not only to recall vocabulary, but also in an attempt to reduce “costs”/errors in L2.

To cast more light on the notion of transfer, some other scholars narrow down the focus; some looking at the negative aspects of this notion, while some others elucidate the positive

aspects. For example, Wei and co-authors (Wei, 2020; Wei et al., 2020) have reported that the transfer of rhetorical knowledge (organization of ideas in a coherent manner) manifests itself negatively in L2 writing. Wei et al. (2020) concentrate on L1 rhetorical transfer to L2 writing in a Chinese university setting and collect and analyze students' data from a) writing samples, b) a post-writing survey, and c) semi-structured interviews. After triangulating the results, they found that student participants with lower levels of L2 proficiency resorted to their L1 (Chinese rhetorical knowledge) in forming their opinions and producing their argumentative texts in English. Based on their results, this type of transfer resulted in the lack of a “coherence-making-mechanism” and organization of arguments (p. 5). In another study, Wei (2020) casts light on the negative transfer of rhetorical knowledge from L1 in presenting the arguments in L2, by asking the students which portions of their texts were constructed based on L1 rhetorical knowledge. The findings showed that the portions of texts produced based on L1 knowledge lacked coherence and clarity. In light of this study, Wei (2020) concludes that the rhetorical knowledge in some languages may not necessarily be of help in L2 writing, due to the differences that may exist in the linguistic systems. While these studies may not reflect the objectives of this project, they are still important to bear in mind and understand by the virtue of them how the notion of “negative” transfer can be viewed.

As stated earlier, however, the scholarship also includes studies and reviews that demonstrate positive perceptions and opinions regarding the notion of transfer in L2 writing. For instance, Gentil (2018) criticizes the Direct Method of language teaching, and advocates what he terms “multilingualism-as-a-writing-resource orientation” (p.1), referring to research that illustrates how composing in L1, or a language in which learners feel more confident, and translating to L2 can facilitate L2 composition. He argues that this practice can involve multilingual writers in practices “such as writing in one language from sources in another and frequently switching the languages of composing and reading” (p. 6).

Gentil addresses the notion of transfer, but also stresses that the learner's L1 whole linguistic repertoire plays a role in composing in L2. He adds that the learners' repertoire constitutes rhetorical knowledge that can be utilized in the learning process and facilitate language development. Gentil (2018) further mentions that depending on learner needs, the use of L1 in L2 learning and writing should be welcome, and students need to be informed why they can call on L1 for L2 learning/writing. Gentil (2018) explains this use will decrease learner's

cognitive pressure and assist them with “planning, [and] retrieving prior knowledge about the world, texts, and writing processes” (p. 5). In light of this view, the scholar refers to the notion of translation in L2 writing and emphasizes that in light of clear instructions on the employment of translation in the writing process, the multilingual writer can resort to “professional translation strategies” such as online dictionaries and computer assisted translation tools. According to Gentil (2018), such translation strategies will enhance the learner’s cross-linguistic awareness, which subsequently can lead to language development, since the learners will learn about differences in linguistic systems including the patterns of argumentation and discourse organization.

Gentil’s (2018) point of view about the use of translation in L2 learning—and, in particular, in the L2 writing process—directs attention to the literature comparing direct L2 writing versus translated L2 writing. The classic work of Kobayashi and Rinnert (1992) is worth reviewing in this regard. In an attempt to identify which strategy will result in producing a better-quality text, they compare two writing processes undertaken by their Japanese students: in one writing task, their students were asked to write directly in English, and in the other writing task, students were engaged in writing in Japanese (participants’ L1) and then translating to English. The findings show that the lower-proficiency students were able to produce higher-quality texts through translation, including a wider range of vocabulary and syntax. In contrast, the higher-proficiency students produced higher-quality texts through direct writing in L2. After completing the writing tasks, the participants shared their perceptions about these two writing processes via a questionnaire. The higher-proficiency students expressed their willingness to write directly in L2, whereas the lower-proficiency students demonstrated more of a tendency to prefer writing in their L1 first and translating to L2, even during their direct writing process.

In pursuit of gaining more information about direct writing verses translated writing, a number of other studies were designed. Some studies echoed the findings shared by Kobayashi and Rinnert (1992), while other studies (e.g. Cohen & Brooks-Carson, 2001) resulted in opposite views. For instance, Cohen and Brooks-Carson (2001) mention their participants with English as their L1 were able to produce better essays in French using direct writing than translated writing. Yet, years later, this controversy in perceiving the effectiveness of direct writing continued, with other scholars, such as Göpferich (2017), reiterating the findings of Kobayashi and Rinnert (1992).

With the same focus, yet from a new angle, research studies conducted by other scholars focused on how writing directly in L2 can differ from writing in L1 and using MT (GT, in particular) to translate to L2 (cf. Chon et al., 2021; Chon & Shin, 2020). In light of these studies and the approaches supporting the utilization of translation in language teaching/learning, we can infer that translation can be considered a positive strategy for learners to employ in the process of learning and specifically writing in non-L1 languages. As students use translation in bi/multilingual approaches to L2 learning, it is unsurprising that they may also take advantage of resources commonly used in translation. Discussing the use of such tools in producing L2 texts is important for the purpose of this project. More importantly, such uses by the learner direct attention to another embedded layer: learners' behaviour. It is important to review how learners' behaviour is influenced by factors that could explain the choice of several strategies, such as using FOMT, during the writing process. Therefore, prior to exploring the scholarship related to FOMT use in writing, we explore the literature on learners' behaviour in the learning and writing process.

In understanding learners' behaviour, scholars have explored several elements classified under two main categories: "internal" and "external" factors (e.g. Dörnyei, 2005, 2020; Dörnyei & Ryan, 2015; Gkonou, 2013, 2015), each embedding other sub-categories such as learners' personal reasons (including fear of negative evaluation by instructors [as cited by Gkonou, 2013]) as an example of the internal factors, as well as contextual factors such as instructional methods (e.g. Karaca & Inan, 2020) as the external factors.

For instance, Gkonou (2013, 2015) emphasizes that the potential for L2 improvement is impacted by several factors that play a part in the learning process, including learners' fear of negative evaluation by teachers. Gkonou mentions this fear can be caused by the learner's previous learning encounters (e.g. receiving low grades or not meeting teachers' expectations) and may find expression in the form of anxiety that pressures the learner and affects their learning environment negatively. In addition, Gkonou (2013, 2015) refers to how teaching methods that include, but are not limited to, explicit instruction in intended learning outcomes can be influential in establishing a more successful/less anxious learning/teaching environment. Dörnyei and Ryan (2015, p. 6) note that learners demonstrate individual differences that are shaped by their encounters in their social interactions. They explain that such encounters affect their "human functioning, including language acquisition and use". On the same topic, Karaca

and Inan (2020) explore another factor in pursuit of understanding learner's behaviour. They refer to the lack of clear instructional methods implemented by teachers in L2 classrooms and emphasize that the absence of clear instructions in delivering what is being expected of students could negatively influence their motivation to accomplish their L2 writing tasks. According to the authors, when learners are not motivated, they may not be able to meet the ILOs of the writing course.

As far as this project is concerned, the above studies are relevant avenues, since they explain how learners' behaviour (e.g. strategies they employ such as the use of FOMT) during the writing process may be shaped by several factors and differ from one individual to another. In light of these studies, we will be able to discuss the results more coherently. Having explored the importance of learners' behaviour in the learning and writing process, it is essential to review how MT/FOMT tools are perceived in a L2 setting. Upon this review, we can gain a better understanding about the relative merits of direct L2 writing versus translated writing that involves MT/FOMT. This review will help to inform this project, since one of the study's objectives is to observe the participants' behaviour (e.g. use of technology including FOMT) during the completion of the summary texts.

1.12. Machine translation in L2 settings

A number of scholars have reported on the prevalence of translation, including MT, in L2 classrooms (e.g. Anderson, 1995; Clifford et al., 2013; Ducar & Schocket, 2018; Garcia & Pena, 2011; Jolley & Maimone, 2015; Jolley & Maimone, 2022; Károly, 2014; Kliffer, 2005; Lee, 2021; Lee & Briggs, 2021; Niño, 2008, 2009; Somers et al., 2006; Xu & Wang, 2011). In the wake of such observations, they investigated the potential use of MT/FOMT in L2 learning. Exploring such uses casts light on some advantages and disadvantages, which will be discussed below.

1.12.1. Machine translation in L2 settings: On the bright side

According to Richards and Renandya (2002), writing should be perceived as a process that results in the production of a written document. They state that this process comprises four main stages: planning (stimulating thoughts for getting started), drafting (writing), revising (detecting language errors at micro level and improving coherence and cohesion at global level) and editing (correcting surface errors such as punctuation, spelling, etc.) (p. 315). Based on this

view, many scholars have examined the benefits of postediting MT output (e.g. Clifford et al., 2013; Garcia & Pena, 2011; Jolley & Maimone, 2015; Jolley & Maimone, 2022; Károly, 2014; Lee, 2019; Lee, 2021; Lee & Briggs, 2021; Niño, 2008; Xu & Wang, 2011) and how it can contribute to improvements in L2 learning at different levels and as a stage in the writing process (e.g. Niño, 2008, 2009, 2020). Some scholars also stress that MT output can enhance the learners' critical thinking skills²² (e.g. Ismail Omar, 2021; Lee, 2020; Lee, 2021; Medvedev, 2016; Niño, 2008), when errors occur in the output.

Niño (2008 & 2009) states that if MT output can be considered a draft, then it requires revision and editing. According to her, these acts play positive roles in L2 writing by involving the learners in a process at the strategic, mechanical, meta and global levels. She looks at these levels from a different perspective. Connections between the levels and the stages (planning, drafting, revising and editing) mentioned above can easily be made. She explains that the strategic level of the revision and editing process entails students reading a text to detect errors and being required to find a solution such as figuring out the correct word forms, structures, etc. This is similar to the revising stage of the writing process. Next, she explains that, similar to the editing stage of the writing process, at a mechanical level of the MT revision and editing process, users add, eliminate, paraphrase and reorganize texts. According to her, the meta level follows this, in which L2 learners must perform a contrastive analysis of L1 and L2 grammars. Finally, the global level of this process entails checking whether the text is cohesive and flows well, which again is similar to the revision stage explained above. According to Niño, these levels are all interconnected as the students are constantly involved in contrasting grammatical structures, identifying mismatches that have led to an error, considering synonyms and guessing at solutions, deleting old solutions and substituting new ones to ultimately enhance coherence and cohesion, and thereby create smooth and meaningful texts (Niño, 2008).

In another study, Sangmin Michelle Lee (2019) points to a broader advantage of using MT in L2 writing, saying her participants gained a better understanding of writing as a “process,” by constantly detecting the errors, and editing and revising their MT-generated texts. According to her, error detection and correction, revision, and reading the text repeatedly all enhanced students' L2 writing knowledge and additionally engaged them in a process of

²² As explained earlier, in the context of this study, critical thinking is defined by Carr (1988, p. 69) as demonstrating “problem-solving which involves the learner to question, to analyze and to look beyond the superficial for all possible answers.”

meaning-making. In more recent studies, Lee (2021) and Lee and Briggs (2021) echo the same perspectives on the integration of MT in L2 classrooms. The scholars emphasize raising awareness about MT as a mediating tool in the revision process. To demonstrate how this integration can be useful, Lee and Briggs (2021) first ask their participants to write a paragraph in L1; then, to translate it to L2 manually (using dictionaries); next, to use MT to translate the original L1 text to L2; and, finally, to compare the manually translated L2 texts with the L2 texts produced by MT. The results of their study show that students made corrections to their L2 manually translated texts by comparing them against the MT translated output. Accordingly, they mention that such mediations assist students in enhancing their lexico-grammatical knowledge.

In section 1.11., Translation and L2 writing, we explored the scholarship on the role of translation in L2 writing. In particular, we reviewed the studies looking into writing directly in L2 versus translated writing. It was mentioned very briefly that the notion of translated writing incorporates activities such as FOMT use during the writing process. This aspect has been addressed by some scholars. For instance, Chon and Shin (2020) show that the English texts produced by MT by the Korean college students were deemed higher quality in terms of syntax, vocabulary and cohesion compared to the ones written in L2 directly. By the same token, Chon et al. (2021) adds another layer of comparison in another study; they compare direct writing, self-translated writing (manual translation), and machine-translated writing composed by their Korean students. Their study findings suggest that the writers with lower proficiency levels benefitted more from translated writing and machine-translation writing than from direct writing in English. They mention that translated writing assists the learners with opportunities to “refine” their expressions to convey their intended message (p. 8), and that machine translation also help the learners to construct texts which demonstrate complex levels of lexis and syntax that may not be constructed by the participants independently. They add that machine translation allowed their participants to detect the “imprecise” translations and edit parts to create better versions.

In a recent review, Jolley and Maimone (2022) provide a comprehensive historic exploration of how MT has been perceived in educational settings for around three decades. In their review of the literature, they mention that—notwithstanding the shared skepticism by some scholars regarding the use of MT for educational purposes—overall, MT has evoked more positive perceptions as an educational mediating tool for teaching and learning purposes. In particular, regarding L2 cohesion and coherence, Jolley and Maimone (2022, p. 13) cite Steding

(2009), who referred to the noticeable improvements in MT system capabilities, including “the unexpected levels of cohesion/organization in the second language”.

The above-mentioned observations regarding MT are helpful in examining how the participants of this project achieve coherence and cohesion in their summary writing (in particular, if the texts are mediated by MT). As explained before, despite improvements in MT systems, their output may still include different types of errors that subsequently lead to a lack of coherence and cohesion in the produced text. The review of the literature informs this project by exploring the participants’ behaviour and strategies (e.g. if they edit their MT-produced segment(s)). These observations will also lay the groundwork for detecting the baseline editing skills of the participants and show to what extent (if any) their behaviour in writing the second summary text is informed by the instruction in terms of editing and, in particular editing the MT-produced segments, to develop L2 coherence and cohesion levels.

In addition to the development of post-editing skills, scholars recognize the potential role of MT in improving critical thinking skills. For instance, based on the results of her study, Lee (2020, p. 170) mentions that when the learners employ MT in their writing process, instead of accepting the output as is, they analyze the MT version based on their previous knowledge and consult other tools to make a judgement. Lee adds that, in some cases, the learners combine a handwritten untranslated portion with an MT-produced portion to construct a sentence, which ultimately demonstrates the fact that they are constructing their texts “critically” and “strategically” (p. 170). Similarly, Medvedev (2016) and Ismail Omar (2021) emphasize how MT output lays the groundwork for developing critical thinking skills. In particular, Medvedev (2016, p. 188) notes that polysemous words pose a challenge for MT, prompting learners to engage in a critical thinking activity during which they “scan” the MT version and consult other tools to find the best equivalents.

Notwithstanding the advantages of MT in educational settings (including L2 and translation), scholars have highlighted some disadvantages to such uses as well. The following will bring some of these concerns to light.

1.12.2. Machine translation in L2 and translation settings: On the downside

Despite the above studies advocating the use of MT for L2 students or student translators, some researchers have expressed concerns regarding whether they should be allowed to use MT for assignments. For instance, Somers et al. (2006) and Clifford et al. (2013, p. 116) explain that

instead of producing original work, some students misuse/abuse MT to complete their assignments by either submitting papers entirely copied from online resources or copying, mixing and matching chunks to create new texts. As a result, they report that some instructors are skeptical about using MT in classrooms and are not sure whether MT should be integrated into the curriculum or how to do so. In a similar vein, while acknowledging the beneficial role of MT in translation education, Rico and Gonzalez Pastor (2022, p.186) emphasize the use of MT in translation classrooms may cause “loss of creativity” in the translation process and formulating the target translation as well as result in becoming “overconfident” about MT output, which subsequently could lay the foundation for poor error detection. In addition, the results of Akbari Motlaq’s and Sepora Tengku Mahadi’s study (2020) demonstrate the coexistence of the advantages and disadvantages of MT use in translation education. They explain that, while using MT in translation classrooms can provide “language mindfulness” as well as “higher confidence in translation generation,” such uses “might corrupt students’ learning by fossilizing wrong translated terms or mislead them in terms of the appropriate strategies to use” (p. 130).

From a different perspective, Korošec (2011, p. 16) explains that integrating MT in translation training programs may result in overshadowing the role of translation educators as the “sole knowledge providers”. Therefore, from a teaching perspective, Korošec (2011) believes this integration could be of a challenge, since it requires translator educators to adopt new teaching and learning activities as well as classroom strategies to ensure the effectiveness of such an integration.

In an attempt to cast light on how MT is perceived by instructors, Laird Eriksson (2021), conducted a recent study. The findings show that while students welcome the use of MT in classrooms, instructors are hesitant towards such uses, despite the fact that they use the tools for their own personal reasons. The researcher further explains that instructors demonstrate skepticism towards MT because of their lack of experience with and instruction about FOMT tools. She proposes that, since MT is used by students regardless, instructors must provide students with guidelines and inform them about the issues associated with MT.

In their study, Ata and Debreli (2021) explore both students’ and instructors’ perceptions about the use of online MT in L2 classrooms. The findings of their study reveal that students’ and instructors’ opinions differ in terms of using the tools for L2 purposes. They assert that while students welcome the tools and use them frequently for single words and short segments, the

instructors demonstrate a less welcoming approach towards tool use. However, they add a new perspective in terms of the “ethicality” of tool use. They explain that, unlike previous research (e.g. Clifford et al., 2013) reflecting negative opinions by the instructors, their instructor participants did not tend to forbid MT in their classrooms and agreed that students can use the tools in some circumstances, such as for translating single words and short phrases.

In another study, however, Lee (2020) emphasizes that the mainstream perspective shown by the educators towards MT in L2 classrooms should change, if the ultimate goal is to assist learners in their learning process. Lee mentions that students perceive these tools positively, despite knowing that such tools come with some disadvantages such as errors in their generated output. Lee adds that, if the educators guide the learners how to employ the tools and raise awareness about the challenges pertaining to MT tools, the learners will benefit more than if they are banned from using the tools.

1.13. Summary

This chapter opened with defining three core concepts: academic writing, translation, and rhetoric. It then zeroed in on two more specific yet also central concepts, coherence and cohesion, in relation to L2 writing and translation, highlighting their importance in the successful transfer of desired meaning in texts. How L2 teaching/learning/writing has been approached throughout history was also discussed, demonstrating contrastive views, in particular regarding the role of translation in L2 teaching/learning, and specifically in writing. This led to an exploration of MT/FOMT and the challenges MT/FOMT systems pose in producing translations. This exploration revealed that despite improvements in MT system, MT tends to produce errors in its output, which ultimately contribute to the lack of coherence and cohesion in MT output.

The literature review, in combination with the observations in the Motivation section, shows why and how translation mediated by FOMTs and L2 writing can fit together. In light of this, the analysis of participants’ behaviour will call on the discussed theories and studies to interpret the data and the behaviour observed. For instance, informed by the literature comparing direct L2 writing versus translated writing (which can be mediated by MT), we will be able to observe the writing behaviour of the study participants and identify which strategy they employed. We will also be able to recognize how each strategy could impact the levels of cohesion and coherence in their produced texts.

From a pedagogical perspective, this study has relied on the constructive alignment theory asserting that, for the purpose of effective teaching and learning, a constructive alignment should exist between three major components: the ILOs of the teaching/learning activity (demonstrating competency in producing a coherent and cohesive summary report in the case of this project), the design of teaching/learning activities (focusing on coherence and cohesion contributing to the intended learning outcomes in the context of this study) and the assessment tasks (a summary paragraph, which should be coherent and cohesive; see section 2.5.2.3. Writing samples: pre- and post-instruction). This approach has informed the design of an evaluation grid, which should reflect the alignment between the above-mentioned components, and which will be used to evaluate the summary paragraphs produced by the participants in terms of coherence and cohesion.

From a theoretical angle, in both translation and L2 writing, the concept of rhetoric and its use in analyzing discourse, particularly through coherence and cohesion, has been critical to developing this project. Therefore, these two rhetorical phenomena have been emphasized in this study. This project has also been informed by research shedding light on the role of translation in language teaching/writing. This scholarship highlighted in this section, together with the data collected for the purpose of this study, will reveal students' baseline coherence and cohesion levels in academic writing and their writing behaviour while accomplishing their tasks. As well, in light of the scholarly review and the results, we will be able to understand whether students can be trained to better achieve coherence and cohesion in academic writing and whether training can affect their writing behaviour — for instance, in terms of using technology such as FOMT. The scholarly review of the role of coherence and cohesion in enhancing the text quality has also helped in designing the instructional materials in this project.

Another theoretical angle, functionalism, and in particular the notion of communicative translation, has been equally inspirational to this study. A functionalist perspective can help us appreciate how the intended communicate function of the source text (the video in the case of this project) can vary from the intended communicative function of the target text (a summary paragraph in the case of this project) that the participants produce.

Chapter 2: Methodology

2.1. Introduction

Having reviewed the literature on L2 teaching approaches and on coherence and cohesion in L2 texts and translation, this chapter will review the research questions and objectives and continue with explaining the project's guiding framework, action research. Afterwards, the chapter will outline the study's research design, describing the participants and how data was collected and analyzed.

2.2. Research questions and objectives

The research questions guiding this project are as follows:

1. What are ESL students' typical coherence/cohesion challenges in academic writing?
2. What writing behaviours, such as the use of technologies including FOMT, influence these challenges?
3. Can ESL students be trained to better achieve coherence/cohesion in academic writing?
How does this training affect writing behaviours, such as the use of technologies including FOMT?

The first research question investigates students' current level of coherence and cohesion. Through this investigation, I aim to achieve a baseline of:

A. Students' initial skill level: This was achieved by:

- I. Gathering a first set of writing samples from the students (which will be analyzed by a panel of three evaluators)

The second research question investigates students' writing behaviours. Through this investigation, I aim to achieve a baseline of:

A. Students' use of various strategies and tools, including technologies such as FOMT, in academic writing through screen recording of the student participants' computers to:

- I. Observe their use of tools;
- II. Identify the parts produced using various tools/strategies; and
- III. Identify the contributions of various tools/strategies to the production of coherence/cohesion in the writing.

B. Students' perceptions: This was achieved using an online survey through which students shared their opinions and perceptions regarding the use of tools (e.g. FOMT) and strategies in ESL writing and report on their behaviours.

C. Instructors' perceptions about students' tool use: This was achieved using an online survey through which instructors shared their opinions and perceptions regarding the use of FOMT tools in ESL writing. This data supports the core research questions and objectives, providing a complement of instructors' views regarding the use of FOMT in ESL writing and their observations of the students' use. By comparing the instructors' perceptions with those of the students, we can gain a more complete picture of the students' current use of tools and some of the factors that may affect it.

The third research question investigates a) changes in texts and b) behaviours after the initial tutorial session. This investigation involves the following steps:

I. Giving students an initial tutorial session on summary writing and developing academic writing skills (specifically coherence and cohesion).

II. And then exploring:

A- Changes in texts: This is achieved by gathering:

- i. Follow-up writing samples (evaluated by the evaluators (judges) and myself) from students, to study any differences in writing;
- ii. One-on-one interviews with the evaluators of the writing samples to study any (perceived) differences in writing.

B- Changes in behaviour: This is achieved by gathering:

- i. Survey data from the students in which I study any changes in their opinions and perceptions towards the use of various tools in ESL writing and reactions to the project activities;
- ii. Follow-up screen recordings from students in order to:
 - a. Observe any changes in their use of tools;
 - b. Identify the parts produced using various tools/strategies; and
 - c. Identify the contributions of various tools/strategies to the production of coherence/cohesion in the writing; and

- iii. One-on-one interviews with the volunteer students through which I study any reactions to the project activities and (perceived) differences in writing.

2.3. Action research

Action research has been defined as a process of “learning by doing”: the researcher identifies a problem and conducts research to resolve the problem in a systematic way (O’Brien, 1998). McNiff (2009, p. 5) explains:

Action research is about two things: action (what you do) and research (how you learn about and explain what you do). The action aspect of action research is about improving practice. The research aspect is about creating knowledge about practice.

Action research has been advocated by many researchers (e.g. Hubbard & Power, 1993; Many, 2001; McNiff, 2009; Reeves, 2008; Wallace, 2006). For one reason, this type of research ensures that researchers learn best through a research process that aims at resolving real problems (O’Brien, 1998). Moreover, action research can contribute to positively changing the researchers’ situation, because they can develop positive attitudes towards improving their knowledge (O’Brien & Saldanha, 2014).

2.3.1. Action research in educational settings

In action research, the researcher is also the educator; in a specific educational context for a period of time, they prompt answers to the questions they have in mind for the purpose of observing a social action and enhancing the learning situation (Many, 2001). In this way, the educator-researcher acts as a “catalyst for professional growth” (Many, 2001, p. 182). Educators get involved in asking research questions and more closely examining the identified problems (Many, 2001). In doing so, they may develop a deeper and more thoughtful reflection on the study outcomes than when they do not closely observe a social action or identified problem. Moreover, a link is established between theory and practice, bridging the gap between “what to teach, how to teach and why to teach” (Many, 2001, p. 80).

2.3.2. Problems associated with action research

Notwithstanding the advantages attributed to action research methodology, some shortcomings have been identified. Although action research contributes to professional development, it can impede the generation of theories. McNiff (2009, p.1) warns that researchers

may implement theories previously generated by other scholars rather than offer their own “cogent explanations for practice” as competent practitioners (McNiff, 2009, p. 1) to “protect” their individual interests. For this reason, McNiff encourages action researchers to provide explanations for their practices and thus engage in a process of theorizing that can result in more research accountability.

2.4. Research design

In light of the advantages of action research, this study will follow its principles by applying a teacher-researcher model. Having identified some challenges in ESL teaching/learning (see section Motivation), I participated in three online (synchronous) writing tutorial sessions with each of the six student volunteers. The teaching activities integrated into the project seek to improve participants' ESP writing competence. Specifically, I provided classroom instruction on how to develop coherence and cohesion in ESP writing. As I conducted research by teaching, I aimed to positively impact students/participants by helping them improve their ESP writing competence in terms of coherence and cohesion. As a researcher, I collected and analyzed data.

This action research study employs a mixed-methods approach (e.g. Creswell, 1994; Dörnyei, 2007; O'Brien & Saldanha, 2014) that integrates qualitative and quantitative research at the stages of data collection and analysis (e.g. Creswell, 1994; Dörnyei, 2007; O'Brien & Saldanha, 2014). Integrating the two approaches results in more comprehensive information and a better understanding of the research problem than applying the approaches separately (Creswell, 1994; Creswell & Clark, 2017; O'Brien & Saldanha, 2014). According to Dörnyei (2007), in mixed-methods research, the qualitative and quantitative methods should contribute to theorizing circularly. This means that the process of data collection should “evolve” as each method provides “complementary and supplementary” feedback, that is, as they direct one another towards what is required to contribute to the theory. By integrating numerical and non-numerical data, this project will construct solid answers to the questions guiding this project.

2.5. Data collection

To answer this project's research questions and to test its hypotheses (see Research questions and Hypotheses), I drew on six sources of data: 1) A series of three online writing tutorial sessions/workshop with student participants from The Institution; 2) perceptions of

students and supporting information of instructors (from The Institution) through online questionnaires (Appendix B); 3) observing student writing behaviour using screen recording; 4) collecting and evaluating two sets of writing samples for levels of coherence and cohesion before and after instruction (Appendix C); 5) studying students' reactions to the project activities and (perceived) differences in writing via one-on-one interviews; and 6) exploring judges'/evaluators' opinions and perceptions about any differences in writing via one-on-one interviews. The following section will explain the data collection procedure.

2.5.1. Design and delivery of teaching and learning activities

The following section will explain the design of teaching/learning materials and the delivery of the designed activities.

2.5.1.1. Teaching materials

As stated in section entitled, The debate on the use of FOMT in ESL/ESP classrooms, students at The Institution must write coherent and cohesive summaries, both in French and in English courses; however, they face challenges in doing so. Guided by this observation, for the purpose of this project, students were asked to write two coherent and cohesive summaries. Therefore, a part of the workshop instruction included information about writing a summary followed by corresponding activities (Appendix I).

As explained earlier, coherence and cohesion are key assessment criteria in program courses (both in French and English) involving the submission of writing assignments for different purposes. Informed by this observation and the relevant literature focusing on these linguistic features (cf. section 1.5., Coherence and cohesion), I developed instructional materials on coherence and cohesion (Appendix I). The instructional material prepared for coherence provides comprehensive information about the definition of coherence at sentence, paragraph and textual level, followed by the relevant activities. For instance, the students were informed about why and how a topic sentence should be added in the beginning of their paragraph, why and how this main idea should be progressed throughout the paragraph and why and how the addition of a concluding sentence was important. To reinforce this information, they were asked to complete the practices that I had assigned independently and bring their questions to the next sessions. The instructional material prepared for cohesion includes the definition of cohesion and the types of CDs that can be utilized in a text to establish connectedness, followed by the

relevant activities. For instance, during the sessions, we explored how each type of CDs (e.g. “however” versus “so”) can be used to establish meaningful relationships between the clauses and sentences. To reinforce the teaching and discussion of cohesion, students were asked to complete the exercises corresponding to cohesion independently and ask their questions during the next sessions.

2.5.1.2. Two video materials as the sources for writing the first and the second summary texts

The videos are selected based on the program requirements at the institution. In their program, students are required to write several summary reports based on video contents demonstrating police interactions. The nature of the videos presented to the students in the program include illustrations and gestures and oral discourse. The summaries that students prepare based on such videos are assessed for coherence and cohesion by their instructors, although these two criteria are not highlighted explicitly. The length of the video materials used in the program as the sources for writing is relatively short (five to eight minutes) to allow students to practice short summary reports.

Informed by the above-mentioned observation, I selected two videos demonstrating police interactions. In one video, a police officer prepares to provide security for a prime-ministerial visit during a student protest; in the other video, a police officer visits a residential building because of a complaint that is reported. Both videos include temporal sequences of events that also embed cause-effect relations. The length of the first video is 5 minutes and 10 seconds, and the length of the second video is 5 minutes and 23 seconds (Appendix J).

2.5.1.3. The grading rubric

Based on the first set of texts and reviewing the summaries, I consulted relevant resources (i.e. types of coherence and cohesion, as explained in sections 1.5.1, Coherence, and 1.5.2, Cohesion) and considered how some of these features fit together in the construction of a rubric for the summary assignment in this project. As well, I consulted with the three judges (see section 2.5.3., Participants) who volunteered to assess the writing samples produced by the participants. After these consultations the grid was constructed (Appendix D).

The grid explicitly focuses on coherence and cohesion. As stated earlier (In the section entitled, The debate on the use of FOMT in ESL/ESP classrooms), while these criteria underpin course ILOs and are considered by the instructors, they may have not been addressed clearly.

This grading rubric follows a criterion-referenced assessment. The grid defines each criterion and correlates it with letter grades that are defined both qualitatively and quantitatively, in order to represent the competence level achieved. For instance, the range of letter grades, B-, B, and B+, are associated with scores ranging from 70 to 79.

As mentioned above, the grid (see Appendix D) is constructed based upon two main categories (coherence and cohesion) associated with the ILOs in writing the summary. The content of each of these categories is divided into further subcategories. In addressing coherence, informed by the relevant literature (cf. sections 1.5.1.2., Paragraph structure, and 1.5.1.3., Propositional functions/coherence relations), and the observations based on the first set of collected texts, the grid takes into account the elements of paragraph coherence and propositional functions (explored in section 1.5.1, Coherence). The overall score for coherence is out of 700 based on the described categories; the total score for sentence coherence is considered as 400 based on the elements contributing to this category and the total score for paragraph coherence is regarded as 300 based on the components embedded in this category (Appendix D)²³.

In addressing cohesion, informed by the literature regarding the elements contributing to cohesion (cf. 1.5.2.1., Grammatical cohesion, and 1.5.2.2., Lexical cohesion) and the recurrent observations in the texts reported by the scholars (cf. Ahmad, 2019; Dumlao & Wilang, 2019; Faradhibah, 2017; Zulfigar, 2019) as well as the issues observed in the first set of texts, the grid looks at the use of CDs that contribute to cohesion in the text from two main angles: their appropriate use and their variety (measures defined in section 2.6.3., Writing sample analysis). This means that the overall score considered for cohesion is out of 600 given the separate scores assigned to each measuring criterion (Appendix D)²⁴. In addition to these criteria that are

²³ Sentence coherence is measured based on 4 main elements, each of which is counting for a score of 100 (therefore makes a score of 400 in total, if a student demonstrates 100% competency) and paragraph coherence is measured based on 3 main elements, each of which is counting for a score of 100 (therefore makes a score of 300 in total, if a student demonstrates 100% competency). For instance, if based on the two categories of sentence and paragraph coherence, Judge 1 assigned the total score of 600/700, Judge 2 assigned the total score of 615/700 and Judge 3 assigned the total score of 640/700, the total score of coherence for the student would be equal to 1855.

²⁴ Cohesion is measured based on 3 main elements. Each of these elements is measured based on two criteria to which a score of 100 is assigned (therefore this makes a score of 600 in total, if a student demonstrates 100% competency). For instance, if Judge 1 assigned the total score of 500/600, Judge 2 assigned the total score of 515/600 and Judge 3 assigned the total score of 540/600, the total score of cohesion for the student would be equal to 1555.

mentioned on the grid, the analysis of the results focused on the density of CDs in the produced texts to gain a better picture about the relationship (if any) between the number of CDs and the levels of cohesion.

To better understand what the students might have been expected to produce/use in light of what they saw in the videos, we explore the following examples extracted from the sample texts (Appendix K) produced by the judges based on Video 1 and Video 2. They considered that the excerpts below demonstrated an “excellent level of competency” demonstrating these letter grades, A-, A, A+ that are associated with the range of scores from 80 to 100.

The first grading rubric assesses sentence coherence. The examples provided indicate the elements pertaining to sentence coherence. Prior to explaining the examples, it should be noted that in evaluating sentence coherence, “anticipation of a problem” plays a part in establishing propositional functions (Pinker, 2015). However, based on the collected set of texts for the purpose of this project, this criterion is not observed in the texts produced by the students. In this respect we can refer to Lautamatti (1982), who discusses two facets of discourse coherence: coherence in written discourse and coherence in spoken discourse. The scholar names propositional coherence as a feature of written discourse versus interactional coherence as the feature of spoken discourse. She emphasizes that the elements contributing to interactional coherence include verbal interactions that are not seen in propositional coherence. Based on this explanation, it becomes clear that this criterion pertains to spoken discourse and that is why the collected samples did not include the criterion. Therefore, when assessing the participants’ texts in terms of sentence coherence, this criterion was not taken into account.

Based on their observation, the judges looked into whether propositional functions were achieved at sentence level. They sought to determine whether a logical relationship was established between all the components of a sentence and, informed by relevant literature (cf. section 1.5.1.3., Propositional functions/coherence relations), they referred to and included these four types of relationship between the sentence components: resemblance, contiguity, cause-effect, and attribution. As explained earlier, the overall score considered for these four categories is out of 400. The selected excerpts present each element that contributes to sentence coherence by establishing the intended relation, and they stood as potential models for grading.

Sentence coherence	Excerpts from the sample text based on Video 1
Resemblance	 and the students leave the place with no further disruptions.
Contiguity	Immediately after observing this incident, Virginie negotiates with the protestors in order to calm them down and avoid the case to get escalated
Cause-effect	Virginie negotiates with the protestors in order to calm them down and avoid the case to get escalated
Attribution	At the end of the video , Virginie shares relief that the situation is handled successfully

Example 1. Sentence coherence examples. pre-instruction text

The next grading rubric designed for this project focuses on paragraph coherence. The examples chosen by the judges demonstrate elements corresponding to paragraph coherence.

Paragraph coherence	Excerpts from the sample text based on Video 1
Topic sentence	Based on the recording, Virginie, a senior police officer, is informed that she must maintain security of the Sorbonne district due to the Prime minister's visit and prevent any potential student protest in the area.
Discussion of the main points	Firstly, Virginie alongside her team visit the area..... Meanwhile, they recognize some students are acting disruptive.
Concluding sentence	At the end of the video, Virginie shares relief that the situation is handled successfully, despite what she initially thought of it to be causing chaos and danger.

Example 2. Paragraph coherence examples. pre-instruction text

Finally, the third grading rubric looks into establishing cohesion and illustrates its corresponding elements. Accordingly, another set of examples are written by the judges to shed light on these aspects.

Cohesion markers	Excerpts from the sample text based on Video 1
Conjunction	Additive: Virginie alongside her team visit the area....., and ensure the neighbourhood is protected against any potential student protest Adversative:Virginie shares relief that the situation is handled successfully, despite what she initially thought of Temporal: Immediately after observing this incident, Virginie negotiates with the protestors in order to calm them down and avoid the case to get escalated
Pronoun references	Virginie, a senior police officer, is informed that she must maintain security
Lexical references	Virginie, a senior police officer, is informed that she must maintain security of the Sorbonne district due to the Prime minister's visit and prevent any potential student protest in the area

Example 3. Cohesion markers appropriateness examples. pre-instruction text

As for the ranges in each category of cohesion markers, given the short length of the video and the text produced correspondingly, the judges referred to the following examples that could refer to the existing types of CDs in each category in their produced texts.

Cohesion markers	Excerpts from the sample text based on Video 1
Conjunction	Examples: and, due to, despite, ultimately, immediately after.....
Pronoun references	Examples: her, she, they, them
Lexical references	Examples: Virginie, a senior police officer, Sorbonne district the area

Example 4. Ranges of cohesion markers examples. pre-instruction text

The following examples are selected from the second text based on Video 2 contributing to sentence coherence.

Sentence coherence	Excerpts from the sample text based on Video 2
Resemblance	<i>This makes Valerie and her colleague search the building for some evidence, but they could not find anything, and had to leave</i>
Contiguity	<i>After stopping the car, Valerie asked for the car's documents.....</i>
Cause-effect	<i>On the way back, they saw a car whose lights were off. Therefore, they followed the car and asked the driver to stop.</i>
Attribution	<i>The video starts with, Valerie, a female police officer, receiving a call about some disruptions in a residential area.</i>

Example 5.Sentence coherence examples. post-instruction text

Based on the second text, the examples pertaining to paragraph coherence are presented below.

Paragraph coherence	Excerpts from the sample text based on Video 2
Topic sentence	<i>The video starts with, Valerie, a female police officer, receiving a call about some disruptions in a residential area.</i>
Discussion of the main points	<i>One of the neighbors, who is a female individual, complains to Valerie about these young individuals smoking drugs and causing inconveniences. This makes Valerie and her colleague search the building for some evidence, but they could not find anything, and had to leave.</i>
Concluding sentence	<i>Consequently, they took the driver to the station for follow up, which ended their evening mission.</i>

Example 6.Paragraph coherence examples. post-instruction text

As well, the judges listed the following examples that could reflect the appropriate use of cohesion markers.

Cohesion markers	Video 1
Conjunction	Additive: <i>Therefore, they followed the car and asked the driver to stop....</i> Adversative: <i>While leaving the building, the troublesome group insulted them; however, Valerie and her colleague disregarded the incident</i> Temporal: <i>Next, they go to the reported location and as soon as they enter the building, they notice a weird smell....</i>
Pronoun references	<i>This makes Valerie and her colleague search the building for some evidence, but they could not find anything</i>
Lexical references	<i>Next, they go to the reported location and as soon as they enter the building, they notice a weird smell</i>

Example 7.Cohesion markers appropriateness examples. post-instruction text

Finally, there are some examples listed by the judges regarding the variety of cohesion markers in each type that are present in their produced sample. However, it should be noted that due to the short length of the texts, the judges did not have the opportunity to give more than one type of CD in each category.

Cohesion markers	Excerpts from the sample text based on Video 2
Conjunction	Examples: <i>and, but, after, consequently, therefore, while.....</i>
Pronoun references	Examples: <i>her, she, they, them</i>
Lexical references	Examples: <i>Valerie, a female police officer, a residential area, the reported location.....</i>

Example 8.Ranges of cohesion markers examples. post-instruction text

2.5.2. Delivery of activities

The workshop sessions were delivered in English and ran in two formats: a) synchronous (interactive teaching and summary-writing exercises one-on-one with the students) and b) asynchronous (in the form of online activities and independent study of instructional materials performed by the students). These sessions were free, voluntary, not a part of a regular curriculum, were not for credit, and had no connection with or impact on the courses that the participants selected as their program requirements in summer/fall 2021 semester. The condition for recruitment was that students should have already obtained a pass mark in two English courses at consecutive levels.

The following instruments were employed to collect data: surveys²⁵, screen recordings, writing samples, and semi-structured interviews.

Zoom software for video conferencing was employed for running the synchronous tutorial sessions, communicating with the students during the tutorial sessions, observing and recording their writing process as well as conducting interviews. Instructional materials and survey links were sent to students' emails upon their request. Zoom software was also used for collecting interview data from the judges, but for collecting instructor survey data, the volunteer instructors responded to an online anonymous survey that was attached to the initial recruitment message.

The data was collected online from late April to late September 2021. Prior to the data collection, ethics approval was obtained from the University of Ottawa's Social Sciences and Humanities Research Ethics Board and the Research Ethics Board at the post-secondary institution where the research was conducted (Appendix A).

2.5.3. Participants

The pool of participants comprises two main groups: ESL students and instructors. Participants volunteered to participate in the study and therefore were self-selected. Six students at an Ontario post-secondary institution offering courses in French participated in my online tutorial/workshop sessions. These are Canadian Francophone students who have already completed two English compulsory courses that are offered in consecutive levels. With French as their L1, they were completing a major portion of their program in classes where

²⁵ All surveys were managed and delivered via the Canadian version of Survey Monkey (<http://surveymonkey.ca>) and data were stored on Canadian servers.

French is the obligatory language of instruction. These students were recruited immediately after completing two obligatory (and consecutive) English courses categorizing them as high-intermediate ESL students. Students were informed that the workshop sessions were not a part of a regular curriculum providing the students with a credit. I also emphasized that these sessions were completely voluntary and had no impact/connection with the student participants' program course requirements. In addition, I made students aware of the fact that while they would not be given any rewards for participating in the workshop sessions, by attending a series of free online sessions, they could improve their summary writing skill in terms of coherence and cohesion, with feedback provided by myself and 3 professional ESL instructors. Table 1 includes the demographic information of the student participants²⁶.

Age	Gender		Total
	Male	Female	
Under 20	0	0	0
20–29	2	2	4
30–39	0	2	2
40 or over	0	0	0
Total	2	4	6

Table 1. Distribution of student sample by gender and age group

After distributing the recruitment message among the instructors, 23 instructors teaching ESL courses at the same institution participated in the instructor survey. Among these instructors, 3 volunteered to participate in this project as judges and evaluated 2 sets of writing samples gathered from the student participants in two stages of pre- and post-instruction, as well as participating in a semi-structured interview after data collection from the student participants was completed. I informed them about their time investment, at the very beginning of the project in my recruitment message, and also in the consent form.

As shown in Table 2, 10 participating instructors (43%) were between 30-39 years of age, eight participants (35%) were from the age group of 40-49, and five instructors (22%) came from the age group of 50 or over²⁷. The instructors reported various first languages. To preserve anonymity, the instructors' first languages are not presented in Table 2, but are tagged here under their corresponding continents as American anglophone, Asian and European non-anglophone.

²⁶ Since French is the first language of all the participants, it is not included in the Table. As well, the option "prefer not to answer" was also provided but was not selected; therefore, it is not included in the Table.

²⁷ The options "under 30" and "prefer not to answer" were provided but never selected; therefore, they are excluded from the Table.

Age	Gender		Total
	Male	Female	
30–39	7	3	10
40–49	6	2	8
50 or over	4	1	5
Total	17	6	23

Table 2. Distribution of instructor sample by gender and age group

For student participants and judges, non-gendered pseudonyms are assigned and the pronoun “they” is used to refer to participants throughout, to maintain their anonymity while facilitating discussion of their individual responses and data.

2.5.4. Procedure

The following subsections will cover what each element of data collection constituted and contributes to the project. Specifically, which research questions and what part(s) of the questions each element addresses will be examined.

2.5.4.1. Surveys

As mentioned above, this study is guided by three main research questions:

- 1- What are ESL students’ typical coherence/cohesion challenges in academic writing?
- 2- What writing behaviours, such as the use of technologies including FOMT, influence these challenges?
- 3- Can ESL students be trained to better achieve coherence/cohesion in academic writing? How does this training affect writing behaviours, such as the use of technologies including FOMT?

For the purpose of the second research question and, in particular, to address the behaviours influencing coherence and cohesion, I ran two online surveys: 1) student initial survey and 2) instructor survey (Appendix B). The student initial survey was not anonymous²⁸ and investigated students’ perceptions and opinions regarding the use of tools (e.g. FOMT) and strategies in ESL writing. This survey was completed by 6 student volunteers before they received any instruction. However, the instructor survey was anonymous and acted as a complementary explanation to help understand students’ current FOMT use.

²⁸ The reason for making the student survey non-anonymous was to allow cross-referencing of the student data collected throughout.

In this survey, 23 instructors shared their opinions and perceptions regarding the use of FOMT tools in ESL writing²⁹.

Considering the third research question, to investigate changes in behaviour, after the second tutorial session and when students completed the project activities, I ran a post-survey. Survey data from the students allowed me to investigate any changes in their opinions and perceptions of the use of various tools in ESL writing and reactions to the project activities.

2.5.4.2. Screen recordings: pre- and post-instruction

The student surveys described above will reveal how and to what extent students believe they use FOMT for writing, in general, and for the purpose of this project, in particular; however, we could not rely on them alone to confirm actual practices. To this end, I collected two sets of screen recordings. For the purpose of the second research question, to examine writing behaviours, such as the use of technologies including FOMT, that influence the students' coherence and cohesion challenges, I recorded and collected the participants' computer screens while they were completing their summaries. This helped me to observe their use of various strategies and tools, including technologies such as FOMT. As well, to address the third research question, to explore whether training affects their writing behaviours, such as the use of technologies including FOMT, I recorded and collected the second set of screen recordings while they were completing their second summary.

2.5.4.3. Writing samples: pre- and post-instruction

The first research question aimed to cast light on ESL students' typical coherence/cohesion challenges in academic writing. To address this aspect, writing samples were gathered during the first workshop session (prior to any instruction) and during the second workshop session after receiving instruction. At each stage, ESL students watched a short video (as explained in section 2.5.1., Design and delivery of teaching and learning activities) and wrote a summary in the form of an extended paragraph including the essential evidential elements only.

²⁹ Although it is not explicitly mentioned in the research questions, a comparison between the instructors' views regarding the use of FOMT in ESL writing and their observations of the students' use with the students' perceptions assisted in gaining a more complete picture about the students' baseline use of tools.

Prior to writing, students were asked to follow some oral and written guidelines that are explained below (see the corresponding lesson plan and instructions in Appendix J, which also contains the links to the videos). In explaining the guidelines, I refer to them as the pre-instruction and post-instruction guidelines in two forms: oral and written.

2.5.4.3.1. Oral guidelines

As explained above, in the pre-instruction stage, I asked the participants to watch a short video based on which they wrote a summary. Initially, I explained that the purpose of writing is to produce a coherent and cohesive summary report in line with what they had been writing in their programs. I also explained that their audience would be myself and three other experienced ESL instructors who would evaluate their texts for the purpose of this project. The students were already familiar with the nature of the video content as the source of their writing (due to their program requirements explained above). However, I still explained that the video they were supposed to watch was demonstrating police interactions. Students were also familiar with writing summaries based upon such videos due to their program requirements. I mentioned to my participants that they could use FOMT in the process of writing, if they wished. Next, I asked them to watch the video and write a summary (Appendix J) and read the written instruction to ensure clarity.

The initial plan was to ask three students to watch Video 1 as their source for writing the first summary and three students to watch Video 2 as their source for completing the first summary in order to reduce the possibility of seeing variations between summaries that were due not to the instruction but rather to the videos themselves. By alternating, I would (presumably) have been able to get a sense of whether one of the two videos tended to lend itself better to bringing out coherence and cohesion, or certain types of markers thereof, and account for that in drawing any conclusions. However, the planned scenario was not perfectly accomplished, due to a technical glitch that two participants (i.e. Casey and Robin) encountered in opening the link³⁰. Therefore, five participants completed their first summary based on Video 1 and 1 student (Taylor) completed their first text based on Video 2. This incident resulted in discussing the collected data pertaining to Taylor in a separate section (section 3.4.9., Taylor).

³⁰ This incident is mentioned as a limitation and discussed in section **4.2.7. Limitations**.

Another objective of this study was to ascertain whether students could be trained to better achieve coherence/cohesion in academic writing and subsequently achieve higher quality in the post-instruction texts. In pursuit of this objective, and after collecting the first batch of samples, I provided instruction on coherence and cohesion as well as on summary writing that could help students in the production of summaries. However, I did not provide instructions on how to use FOMT in the process of writing. Finally, I asked the students to review the materials and activities independently prior to the second workshop.

In the post-instruction stage, the second one-on-one session, I reviewed the teaching materials and specified that due to the nature of their program and for future relevant purposes (i.e. writing incident reports), the students must pay attention to what we had reviewed and the feedback on their first texts. In addition, I explained the scores the students had received on their first summary task and clarified each element of the rubric, reviewed the connecting words (cf. Appendix F) and their summaries with them, and explained how they could have developed their texts in terms of coherence and cohesion. For instance, Jean asked a question about their coherence score, mainly regarding paragraph coherence; Riley shared their disappointment regarding both coherence and cohesion criteria and asked how they could submit a text that would be more “prestigieux” for the purpose of the second summary.

In particular, informed by the literature, I emphasized the role of markers of attribution in writing a police report, provided some examples, answered questions and explained that these markers add credibility to their reports. Interestingly, Riley explained that at workplace, their reports were criticized as “biased” as if they had written their personal reflection, but not a report demonstrating an incident. We reviewed the markers of attribution together and I explained that by employing markers such as “according to” or “based on,” they would be able to clarify the situation described in a summary report.

After answering the students’ questions and providing clarifications, I reiterated the purpose of writing and the audience. Next, I provided them with the link to a new video, addressing the same concept of police interaction. I explained to them that based on the principles of summary writing and coherence and cohesion that were explored during the workshop sessions, they needed to write a summary which is cohesive and coherent. I asked them to report the necessary information they observe in the videos and connect the actions and statements they observed and heard in a logical manner, review and proofread their texts and edit

for coherence and cohesion, if need be. Riley, Casey and Robin asked, in particular, whether they should focus on specific types of CDs in writing the second text. I explained that, depending on how they planned to present and connect their ideas (for instance in cause-effect versus addition and contrast situations), they might prefer to use certain types of CDs over others. I emphasized that they could use FOMT in the process of writing, if they preferred. Three students asked whether they could follow their “life-time” strategy, using GT while writing, and I said that they could. The second set of summaries was graded by the judges based on the same grid and rubric employed at the pre-instruction stage.

Finally, on the third one-on-one session with the students, I provided them with detailed oral feedback on their second summary texts and answered their questions.

2.5.4.3.2. Written instructions

As well as providing students with the oral instructions in each stage, students were also asked to read some guidelines before watching the videos and writing their summaries.

In the pre-instruction stage, students were asked to watch the intended excerpt and create a summary with a certain length and during a limited time (Appendix J). The length and the duration of the summary task were based on the typical length and timeframe that the students were following for writing summary reports in their program.

The written instructions also specified that the students needed to avoid adding their personal opinions, focus on the important events happening in the video, and present them coherently and cohesively. Meanwhile, they were informed they could use the tools they would “normally” use while writing in English. As well, a part of the written instructions shed light on the objectives for writing the summary report.

The post-instruction written guidelines reflected the same content the students read when they completed their first summary task, with the exception of the link to another video. As mentioned above, they were reminded verbally that, based on the feedback they had received, they had to follow the instructions they had received about summary writing, coherence and cohesion and that they should review and proofread their texts before submitting.

2.5.4.4. Interviews

As mentioned earlier (in section Research questions), another objective corresponding to the third research question was to probe changes in texts and in behaviours. This required

conducting one-on-one semi-structured interviews (Appendix E) with the student participants as well as judges after finishing the workshop activities (between three and five weeks after the last one-on-one online session with the students).

The collected data included the one-on-one semi-structured interviews with five student participants, in which I explored their reactions to the project activities and (perceived) differences in writing (see section 3.4.7. Semi-structured student interviews and comparison of results). Perceived differences in the writing were also discussed in interviews with the judges (see section 3.4.8. Semi-structured instructor interviews and comparing the results).

To achieve “rich and vivid” descriptions of the writers’ task representation, several researchers have used a specific interview technique by utilizing screen capture recording for stimulated recalls in investigations of writing processes (e.g. Gánem-Gutiérrez & Gilmore, 2021; Khuder & Harwood, 2019). The authors explain that this technique stimulates the writer’s retrospection, and that the writer can accordingly interpret the writing behaviour during the interview session. Informed by these studies, in my interviews with the student participants³¹, in some situations where there were inconsistencies between the survey data and the behaviour observed based upon the recordings, or the recordings were revealing specific behaviour during the writing process, I played the recordings back, paused them at various points to ask questions that prompted participants to remember and verbalize what they were trying to do and why (not only in terms of FOMT use but also in terms of coherence and cohesion management). In doing so, I probed to what extent their verbalizations may provide evidence of what they have learned from the workshop and their general perceptions about FOMT. For instance, I asked Taylor about the inconsistency in their survey report on the frequency of tool use and their actual use based on the screen recordings during the workshop sessions. I also asked Jean about their use of tools during the writing process and the rationale behind cross-checking different FOMT sources for the purpose of producing their summaries.

In my interviews with the judges, I also asked them to review their assigned scores and explore the anonymized texts for examples relevant to their points. As well, I probed their opinions about some relevant points reported in the instructor survey to obtain a better

³¹ As mentioned here, the recordings were only shared with the student participants. They were not shared with the judges to avoid breach of privacy and confidentiality terms.

understanding of a question that was addressed in the student and instructor surveys as well as student interviews.

During the interviews with the students and judges, the volunteer participants asked for elaboration and clarification of the questions, and the point of each question was highlighted. As a result, some discussion occurred, and the interviews went in directions not necessarily expected from the interview questions.

2.6. Data analysis

According to Creswell and Plano Clark (2007), mixed methods research includes both quantitative and qualitative analysis.

The data analysis of this study consists of four sections: survey analysis (quantitative and qualitative), text/writing sample analysis (quantitative and qualitative), screen-recording/video analysis (quantitative and qualitative) and interview analysis (qualitative).

The qualitative analysis is based on data from the semi-structured interviews and open-ended questions on the surveys, as well as observations made by coding and identifying common themes in the writing samples and videos. As well, the quantitative data that emerge from the evaluation grid, including coherence and cohesion analyses, has informed a qualitative analysis describing changes in the overall text quality of the samples gathered.

It should be noted that, overall, very few statistical tests have been applied to the data; small samples and variability in the responses reduce the statistical power of such tests. Accordingly, no claims will be made as to statistical significance. Our analysis will instead focus on descriptions, with some quantitative support.

2.6.1. Survey analysis

After the survey data was gathered from the students and instructors, it was examined and checked for completeness. Next, questionnaire items were examined using the Statistical Package for the Social Sciences (SPSS) software, which allowed for data to be exported to Microsoft applications. As explained above, only a logistic regression test between the characteristics of instructors and their overall perceptions of usefulness of FOMT tools in ESL writing was run (details are presented in section, 3.4.8.1., Perceptions and use of FOMT tools). It should be noted that in running this statistical test, the characteristic of first language did not demonstrate a statistically meaningful relationship with the perceptions about FOMT usefulness

(Table 80., Correlation between the instructors' characteristics and their perception about the overall usefulness of FOMT). Therefore, in the corresponding Table, the first language is not included.

The open-ended questions were also analyzed qualitatively: I read the answers provided and made categories and sub-categories of the main themes to identify the participants' opinions and perceptions.

2.6.2. Video-observation analysis

The video recordings gathered during the writing process were analyzed manually. The purpose of collecting the screen recordings was to identify participants' writing behaviour and use of strategies. I watched each recording multiple times, observed the participants' use of various strategies and tools, and identified the segments that were translated by the participants (detailed analysis is presented in section 3.3., Pre-instruction video analysis). For instance, I counted the number of times FOMT was utilized by each participant, for what purposes, and in which direction, to identify whether such strategies contribute to more developed levels of coherence and cohesion than in texts produced without FOMT. In addition, I looked at how the CDs in the texts were produced, to observe whether the participants drafted the CDs manually or resorted to FOMT in drafting them. This assisted in analyzing whether, overall, FOMT played a role in producing CDs in the submitted texts, and it laid the groundwork for comparing the levels of cohesion in the texts embedding FOMT-generated CDs with the levels found in texts containing manually drafted CDs. I coded the videos to indicate these points and behaviours and identified categories that contributed to the production of coherent and cohesive texts (detailed analysis is presented in section 3.3., Pre-instruction video analysis).

2.6.3. Writing sample analysis

The writing samples produced at the two stages of pre-instruction and post-instruction (mentioned previously) were analyzed quantitatively and qualitatively.

In analyzing the texts, two aspects are of central interest for the purpose of this project: as explored earlier, coherence (at a conceptual level) and cohesion (at a linguistic level) (cf. Delisle 1999, 24), described in more detail in the Glossary section as well as in the literature review (section 1.5.1., Coherence, and 1.5.2., Cohesion). To identify the levels of coherence and cohesion, the samples were evaluated by three judges based on the grids that were developed in

light of relevant literature (cf. sections 2.5.1., Design and delivery of teaching and learning activities, and 2.5.2.3., Writing samples: pre- and post-instruction).

In terms of evaluating the level of coherence in the produced texts, informed by the literature mentioned above and observations on the first set of texts, the grid included sentence and paragraph coherence as evaluation criteria. In assessing the level of cohesion in the texts, the grid focused on the presence/absence of CDs in the produced text as well as whether they were used appropriately and in a wide range in each type in scoring the texts.

In the context of this study, as mentioned briefly in section, 2.5.1., Design and delivery of teaching and learning activities, the grading rubric includes the “appropriateness” criterion. This criterion refers to whether the cohesion markers that have been employed by the participants establish clarity of meaning “within a sentence or sentences with each other in a text or utterance” (cf. Delisle et al., 1999, p. 124) “through a co-referential relationship with the presupposed item/s” (cf. Zulfiqar, 2019, p. 14). The grading rubric also includes the “variety” criterion, which is based upon observing whether the students employ a wide range of devices within different categories of cohesion markers in the texts from which we can draw some (tentative) conclusions about the extent of knowledge that the students demonstrate in this area.

In addition to the criteria described here, in analyzing the texts, I also focused on the density of CDs. The rationale behind this focus was shaped by the literature on the relationship between the number of CDs and the levels of cohesion in a text (cf. section 1.6., Evaluating coherence and cohesion in L2 and summary writing).

2.6.3.1. Procedure

For analyzing the writing samples, the following steps were taken into account.

2.6.3.1.1. Grading the collected samples

By means of the evaluation grids that I developed, the pre- and post-instruction texts were graded by myself and the three judges. After collecting the first sample, I graded the summary texts and sent the grades along with my feedback to the participants’ emails. After the second set of writing samples was collected, I graded the second set of texts and sent the grades and my feedback to students. Next, I anonymized both sets of samples and sent them to the judges for grading. I did not inform them which set was collected earlier than the other set to

ensure their assessment was not affected based on the information about my workshop instruction.

2.6.3.1.2. Verifying inter-rater reliability

In order to ensure consistency in the grading by the judges, inter-rater reliability was verified as presented below. As suggested by Koo and Li (2016), when the rating scale is either ordinal or continuous, the Intraclass Correlation Coefficient (ICC) can be employed to measure the strength of inter-rater agreement. The authors explain that this type of test is deemed appropriate for studies with two or more raters (which is the situation in this project) and add that ICC reflects “both degree of correlation and agreement between measurements” (p. 156). The authors clarify that this type of test is more precise compared to a Pearson correlation coefficient test, because ICC does not focus on the degree of correlation between the measurements as the only factor when seeking reliability, but it also focuses on the agreement between them. According to the authors, ICC tests are of different forms/models and formulated differently. For the purpose of this project, the two-way mixed-effects model has been used. As the authors describe, when the raters (the Judges in the case of this project) are the only raters of interest and are not selected randomly from a larger population of raters, this model should be applied.

SPSS statistical package version 26 was used to compute a two-way ICC to assess the agreement between the scores assigned to 2 sets of 6 summary texts by the 3 judges (Appendix L). Based on the obtained ICCs, overall, it is appropriate to conclude that the level of reliability is “good” to “excellent” with higher ICC values among the post-instruction scores than in the pre-instruction scores.

	Students (n)	Judges (n)	ICC-value	P-value
Cohesion-pre	6	3	0.814	0.001
Cohesion-post	6	3	0.927	0.0001
Coherence-pre	6	3	0.859	0.0003
Coherence-post	6	3	0.884	0.0004

Table 3. ICC value

*The ICC value below 0.50 is considered poor, between 0.50 and 0.75 is considered moderate, between 0.75 and 0.90 is regarded good, and above 0.90 is excellent.

** The confidence interval is 95%

2.6.3.1.3. Quantitative and qualitative analyses of the data

Based upon the grids and the produced tests, various textual features and factors were taken into account in analyzing the texts. To facilitate comparison in the quantitative analysis of

writing samples, the density of various textual features and strategies used are represented in occurrences per 100 words and/or in the percentages of the texts or their features. A comparison was also made of the differences in the grid scores (contributing to the overall text quality) of the texts at both pre-and post-instruction stages.

A qualitative analysis was performed on the themes that emerged after the quantitative analysis. These themes were described based on their contribution to the development of coherent and cohesive texts and were subsequently cross-checked using the themes that emerged from the survey, video and interview data, to identify how they could shed light on each aspect of the research questions. For instance, after comparing the scores and identifying the highest and the lowest levels of cohesion in the pre- and post-instruction texts, we observed that students demonstrated different competencies. This observation needed to be compared with the results of surveys, interview and screen-recording data to gain a better understanding of how such differences came to be.

2.6.4. Semi-structured interview analysis

Interviews were analyzed qualitatively. To analyze the data gathered from the interviews, I used a modified constructivist grounded theory analytical approach (Charmaz, 2006). This method of analysis entails a constant comparison of data during each phase of analysis, in which pre-established categories are not applied to the data; instead, “qualitative codes and categories will be created by observing and interpreting the data” (Charmaz, 2006, p. 43).

I began by examining the interview transcripts and reviewing the data I gathered. This review allowed for the deletion of incomplete or duplicate responses and provided a clearer set of transcripts. I then undertook the first phase of coding, the “initial coding” (Charmaz, 2006, p. 43), in which the interview transcripts were broken up into chunks (e.g. words, phrases, paragraphs) in order to “assign conceptual categories into data segments” (Dörnyei, 2007, p. 260). I coded the data in a systemic way, line by line, and highlighted words, segments and incidents for their analytic import to create some *in vivo* codes. For instance, I focused on the words/phrases or general segments that were recurrently mentioned by participants in regard to translation tools and their contributions in producing coherent and cohesive summaries. In the next phase of coding, I searched for patterns and tested them against the body of data I had gathered in order to understand why those patterns and codes had appeared (Charmaz, 2006). Finally, I started my “theoretical coding” (Charmaz, 2006, p. 42) phase, classifying codes with

shared characteristics to observe the bigger picture emerging from the coherent body of gathered data and form a hypothesis, which was subsequently incorporated into the existing theoretical framework. After reaching theoretical saturation, when repeating patterns were observed and no new concepts were identified, coding ceased. This constant comparison of data during each phase of analysis resulted in the identification of recurring themes and an overall inductive analysis.

2.7. Conclusion

This chapter provided an explanation of the guiding framework for this research and explored an account of the research design. As discussed, this mixed-methods study is based on data derived from surveys, interviews, video observations and writing samples, which are analyzed both quantitatively and qualitatively. The analyses assisted in gaining a better understanding of the students' baseline L2 coherence and cohesion challenges. As well, in light of the collected data, we were able to understand how/whether instruction could influence the participants' writing behaviour, including using technology (particularly, FOMT), and enhance their ESP compositions in terms of coherence and cohesion. These observations are discussed in detail in the next chapter.

Chapter 3: Results

This chapter presents the analyses of the data collected for this study. The first part of this chapter presents the results of the initial survey collected from the student participants. The results of the writing samples collected in the pre-instruction stage will follow. The chapter continues with the analyses of the pre-instruction screen recordings gathered from the student participants. The key points gathered from these sections will provide the initial findings that shed light on the participants' baseline skills. Next, the pre-and-post-instruction results will be compared to investigate any perceived differences in writing and the reactions to the project activities. Finally, the interviews with the students and judges will be presented and compared with the survey reports to build a profile of the beliefs and perceptions shared by the students, judges and instructors.

3.1. Pre-instruction student survey analysis

To lay the groundwork for one of the aspects of this research, ESL students' writing behaviours (such as the use of technologies including FOMT), participants were asked to complete an initial survey. With this survey, we aimed to establish a baseline of students' opinions and perceptions regarding the use of tools (particularly FOMT) and strategies in ESL writing.

Below, we will provide an overview of the initial survey results as a baseline and then, in the post-instruction section, compare the results of the two surveys to identify any changes in the students' perceptions and opinions.

3.1.1. Perceptions and use of FOMT

Based on Table 4, the results demonstrate that the participants were relatively homogeneous in their use of and attitudes towards FOMT. Most of the six respondents³² agreed that they used FOMT at relatively high frequencies (with four answering “usually” and two—Taylor and Alex—answering “often”). In addition, they reported that, overall, they used it to translate both from their L1 to English and from English to their L1 (the single exception being Riley, who indicated using it only to translate from their L1 to English). In general, the

³² As explained in Chapter 2: Methodology, non-gendered pseudonyms have been assigned and the pronoun “they” will be used to refer to participants, to maintain their anonymity while facilitating discussion of their individual responses and data.

participants reported using MT for small units of text (to translate phrases and expressions) rather than larger ones (except Casey, who reported using FOMT to translate larger blocks of text such as sentences or paragraphs). Moreover, while all the participants (except Alex) used the tools to translate words, only Riley and Jean reported using the tools to double check the meaning of words. Finally, five participants found FOMT fairly useful, with the exception of Alex, who considered it not very useful.

	Riley	Jean	Casey	Taylor	Robin	Alex
Use of FOMT	Usually	Usually	Usually	Often	Usually	Often
Use of FOMT by direction	L1 to L2	Both	Both	Both	Both	Both
Perception of FOMT usefulness	Fairly	Fairly	Fairly	Fairly	Fairly	Somewhat
Tasks performed						
Translating phrases/expressions	Yes	Yes	Yes	Yes	Yes	Yes
Translating words	Yes	Yes	Yes	Yes	Yes	No
Checking meaning in L1	Yes	Yes	No	No	No	No
Translating sentences	No	No	Yes	No	No	No
Translating paragraphs	No	No	Yes	No	No	No

Table 4. Perceptions and use of FOMT, pre-instruction survey

The widespread reported use of FOMT suggests that, as expected, monitoring use of this tool during the writing process is likely to contribute key information about the process and strategies. For instance, these results indicate that students were frequent users of FOMT in their ESL writing but also that they were able to write in their second language without recourse to this tool in at least some circumstances. To explore the contributing factors, this aspect has been addressed in section 3.4.7. Semi-structured student interviews (e.g. section 3.4.7.2. Purpose and direction of use).

However, the analysis will not exclude other potential tools. The relative homogeneity in reported FOMT use gives us a fair amount of stability from which we can explore the texts produced and the process of drafting them, although the few variations and exceptions will be taken into consideration where applicable. The data on self-reported use of FOMT will be compared and contrasted with the video recordings (section 3.3.2. Drafting techniques) to determine how closely reported and observed use coincide. The Interview section (3.4.7.5. Brainstorming and organizations of ideas in L1 boosts confidence) will also shed light on the reasons for consulting the tools; therefore, we will be able to understand more about the direction of tool use as well.

3.1.2. Motivations for FOMT use

It is also relevant to consider the participants' reports on their use of the tools and what motivates them in doing so. The respondents indicated that they were somewhat in agreement with statements indicating that using FOMT was faster, easier and allowed more focus than writing without this tool. In addition, they were somewhat in disagreement with the statements that using FOMT could cause problems or that they did not trust FOMT for help with class work (Table 5), although the variability was relatively low. This indicates that, in general, the students had somewhat positive, but still cautious perceptions, of FOMT's potential role as a writing aid, which is in line with their reported use, as well as some of the literature described in section 1.12.2. Machine translation in L2 and translation settings: On the downside. This aspect will be captured in the Interview section (e.g. 3.4.7.3. Ease and speed of use) as well, to gain a better understanding about their overall attitude towards the tool use.

3.1.3. Advantages and disadvantages of FOMT

In the initial surveys, the participants reported some advantages and disadvantages of FOMT tools in ESL writing. These points were combined into sub-groups based on my interpretation of each comment's main topic.

3.1.3.1. Advantages

The results indicate FOMT tools are reported to have three main benefits: they 1) simplify the ESL writing process, 2) help with the organization of ideas, and 3) increase confidence in the process of writing. Among the responses, the most frequently reported benefit is that the tool eases the task of writing in different ways, while they also contain errors (e.g. mistakes in the MT output) requiring the participants to have the language skills to edit the produced text in order to use the tools effectively (Table 6).

Motivations		Strongly agree (5)	Agree (4)	Disagree (2)	Strongly disagree (1)	Neither agree nor disagree (3)	Weighted average
Ease	It can be easier for me to write in my L1 and then use FOMT to translate to English than to write directly in English.	1	3	2	0	0	3.5
Speed	It can be faster for me to write in my L1 and then use FOMT to translate to English than to write directly in English.	1	3	2	0	0	3.5
Organization	I can organize my ideas better, if I write in my L1 and then use FOMT to translate to English than if I write directly in English.	1	3	2	0	0	3.5
Preference	I prefer to write in my L1, and then use FOMT to translate to English than to write directly in English.	0	4	2	0	0	3.3
Effectiveness	Problems with FOMT make it harder for me to communicate my ideas in an understandable form in ESL writing.	1	1	2	1	1	2.8
Trust	I don't trust FOMT to help me with my ESL work.	1	1	2	1	1	2.8

Table 5. Motivations for FOMT use, pre-instruction

Benefits		Frequency
FOMT simplifies ESL writing	Word and grammar look-up: “I can verify my spelling and grammar in French and then translate it to English.” FOMT tools are useful with some restrictions since: Requires editing skills: “They make it easier to adapt an L1 sentence into an English sentence, as long as the person is sufficiently skilled in the English language and can coherently change the resulted sentence or expression from an FOMT tool.” Translation: “Translating English text to French can be simplified when using FOMT if the text being translated is 1-2 sentences long.” “It gives me literal translation.”	4
FOMT helps with the organization of ideas	“I can organize my main idea that I put in a sentence.”	1
FOMT boosts confidence in the ESL writing process	“It makes me confident”	1
Total		6

Table 6. Advantages of FOMT, pre-instruction

Overall, while both Jean and Taylor demonstrate a positive general perception of the tool, they point out some restrictions. For instance, Taylor states that such tools are beneficial, if the user possesses the required “editing” skills to improve the quality of the produced text. Jean also refers to the tool providing a “literal translation”, which could imply the idea that editing is required when utilizing the tool. These statements will be addressed in more detail in sections 3.4.7. Semi-structured student interviews and 3.3. Pre-instruction video analysis to identify how the students use FOMT and whether they edit the output.

3.1.3.2. Disadvantages

Of the total of six students, five reported disadvantages of using FOMT tools in the initial survey (Table 7), most frequently that FOMT tools are not always accurate (noted by five participants). The reported disadvantages can be categorized into 1) syntax issues, 2) meaning errors and 3) stylistic issues.

Disadvantages		Frequency
Syntax issues	• “For certain tools for example, BonPatron, sometimes they give me incorrect grammar.”³³ • “A big disadvantage is that French is gendered and English is not, so when translating from English to French, a lot of the grammar can be wrong depending on the context.”	2
Meaning errors	• “Sometimes gives me wrong ideas and meanings.”	1
Stylistic issues	• “Sometimes the translation is awkward.”	1
Unspecified error types	• “It gives me wrong translation.”	1
Total		5

Table 7. Disadvantages of FOMT, pre-instruction

As discussed above, Jean and Taylor mentioned FOMT comes with some restricted benefits (the tools requires editing skills). Moreover, Taylor stated that the produced translation needs to be edited, since from a syntactic aspect French is “gender-based” whereas “English is not”. Not only do these statements clarify the flaws associated with FOMT, but they also bring attention to the topic of MT literacy captured in the literature (cf. section 1.9.1. Machine

³³ Jean referred to BonPatron not producing precise grammar, which seems to be confusing as this tool is mainly an online platform to check spelling and grammar in French; therefore, it cannot be considered as MT. However, analyzing Jean’s video data will assist in identifying how MT could have provided Jean with some output that may have needed editing.

translation and postediting), and from a pedagogical perspective this show how to assist students with improving ESL writing by raising awareness of MT's advantages and disadvantages.

The analysis of survey reports provided some information regarding the students' perceptions of the use of FOMT for ESL writing. In addition, a comparison between the self-reported data, the data elicited from the writing samples and the screen recording data is necessary to obtain students' baseline writing performance and investigate any differences/commonalities between the students' self-reported perceptions and their actual strategies in constructing their first set of texts (e.g. use of FOMT). To this end, the data elicited from the writing samples will be examined first.

3.2. Pre-instruction text analysis

To obtain a portrait of the students' baseline writing performance, we examine the lengths of the produced texts and then assess the texts for levels of coherence and cohesion.

3.2.1. Length

As described in the Methodology chapter (section Writing samples), to accomplish the summary report, the participants were provided with guidelines requesting them to produce a summary of 170 words in 60 minutes. The texts produced contained an average of 170 words, with a minimum of 161 (Alex) and a maximum of 189 (Jean) (Table 8).

Pre-instruction summary	Jean	Taylor ³⁴	Casey	Robin	Riley	Alex	Average
Number of words per text	189	173	167	167	163	161	170 ³⁵

Table 8. Pre-instruction text length

As the table shows, the text lengths remain relatively comparable; nevertheless, as described in the Writing sample analysis section, where relevant to facilitate comparison in the analysis below, the density of various textual features and strategies used will be represented in occurrences per 100 words and/or in the percentages of the texts or their features.

³⁴ Since Taylor is our outlier who used the videos in a different order, their data is presented in colour to call attention to it while comparing their results to those of the other participants. This will help to highlight any differences in Taylor's data that may be due to the choice of video.

³⁵ All values in this document have been rounded to the nearest whole number.

3.2.2. Coherence

As shown in the evaluation grids in Appendix L, the three judges assigned a total score of 700 points per judge and 2100 points for all judges combined. Out of 700, a score out of 400 is considered for sentence coherence and 300 for paragraph coherence. Overall, the judges assigned a considerable range of coherence scores (Table 9) for the pre-instruction texts, ranging from a maximum of 1532 out of a possible 2100 (see Appendix L, Pre-coherence scores) or 73% (Robin) to a minimum of 794 or 38% (Riley). Although correlation was not exact, similarity was observed in scores of sentence and paragraph coherence and length of text, with Alex and Riley scoring at the lower end of all three measures. This suggests the possible emergence of a division between two groups of students whose approaches may be compared and contrasted to observe potential explanations for the differences. There is a considerable gap between the two participants at the lower end of the scores that is also worth exploring.

Overall, as presented in Table 9, the two elements of paragraph and sentence coherence tend to be relatively comparable, in that both show potential for considerable improvement, although paragraph coherence scores trend slightly higher (the scores range from a maximum of 73% of the total possible score to a minimum of 38%, with the average of 60%). Based on these results, we observe gaps and therefore the element of textual coherence does appear to be a valid target for improving writing skills among the participants. As well, in light of these scores and comparing them with the video and interview data (e.g. 3.3.2. Drafting techniques and 3.4.7.1. Frequency of use), we can study whether the participants' writing behaviour (implementation of different strategies in producing the texts such as employing FOMT) may have impacted their coherence scores.

	Robin	Taylor	Jean	Casey	Alex	Riley	Average
Sentence (1200)	834 (70%)	790 (66%)	777 (65%)	685 (57%)	642 (54%)	469 (39%)	700 (58%)
Paragraph (900)	698 (78%)	597 (66%)	581 (65%)	596 (66%)	571 (63%)	325 (36%)	561 (62%)
Total (2100)	1532 (73%)	1387 (66%)	1358 (65%)	1281 (61%)	1213 (58%)	794 (38%)	1261 (60%)

Table 9. Overall coherence scores, pre-instruction texts

Learning more about the details of how each of the elements of coherence is (and is not) maintained in the texts can provide more scope for analysis. Therefore, a breakdown of the scores corresponding to each element will be provided next.

As explained in the Literature review chapter (section 1.5.1. Coherence), establishing coherence is indispensable to creating the relevance and continuity of meaning within a sentence as well as a text. The general trend in scores for various factors contributing to sentence coherence (Table 10) remained relatively consistent with the overall values, indicating that no one type of issue (except, somewhat, for attribution markers) appeared to dominate the students' scores. This indicates that, in general, the students are implementing a range of strategies to maintain sentence cohesion, although improvements are possible.

	Robin	Taylor	Jean	Casey	Alex	Riley	Average
Resemblance (300)	218	219	208	179	180	123	188
Contiguity (300)	219	208	200	189	179	118	186
Cause-effect (300)	214	208	199	174	138	134	178
Attribution (300)	183	155	170	143	145	94	148
Total (1200)	834	790	777	685	642	469	700

Table 10. Sentence coherence scores, pre-instruction text

The following are some examples (Table 11) extracted by the judges from the students' texts presenting how they evaluated the texts in terms of the establishment of the relevance and continuity of meaning within a sentence. Based on the judges' agreements, the examples extracted from Robin's and Taylor's texts demonstrate that the use of "because" and "so" reveal a "cause-effect" relationship and the use of "and" creates contiguity of meaning. As for the text produced by Riley, based on the video content, a suggested sentence demonstrating what occurred could be, "Virginie receives a call from police headquarters, and is told that a group of protesters aim to disrupt the event. As a result, she enforces strict measures to ensure the security of the district." However, in their text, irrespective of issues with the sentence structure, there is no indication of contiguity through introducing a sequence of events as well as "cause-effect" relationships.

Another example from Robin is the addition of "tells" in the sentence, which seems to establish an attribution coherence relation.

Robin	<i>She feels good that they found à solution to this problem because if not it would have been very complicated for Virginie and he team and the protesters in the building. One of Virginie's co-officers tells the people inside that if they come down and exit the building they will not be arrested.</i>
Taylor	<i>A man was arrested and did not have his driver's license nor identification, so he was brought to the police station to successfully identify him.</i>
Riley	<i>One call of commandment room calls the disruptor group has been repulsed virginie and team has been use forced and aggressivity for to win.</i>

Table 11. Sentence coherence examples, pre-instruction text

As mentioned above, the scores for attribution tended to be somewhat lower than the others. As discussed in the Methodology chapter, for the purpose of this project, the students were requested to construct a summary report including the evidential elements observed in the video. To this end, markers of attribution are important aspects to take into account. However, the results show that the students did not demonstrate (a high level) of competency in this area, which suggests possible improvements.

In examining the scores of paragraph coherence, similar patterns are observed (Table 12), with the conclusion typically—while not always—slightly weaker than the topic sentence and development. As can be seen, the considerable difference in the average of Conclusion scores does appear to be due the text produced by a single student (Riley), who scored much lower than the others in this area. If that student's score is excluded, the average of 197 is in line with the other scores.

	Robin	Taylor	Casey	Jean	Alex	Riley	Average
Topic sentence (300)	234	204	199	202	183	123	191
Development (300)	225	215	200	200	195	147	197
Conclusion (300)	239	178	197	179	193	55	174
Total (900)	698	597	596	581	571	325	561

Table 12. Paragraph coherence scores, pre-instruction text

In consultation with the judges, some examples from the texts showing how each component of paragraph coherence was developed by the participants were selected (Table 13). Concerning the development of a topic sentence, the first and second examples include sentences that articulate the point of the paragraph, leading the reader towards the key sequences of events that thread through what follows. The first example, however, provides a more general idea about the video content; for instance, the context where the event is happening is not clear and the identity of Virginie as a police officer in charge of establishing security is not clarified as well. In the second example (Casey's text), while the developed topic sentence provides more clarity on the context and the role of Virginie, the main point is articulated through two

consecutive sentences. Finally, Riley’s topic sentence demonstrates the main idea conveyed through the video; however, the morphosyntactic weaknesses do not allow the reader to comprehend the idea smoothly.

Robin	<i>To begin with, in this Video Virginie has the task of making sure the prime minister is safe during his visit.</i>
Casey	<i>The Prime minister of France is coming to visit and there is des students that want to protest. Virginie must make sure that the prime minister is safe and that the visit is safe.</i>
Riley	<i>The virginie mission of day was of maintain order in Sorbonne the policeman has went maintain order in Sorbonne because the minister must surrender in struggles anti CRS.</i>

Table 13. Examples of topic sentence, pre-instruction text

As far as the development of the main idea is considered (Table 14), the judges selected the sentence from Robin’s text as an example that shows the point of discussion. They believed, based on the topic sentence Robin has produced, that the main point has not shifted randomly and is developed throughout the paragraph by adding a sequence of events corresponding to it. However, the judges explained that in Alex’s text, the main idea is developed only partially, and Alex has not mentioned the point that “a deal was made” between the officers and “protestors” to resolve the issue. This aspect (i.e. adding significant sequences of events) for the purpose of this study (as requested in the guidelines), as well as for incident report writing, in general, is of high importance; however, it is not demonstrated in the produced text.

Robin	<i>In this video Virginie and her team have to go to where the prime minister is visiting to set up à barricade and protect the area from protesters so the prime minister can arrive safe.</i>
Alex	<i>Virginia rushes to the site and asks them to come down.</i>

Table 14. Examples of development of the main idea, pre-instruction text

To gain a better understanding about how the concluding sentences are evaluated, we can review the following examples (Table 15) chosen by the judges. For instance, Casey’s sentence shows that the point of discussion is concluded at the end. However, the second example, written by Alex, does not completely correspond to the topic sentence, “The Prime Minister is visiting an area for an event in France, this event is usually controversial and has triggered protests from students in the past month” when comparing it to the previous example from Casey’s text.

Casey	<i>She thought the protest was going to be dangerous, but after she did her job well and no one was hurt, she was really happy and that was the opposite of what she thought.</i>
Alex	<i>Virginia mentions loving her job in the 10 months she’s been a policewoman despite the risks.</i>

Table 15. Examples of concluding sentence, pre-instruction text

Overall, the scores of coherence indicate that it will be worthwhile to observe the construction of coherence at both sentence and paragraph levels, comparing not only the students who scored above and below average, but also the two students who scored below average

overall. These observations may help to identify strategies that are more or less successful in maintaining coherence in the texts. Further discussion will be presented in section 3.3.2. Drafting techniques as well as Discussion and conclusion chapter.

3.2.3. Cohesion

In cohesion, we again observe a wide range of scores and a gap between the two below-average scores (Alex and Riley) as well as between those participants and those who scored above average (Table 16). However, the scores here are uniformly lower than those for coherence, suggesting that there is even more scope for improvement in this area. Once again, the lowest-scoring participant (Riley) is an outlier, with the other participants clustered around the average. This suggests that similar to their coherence results, the participants have relatively comparable—if somewhat under-developed—skills for building cohesion within a text; however, more detailed analysis of the number and variety of CDs used, as well as their appropriateness, will help to confirm this hypothesis and provide a more detailed picture of students' baseline behaviour.

	Taylor	Robin	Jean	Casey	Alex	Riley	Average
Total (1800)	1181 (66%)	1080 (60%)	1076 (60%)	990 (55%)	908 (50%)	616 (34%)	975 (54%)

Table 16. Overall cohesion scores, pre-instruction text

In terms of the density of CDs per 100 words, the patterns previously observed in the ranking of the participants are not found here, apart from the fact that Riley appears at the lower end of the scale. This measure differs considerably (Table 17), with the highest (Casey) more than double the lowest (Riley) (although the latter is somewhat of an outlier). Moreover, the density of CDs in and of itself does not appear to provide a good reflection of the cohesion scores, as Casey (who scored near the middle of the group overall) wrote the text with the highest density of CDs. More detailed analysis of the texts will help to clarify this discrepancy and explore the origins of the differences.

	Casey	Taylor	Robin	Alex	Jean	Riley	Average
Number of words in text	167	173	167	161	189	163	170
CDs in the text	36	31	28	27	23	13	26
CDs per 100 words	22	18	17	17	12	8	16

Table 17. CD density, pre-instruction text

Upon further analysis, it becomes clear that all participants implemented various types of CDs in relatively stable patterns, with the most frequently implemented being pronoun references, followed by lexical references and then conjunction (Table 18). The percentages of each participant's CDs that fall into the three categories are shown in the table.

As discussed in section 1.9.5.2. Machine translation in the translation industry, FOMT very often struggles with consistency and variation in vocabulary and with correctly resolving anaphora (including those involving pronouns). Given that most of the participants reported using FOMT relatively frequently in their work (3.1.1. Perceptions and use of FOMT), the means and strategies used by participants to identify, choose and implement these common CDs—including recourse to FOMT—will be very relevant for our further analysis (section 3.3.2. Drafting techniques).

	Casey	Taylor	Robin	Alex	Jean	Riley	Average
CDs per 100 words	22	18	17	17	12	8	16
Conjunction	23% ³⁶	28%	12%	24%	17%	50%	26%
Pronoun Reference	41%	39%	41%	53%	58%	25%	43%
Lexical Reference	32%	33%	47%	24%	22%	25%	31%

Table 18. CD types per 100 words, pre-instruction text

There is considerable variation in the use of conjunction (Table 19), with the highest density of these CDs, in Casey's and Taylor's texts, triple that in the lowest (Robin's). Moreover, the range of conjunction types used varies considerably from participant to participant, with the lowest-scoring participant (Robin) using only and Jean using mostly additive conjunction, while Casey, Riley and Alex used the full range of types identified.

³⁶ As all percentages in this document have been rounded to the nearest whole number, they may not total 100.

	Casey	Taylor	Alex	Riley	Jean	Robin	Average
Conjunction per 100 words	5	5	4	4	2	2	4
Additive	40%	40%	16%	25%	50%	100%	45%
Temporal	40%	20%	50%	25%	50%	0%	29%
Causal	10%	40%	16%	25%	0%	0%	15%
Adversative	10%	0%	16%	25%	0%	0%	9%

Table 19. Distribution of conjunction, pre-instruction text

Despite the ability of many participants to implement a variety of conjunction types, the scores allotted for appropriateness of the choices—and even more so for the variety of the conjunction used—demonstrate room for improvement (Table 20). The average score for the participants was barely above a passing mark overall, with somewhat stronger performance for appropriateness of the choices, but considerably less variety than had been hoped for. Strikingly, participants who had earned higher standing in earlier areas of the analysis including cohesion scores (Jean and Robin) showed little variety in their use of conjunction. Again, this suggests that the appropriateness and variety of conjunction alone are not necessarily good predictors of overall cohesion in the texts, and that explanations for variation in overall scores must be sought elsewhere.

	Taylor	Robin	Jean	Casey	Alex	Riley	Average
Appropriateness (300)	204 (68%)	184 (61%)	184 (61%)	179 (60%)	159 (53%)	143 (48%)	176 (59%)
Variety (300)	203 (68%)	169 (56%)	160 (53%)	163 (54%)	125 (42%)	70 (23%)	148 (49%)
Total score (600)	407 (68%)	352 (59%)	344 (57%)	342 (57%)	284 (47%)	213 (36%)	324 (54%)

Table 20. Scores for conjunction, pre-instruction text

Despite the variation in these observations (Table 20), however, the appropriateness and variety of conjunction appear to follow the more typical pattern observed in earlier analyses, with Riley and Alex scoring below average and the others above, and a noticeable gap between the lower scores. More detailed analysis is required to fully understand the challenges encountered by the participants in choosing and using conjunction (e.g. sections 3.3.2. Drafting techniques, 3.3.4. Drafting of CDs and 3.3.5. Qualitative analysis of the videos).

To better depict the results, we explore some examples of conjunction that have been selected by the judges from the students' texts³⁷. For instance, in the following examples extracted from Alex and Riley's texts (Table 21), in terms of variety in the use of conjunction, "and" as a simple additive conjunction reveals a tie between the primary clause and the proceeding one, however, it is the only type of additive marker that is used in their texts.

Riley	<i>The commandment has ask a men to go out the scaffolding <u>and</u> has convince the students to go down and has convince and reassure their they will not be questioned</i>
Alex	<i>The Prime Minister is visiting an area for an event in France, this event is usually controversial <u>and</u> has triggered protests from students in the past month</i>

Table 21. Examples of additive markers, pre-instruction text

Concerning the examples of temporal markers (Table 22), Riley includes the temporal marker "after". While due to issues with their sentence structure (use of noun instead of verb for "security", for example), it is challenging for the English reader to comprehend the sentence easily, this temporal marker has somewhat established the semantic relationship in the sentence. Another example is taken from Casey's text: "before" and "after" in the excerpt convey the temporal relation in the sentence. However, in both excerpts, the use of temporal markers is restricted to the mentioned examples.

Riley	<i><u>After</u> first minister departure virginie has security the district</i>
Casey	<i><u>Before</u> Virginie made it to the prime ministers visiting point she was nervous, but <u>after</u> that she was happy that everything went well.</i>

Table 22. Examples of temporal markers, pre-instruction text

Regarding some examples of causal markers (Table 23), Robin has employed "therefore", which establishes the causal relationship in the sentence but is not properly punctuated. The use of "Due to" by Taylor also establishes a causal relationship with the antecedent "were smoking drugs" and is properly punctuated.

Robin	<i>In other years there was many bad protests <u>therefore</u> she has to make sure the prime minister doesnt get hurt.</i>
Taylor	<i>A group of young men were smoking drugs inside a building. <u>Due to</u> this incident, a bad odour spread inside the building, <u>and</u> caused the inhabitants to become angry.</i>

Table 23. Examples of causal markers, pre-instruction text

Finally, Table 24 shows two examples of the use of adversative markers in the texts produced by Riley and Casey. While interpreting Riley's two sentences is complicated by issues of meaning (e.g. "this victory has been during court", which could be revised to "this victory was

³⁷ Due to the limited number of participants and, in particular, limited types of conjunction used in the texts, few examples are provided here.

short-lived”) and grammar (e.g. “has send the crs in reinforcement”), the use of “but” seems to convey an adversative relation. As well, the example from Casey’s text presents the use of “but” to convey the contrast between what was expected as the original idea, based on the video content, and the next event.

Riley	One call of commandment room calls the disruptor group has been repulsed virginie and team has been use forced and aggressivity for to win. <i>But</i> <i>this victory has been during court for this purpose the room commandments has send the crs in reinforcement for succour team to face a violence manipulation student.</i>
Casey	<i>she thought the protest was going to be dangerous, but after she did her job well and no one was hurt, she was really happy and that was the opposite of what she thought.</i>

Table 24. Examples of adversative markers, pre-instruction texts

The above-mentioned examples suggest that further analysis—for instance, by comparing these observations with the video and interview data—should be performed to identify the means and strategies used by the participants when choosing and implementing these common CDs.

In the second category of CDs, pronoun reference, which constitutes the highest density among the CDs, there is a clear trend towards much greater use of personal than demonstrative pronoun references (Table 25). While Riley remains at the lower end of the scale, the distribution of the other participants changes relative to that for conjunction. This may suggest that the participants tend to rely on one type of CD over another in their writing; this will be examined in more detail in the Discussion and conclusion chapter, section 4.1.1. Need for developing L2 coherence and cohesion.

	Alex	Casey	Jean	Robin	Taylor	Riley	Average
Pronoun references per 100 words	9	9	7	7	7	2	7
Personal	93%	93%	93%	83%	67%	100%	88%
Demonstrative	7%	7%	7%	17%	33%	0%	12%

Table 25. Distribution of pronoun references

As was the case for conjunction, the participants generally scored somewhat higher for the appropriateness than for the variety of their choices, though in each case there is considerable scope for improvement (Table 26).

	Taylor	Jean	Robin	Alex	Casey	Riley	Average
Appropriateness (300)	204 (68%)	203 (68%)	199 (66%)	188 (63%)	169 (56%)	109 (36%)	179 (60%)
Variety (300)	190 (63%)	173 (58%)	179 (60%)	174 (58%)	164 (55%)	50 (17%)	155 (52%)
Total score (600)	394 (66%)	376 (63%)	378 (63%)	362 (60%)	333 (56%)	159 (27%)	334 (56%)

Table 26. Scores for pronoun references, pre-instruction test

To better depict the results, we explore some examples of pronoun references chosen by the judges from the students' texts (Table 27). Based on the judges' opinions, the selected examples illustrate two classes of issues: inappropriate placement and inappropriate form of references. For instance, in Taylor's text, "them" and "their" refer back to "these young men"; therefore, the presupposed items are identified appropriately, and the co-referential ties are created. However, the judges believed that the placement of the underlined personal pronouns seems to be remote in some texts, for instance, in the sentences written by Riley and Alex. The issues with placement of references may stem from the transfer from French to English and the fact that French is more tolerant of distance than English. This observation is worth discussing from a transfer perspective and will be explored in the Discussion and conclusion chapter (section 4.2.1. Development of L2 coherence and cohesion). As well, it will be interesting to identify whether the improperly placed items are added to the text manually or translated through either manual or FOMT translation. This aspect will be explored in the video analysis section.

As well, in Alex's text "she" can be used more appropriately if a period is placed before this reference so that the sentence reads: "Virginia is a policewoman in charge of organizing her team to surround the area to make it safe for the prime minister to get to the destination with his escorts. **She** mentions being a bit anxious beforehand."

In another example, "their" extracted from Riley's text is considered as an inappropriate pronoun that should be changed to "them" (i.e. "the students"). This could suggest that, in terms of L2 proficiency, the individual has not been able to differentiate between the use of possessive pronouns and objective pronouns. Once again, it is worth exploring whether this improper form

is added manually to text or translated. In pursuit of this objective, the video section will address this observation.

Taylor	<i>It is necessary to retain authoritative composure with these young men and make <u>them</u> understand that police officers are not <u>their</u> friends.</i>
Riley	<i>Virgine has worries because the Sorbonne was been fire and blood while un month. The district was security for the minister arrived. The prefecture previews a big device <u>she</u> disposes a four platoon squadron is eighty policeman through radio.</i> <i>The commandment has ask a men to go out the scaffolding and has convince the students to go down and has convince and reassure <u>their</u> they will not be questioned.</i>
Alex	<i>Virginia is a policewoman in charge of organizing her team to surround the area to make it safe for the prime minister to get to the destination with his escorts, <u>she</u> mentions being a bit anxious beforehand.</i>

Table 27. Examples of pronoun references, pre-instruction text

When exploring the demonstrative devices (Table 28), in the example extracted from Casey's text, the reference "these" has been used appropriately, referring to "students" in the previous sentence. However, there is also a missed opportunity to use a pronoun reference *she* instead of repeating *Virginie* in the example. As well, the example extracted from Riley's text shows that, due to the poor sentence structure and resulting interference with meaning, it is challenging to understand to which pre-supposed item "this" is referring to.

Casey	<i>Virginie sees that there are students protesting in the top of a building. Virginie tells <u>these</u> students to come down with peace and if they do she will not arrest them.</i>
Riley	<i>One call of commandment room calls the disruptor group has been repulsed virginie and team has been use forced and aggressivity for to win But this victory has been during court for <u>this</u> purpose the room commandments has send the crs in reinforcement for succour team to face a violence manipulation student.</i>

Table 28. Examples of demonstrative references, pre-instruction text

The final category of CDs, lexical references, was less common in the texts than the pronoun references. The participants (Table 29) showed a strong preference for the use of repetition rather than synonymy (which only two participants occasionally used) in their texts. While Riley remained on the lower end of the scale, again there was variability in the various participants' use of the CDs.

	Robin	Casey	Taylor	Alex	Jean	Riley	Average
Lexical references per 100 words	8	7	6	4	3	2	5
Repetition	100%	100%	90%	100%	80%	100%	96%
Synonymy	0%	0%	10%	0%	20%	0%	4%

Table 29. Types and distribution of lexical references, pre-instruction text

Once again, the students showed scope for improvement in the appropriateness of their choices of lexical references, and even more so in their variety (Table 30). The repeated pattern is that Riley and Alex scored towards the bottom of the scale and below average, this time with a very considerable gap between them, while the others were clustered more closely together.

	Taylor	Jean	Robin	Casey	Alex	Riley	Average
Appropriateness (300)	195 (65%)	188 (63%)	185 (62%)	174 (58%)	154 (51%)	110 (37%)	168 (56%)
Variety (300)	185 (62%)	170 (57%)	165 (55%)	163 (54%)	120 (40%)	40 (13%)	141 (47%)
Total	380 (63%)	358 (60%)	350 (58%)	337 (56%)	274 (46%)	150 (25%)	308 (51%)

Table 30. Appropriateness and variety of lexical references, pre-instruction text

In the example taken from Robin's text (Table 31), when considering the broader context based on the video content, one may assume that "this problem" could refer to calmly asking the protesters to leave the area without disrupting the prime minister. However, in the context of their paragraph it can also be assumed that "this problem" could refer to securing the area during the prime-minister's visit.

Robin	<i>One of Virginie's co-officers tells the people inside that if they come down and exit the building they will not be arrested. She feels good that they found a solution to <u>this problem</u> because if not it would have been very complicated for Virginie and he team and the protesters in the building.</i>
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Table 31. Example of lexical references, pre-instruction text

Overall, these findings, and particularly the rarity of recourse to synonyms, may be a reflection of limited vocabulary available to participants in their L2; if so, they might benefit from access to additional suggestions while writing to help them diversify their use of CDs. We will delve into this aspect in sections 4.1.1. Need for developing L2 coherence and cohesion and 4.1.2. Prevalence of translation in completing the summary texts.

3.2.4. Student baseline writing performance and initial findings

The portrait of the student baseline writing performance—in particular the relatively low scores for coherence and cohesion, most notably for the variety of all of the CDs observed—suggests that the participants in all cases may benefit from ideas for new, appropriate and varied

CDs. Their self-reported use of FOMT (described as fairly frequent but not exclusive) suggests that they use the tool but with some selectivity and may be able at least to some extent to judge the appropriateness of any new options (e.g. of different CDs) suggested by such a tool. This ability to judge appropriateness would likely be critical for FOMT-generated suggestions, given the potential for challenges described in section 1.9.5.2. Machine translation in the translation industry. Nevertheless, this will need to be explored in detail in the next section, which discusses the video recordings, as well as in the Discussion chapter.

In addition, the findings show that we are likely to be able to observe two or possibly three levels of initial competence in writing coherent and cohesive texts overall: Casey, Robin, Jean and Taylor represent the higher level of competence; Alex a more moderate level; and, finally, Riley the level requiring the most development. Moreover, even within these categories, different individuals have demonstrated different strengths and preferences in their writing. Comparing levels of performance with self-reported behaviour and attitudes (section 3.1.1. Perceptions and use of FOMT), as well as with the strategies, tools and behaviours observed in the video recordings (e.g. section 3.3.2. Drafting techniques), may help us to understand the challenges and potential for each of these participants.

Furthermore, the results show that the students tend to employ certain CDs within each category in a higher frequency than other CDs. Particularly, the results demonstrate that in using the lexical references, they rarely used some CD types (i.e. synonyms). These results could suggest that their L2 vocabulary repertoire is restricted. If such is the case, having access to other sources such as MT may assist them with additional suggestions while writing. This aspect will be addressed in section 4.1.2. Prevalence of translation in completing the summary texts.

3.3. Pre-instruction video analysis

In this pre-instruction video analysis phase, we will observe various phenomena in each participant's writing process, including the time spent on various tasks while drafting and revising their texts, the strategies and tools used, and the ways in which various elements of coherence and cohesion (particularly CDs) were produced. By combining these observations with those from sections 3.1. Pre-instruction student survey analysis and 3.2. Pre-instruction text analysis, we hope to be able to better understand the various approaches, strengths and weaknesses of our participants, and thus to be able to better judge their reactions to the instruction in the second phase of the study.

3.3.1. Drafting time

While self-reported attitudes towards and use of FOMT and text length were relatively comparable between participants, the same cannot be said for the length of time spent on drafting. Two clear categories of participants emerged: those who spent much longer than the average time drafting (Jean and Riley), and those who spent considerably less (Table 32).

	Riley	Jean	Casey	Taylor	Alex	Robin	Average
Text length (words)	163	189	167	173	161	167	170
Time spent (min)	69	71	18	23	15	13	35
Min. per 100 words	42	38	11	13	9	8	20

Table 32. Pre-instruction text length and drafting time

It is well worth noting that the time scores do not correlate with the division that appeared to be emerging based on the majority of the text analysis; on the contrary, the two students who scored lower on the text length and sentence and paragraph cohesion almost bookended the results in this measure, with Riley spending the most time per 100 words produced, and Alex the next to least. Also, perhaps surprisingly, Robin scored both the highest in coherence (both sentence and paragraph) and lowest in minutes spent per 100 words produced. These differences point to a real need to explore the participants' approaches and processes in order to identify factors that may have contributed to the variation.

3.3.2. Drafting techniques

As expected, given their self-reports (described in section 3.1.1. Perceptions and use of FOMT), most of the students did use FOMT, but to quite varied degrees (Table 33). Alex did not

use FOMT at all in this case (in spite of their self-report), while Taylor and Robin used it only a few times, and Riley and Jean used it many times through the drafting process. As reflected in their questionnaire responses (described in section 3.1.1. Perceptions and use of FOMT), FOMT was mainly used to translate single words, with only Jean and Casey translating single sentences, and only Jean translating a phrase and a paragraph. Except in Jean's case, in which a single word and a paragraph were translated to L2, however, all of the participants translated only from their L1 to English. This is somewhat of a departure from the reported use, as all respondents except Riley had indicated that they used FOMT in both directions (Table 4), but only Casey reported using FOMT to translate larger blocks such as sentences and paragraphs. This suggests that while overall use of FOMT can indeed be expected to be modest and relatively selective, the respondents' perceptions may not necessarily exactly reflect their actual behaviours in this summary task, making observation of their process an important tool for the purposes of this study.

Jean and Riley (Table 33) spent more time drafting; the observations show that they tended to use FOMT more frequently both overall and per 100 words in the text they produced. However, for number of times FOMT is used per 10 minutes of drafting time, the average is quite consistent, with only the outliers using FOMT much more (Casey) or less (Alex) often than average.

	Riley	Jean	Casey	Taylor	Alex	Robin	Average
Uses of FOMT (n)	28	23	13	7	0	5	13
Uses of FOMT per 100 words	17	12	8	4	0	3	8
Uses of FOMT per 10 min.	4	3	7	3	0	4	4
Time spent drafting using FOMT	12%	11%	6%	13%	0%	8%	8%
Time spent on manual drafting in French	42%	46%	6%	30%	0%	0%	21%
Time spent on manual drafting in English	46%	42%	89%	57%	100%	92%	71%

Table 33. Pre-instruction drafting techniques

When we examine the proportions of the time spent on drafting using different approaches (manually drafting in L1 [French] and then manually translating to English, drafting in French and then using FOMT to translate to English, and manually drafting in English), it becomes clear that FOMT is used for the minority of the drafting process overall (Table 34). Most of the time was typically spent drafting directly in English, although the two respondents who spent most time also spent approximately the same amount of time drafting in their L1 (French) before manually translating. The comparison of the time spent drafting using FOMT

and the number of times FOMT was used suggests multiple short consultations, rather than longer periods spent drafting. It is also interesting to contrast the observations of the time spent using FOMT with the perception that FOMT speeds up the writing process, as discussed in section 3.1.1. Perceptions and use of FOMT. The participants who used FOMT demonstrated a willingness to use the product, but none used all of the text generated using FOMT directly in their summaries. All chose to either edit or replace at least some of the FOMT-translated text, although the proportion ranged from very low (e.g. 1% postedited for Casey) to the majority (e.g. 52% either postedited or replaced for Jean). This demonstrates at least some level of critical evaluation of/awareness about the product of FOMT for all of the participants who use FOMT, which as discussed before (section 1.9.5.3. Machine translation in educational settings) is an important element of effective FOMT use in academic writing. An analysis of the changes made, their effects and their motivations will be presented in the video analysis and interviews (sections 3.4.3.7. Qualitative analysis of the videos and 3.4.7.8.2. FOMT assisting with learning about CDs).

	Riley	Jean	Casey	Taylor	Robin	Alex
Words per text	163	189	167	173	167	161
Drafted in English and not translated*	0%	0%	60%	84%	97%	100%
Drafted in French and manually translated*	83%	88%	0%	12%	0%	0%
Translated using FOMT*	17%	12%	40%	4%	3%	0%
<i>No editing**</i>	96%	48%	99%	43%	80%	0%
<i>Postedited**</i>	4%	43%	1%	43%	0%	0%
<i>Replaced/deleted**</i>	0%	9%	0%	14%	20%	0%

Table 34. Proportion of text produced using drafting techniques, pre-instruction text

* Percentage of the text

**Percentage of the FOMT-translated text

3.3.3. Drafting of topic and concluding sentences

Considering the significance of coherence in this project, we can analyze how topic and concluding sentences were constructed by the students and explore if they may have employed specific strategies in developing this area (Table 35 and Table 36).

	Robin	Taylor	Jean	Casey	Alex	Riley	Average
	Pre	Pre	Pre	Pre	Pre	Pre	Pre
Topic sentence in the text	Yes	Yes	Yes	Yes	Yes	Yes	
Drafted in English and not translated*	100%	100%	0%	72%	100%	0%	62%
Drafted in French and manually translated*	0%	0%	100%	0%	0%	100%	33%
Translated using FOMT*	0%	0%	0%	18%	0%	0%	3%
<i>No editing**</i>	0%	0%	0%	18%	0%	0%	0%
<i>Postedited**</i>	0%	0%	0%	0%	0%	0%	0%
<i>Replaced/deleted**</i>	0%	0%	0%	0%	0%	0%	0%

Table 35. Drafting of topic sentences, pre-instruction text

* Percentage of text

**Percentage of FOMT-translated text

As can be seen, the results of Table 35 demonstrate that all of the texts included a topic sentence. Robin, Taylor and Alex drafted their topic sentence entirely in English, while Casey drafted most of theirs (72%) and used FOMT to draft the remaining part (18%), using it without modification. In contrast, Jean and Riley both drafted their topic sentences entirely in French and manually translated them. Overall, therefore, manual drafting in English was the dominant approach, with some use of manual translation from French and very limited recourse to FOMT.

The results of Table 36 reflect similar observations regarding the participants' tendency to include manually drafted concluding sentences in the texts and show that no editing was applied to the portion of the texts generated by FOMT.

	Robin	Taylor	Jean	Casey	Alex	Riley	Average
Concluding sentence in the text	Yes	Yes	Yes	Yes	Yes	Yes	
Drafted in English and not translated*	100%	100%	0%	10%	100%	0%	52%
Drafted in French and manually translated*	0%	0%	100%	0%	0%	93%	32%
Translated using FOMT*	0%	0%	0%	90%	0%	7%	16%
<i>No editing**</i>	0%	0%	0%	0%	0%	0%	0%
<i>Postedited**</i>	0%	0%	0%	0%	0%	0%	0%
<i>Replaced/deleted**</i>	0%	0%	0%	0%	0%	0%	0%

Table 36. Drafting of concluding sentences, pre-instruction text

* Percentage of text

**Percentage of FOMT-translated text

3.3.4. Drafting of CDs

Given the focus on coherence and cohesion, we can also analyze how the CDs in the texts were produced to explore whether the strategy may have played a role in the performance in this area (Table 37). The findings show that while the participants were far more likely to manually draft the CDs in their texts than to include FOMT-generated CDs (which is consistent with their overall drafting approach), they did not tend to adjust the CDs that did originate with FOMT in any way, using them as they were initially suggested (we will examine this behaviour in the qualitative analysis of the recordings). In this case, Casey was an outlier, using a much higher proportion of FOMT-generated CDs than their counterparts. However, this may simply be a function of the fact that they used FOMT considerably more than the others (as per Table 33 and Table 34). This outlier behaviour will be worth exploring in the recordings to study how Casey's use of FOMT may differ from that made by other participants (section 3.3.6. Qualitative analysis of the videos).

	Casey	Riley	Jean	Robin	Taylor	Alex	Average
CDs in the text	36	13	23	28	31	27	26
CDs inserted manually*	61%	80%	91%	96%	100%	100%	88%
CDs in FOMT-translated sections*	39%	20%	9%	4%	0%	0%	12%
<i>Used as proposed**</i>	100%	100%	100%	100%			100%
<i>Postedited and used**</i>	0%	0%	0%	0%			0%
<i>Replaced/deleted**</i>	0%	0%	0%	0%			0%

Table 37. Origin of CDs, pre-instruction text

* Percentage of all CDs

**Percentage of FOMT-translated CDs

A comparison of the proportion of the text as a whole versus the CDs in it that were generated using FOMT and how each was adjusted (if at all) (Table 38), indicates that on

average the percentages of the text and CDs generated manually and using FOMT are fairly consistent, but that there appears to be less effort to postedit or otherwise adjust the CDs as than to edit the rest of the text. This phenomenon is worth exploring in the videos to determine whether there was simply no need for adjustments to the CDs proposed in the FOMT output, or whether there might be other explanations that could provide insights about students' need for support in finding and using CDs (cf. section 3.3.6. Qualitative analysis of the videos).

	Riley		Jean		Casey		Taylor		Robin		Alex		Average	
	<i>Text</i>	<i>CDs</i>	<i>Text</i>	<i>CDs</i>	<i>Text</i>	<i>CDs</i>	<i>Text</i>	<i>CDs</i>	<i>Text</i>	<i>CDs</i>	<i>Text</i>	<i>CDs</i>	<i>Text</i>	<i>CDs</i>
Words per text	163	13	189	23	167	36	173	31	167	28	161	27	170	26
Drafted manually (in English or French)	83%	80%	88%	91%	60%	61%	96%	100%	97%	96%	100%	100%	88%	88%
Translated using FOMT*	17%	20%	12%	9%	40%	39%	4%	0%	3%	4%	0%	0%	13%	12%
<i>No editing**</i>	96%	100%	48%	100%	99%	100%	43%	0%	80%	100%	0%	0%	62%	67%
<i>Postedited**</i>	4%	0%	43%	0%	1%	0%	43%	0%	0%	0%	0%	0%	14%	0%
<i>Replaced**</i>	0%	0%	9%	0%	0%	0%	14%	0%	20%	0%	0%	0%	7%	0%

Table 38. Comparison of percentage of text and CDs drafted manually and using FOMT, pre-instruction text

* Percentage of all CDs

**Percentage of FOMT-translated CDs

3.3.5. Appropriateness of CDs

An analysis of the appropriateness of the CDs (Table 39) reveals that most are in fact quite appropriate. This may help to explain why little editing or replacement was performed for these items. However, a detailed analysis of the videos (section 3.3.5. Qualitative analysis of the videos) may help to provide more in-depth information about the cases in which difficulties were encountered and what may have contributed to the problems.

Types of CDs	Appropriateness	Casey	Taylor	Robin	Alex	Jean	Riley	Average
Conjunction		9	9	3	7	4	6	6
	Appropriate	100%	100%	100%	100%	100%	75%	96%
	Inappropriate	0%	0%	0%	0%	0%	25%	4%
Pronoun references		15	12	12	14	14	4	12
	Appropriate	100%	100%	83%	93%	93%	50%	87%
	Inappropriate	0%	0%	17%	7%	7%	50%	13%
Lexical references		12	10	13	6	5	3	8
	Appropriate	100%	90%	92%	100%	100%	33%	86%
	Inappropriate	0%	10%	8%	0%	0%	67%	14%

Table 39. Types and appropriateness of CD types produced with FOMT, pre-instruction text

3.3.6. Qualitative analysis of the videos

As explained above, the drafting time and techniques varied among the participants, with the overall use of FOMT by the participants (except for Casey) observed to be relatively low and in the form of short consultations. Moreover, the nature of items translated by Jean and Casey differs from those of the rest of the participants, since they used the tools for both short and longer segments. More importantly, the videos show that Casey's initial draft is constructed in L1 and FOMT-translated.

Overall, the judges gave a positive assessment of the appropriateness of CDs in the texts, while we also observed that there appeared to be less effort in postediting the text, particularly, in postediting/adjusting the CDs in the texts, than other elements of the text.

A qualitative analysis of the items translated may help to provide more in-depth information about the cases in which difficulties were encountered and what may have contributed to the problems. These observed behaviours have been also addressed in the Interview section to explore the reasons behind.

Example 9 is an unusual case, as while it is a word (as is typical of the use observed), it involves translating from English to the participant's L1 instead of the reverse. In the original

sentence written in L1, this word does not exist; instead, the word “manifestations” is used. However, in the process of manual translation, Jean uses “gathering” that to them may seem as a potential synonym for “manifestations”.

Sentence drafted in L1	<i>Cette vidéo parle de Virginie, elle est âgée de 25 ans, elle est commissaire de police, elle dirige 500 hommes, ses responsabilités c'est d'intervenir dans les manifestations et dans les endroits ou il y de foules et ou il y des casseurs des gens qui trouble l'ordre public.</i>
FOMT input	<i>gathering</i>
FOMT output	<i>rassembler</i>
Reference translations³⁸	<i>se rassembler, rassemblement</i>
Text version	<i>gathering</i>

Example 9. Jean, pre-instruction text

In Example 10, a more complex process, the participant (Jean) begins by submitting an idiomatic expression in their L1, in a form that also includes some language errors (a missing word and two that are misspelled) and an anaphoric reference that requires disambiguation (*son*, which in English must agree with either a male (*his*) or female (*her*) antecedent, rather than the grammatical gender of the noun to which it applies, as in French).

Sentence	<i>Elle prend son travaille coeure.</i>
FOMT input	<i>prend son travaille coeure</i>
FOMT input normalized	<i>prend son <u>travail</u> à <u>coeur</u></i>
FOMT output 1	<i>takes his heart work</i>
Reference translation	<i>takes her work/job to heart</i>
Revised FOMT input	<i>prend son travaille sérieusement</i>
Revised FOMT input normalized	<i>prend son <u>travail</u> sérieusement</i>
FOMT output 2	<i>Takes his job seriously</i>
Reference translation	<i>takes her work/job seriously</i>
Text version	<i>Virginie takes very seriously her work</i>

Example 10. Jean, pre-instruction text

As discussed above (section 1.9.2. Machine translation in the translation industry), all of these factors may be expected to contribute to translation difficulties for FOMT. After viewing the initial output, the participant appears to consider it inadequate and to identify the source(s) of some of the challenges encountered; they revise the input and resubmit a version with fewer language errors, replacing the idiomatic expression with a literal equivalent. This indicates

³⁸ In the example tables, grey indicates information provided for ease of interpretation, including correct reference translations for the input submitted to FOMT, and normalized (corrected) input forms when text submitted to the FOMT system contained language errors.

positive elements of critical awareness and ability to both identify and correct problems for FOMT. It should also be noted that the student inserted an error in the proposed FOMT translation by inverting the order, which could indicate the influence of writing in L1 on L2. Another observation points to the change from “work” to “job” in the MT output that required the student to choose. This can be considered as an example of semantic ambiguity/polysemy.

In Example 11, Jean uses GT for a longer segment to establish a translation; however, after reviewing the initial output, they seem to perceive the output is not desirable and they revise it subsequently, which again, is indicative of positive elements of critical thinking and editing skills. More interestingly, the reformulation of the segment could also indicate to ability to avoid literal translation to better convey the meaning in the target text.

Sentence drafted in L1	<i>Cette vidéo parle de Virginie, elle est âgée de 25 ans, elle est commissaire de police, elle dirige 500 hommes, ses responsabilités c'est d'intervenir dans les manifestations et dans les endroits où il y a des foules et où il y a des casseurs des gens qui trouble l'ordre public.</i>
FOMT input	<i>il y a des foules et où il y a des casseurs des gens qui trouble l'ordre public</i>
FOMT input normalized	<i>il y a des foules et où il y a des casseurs, des gens qui troublent l'ordre public</i>
FOMT output	<i>there are crowds and or there are thugs of people who disturb public order</i>
Reference translation	<i>there are crowds and thugs, people who disturb the peace</i>
Text version	<i>people who want to disturb the peace.</i>

Example 11. Jean, pre-instruction text

In Example 12, there is an error in the verb tense, “*est*” in the FOMT input, which was expected to create a problem for the output. Also, there is a typo (missing “i”) in “po(i)nt that was expected to cause another problem for the output. However, the output seems acceptable grammatically. From a semantic perspective, though, it seems that Casey has not found the translation acceptable and has revised it. This observation could reflect that the individual possesses baseline editing skills.

Sentence drafted in L1	<i>Avant que Virginie <u>est</u> rendu au pont de visite de premier ministre elle était nerveux.</i>
FOMT input	<i>Avant que Virginie <u>est</u> rendu au pont de visite de premier ministre elle était nerveux</i>
FOMT input normalized	<i>Avant que Virginie se fût rendue au point de visite du premier ministre, elle était nerveuse</i>
FOMT output	<i>Before Virginie went to the bridge to visit the Prime Minister....</i>
Reference translation	<i>Before Virginie went to the location the Prime Minister was going to visit, she was nervous.</i>
Text version	<i>Before Virginie made it to the prime ministers visiting point</i>

Example 12. Casey, pre-instruction text

As well, Casey consulted GT for translating phrases, clauses and sentences from L1 to English. In Example 13, an error in adjective agreement in the FOMT input could potentially

have been expected to create a problem for FOMT (cf. section 1.9.2. Machine translation in the translation industry). However, the output proposed is nevertheless fairly acceptable semantically and grammatically. The participant chose to include the FOMT output as is in their submitted text.

Sentence	<i>Mais après elle était hereux que.</i>
FOMT input	<i>mais après elle était hereux que</i>
FOMT input normalized	<i>mais après, elle était heureuse que</i>
FOMT output	<i>but after that she was happy that</i>
Reference translation	<i>but after that, she was happy that</i>
Text version	<i>but after that she was happy that</i>

Example 13. Casey, pre-instruction text

The recordings compared with the produced texts show that the CDs included inappropriately in the texts produced by Robin and Alex (as discussed in section 3.3.4. Drafting of CDs) were manually added to the original text in English. As for Riley and Jean, the inappropriate CDs discussed above were translated manually from the original draft in French into English before submitting the text. These results could indicate that the inappropriate use of CDs in the texts produced by FOMT is not necessarily linked to an inappropriate translation provided by FOMT.

For example, the recordings illustrate that Riley has added “she” as a reference to “Virginie”, but as discussed before (section 3.2.3. Cohesion), the placement of “she” seems remote from its antecedent. Also, Riley has made a mistake in spelling “Virginie” in the text version submitted.

Sentence drafted in L1	<i>Virginie s'inquiétait car la sorbonne a été a feu et a sang pendant un mois. Le quartier a été sécurisé pour la venue du premier ministre. La préfecture a prévu un gros dispositif <u>Elle</u> dispose d'un escadron a quatre pelotons soit 80 gendarmes par radio.</i>
Normalized version	<i>Virginie s'inquiétait car la Sorbonne a été à feu et à sang pendant un mois. Le quartier a été sécurisé pour la venue du premier ministre. La préfecture a prévu un gros dispositif. <u>Elle</u> dispose d'un escadron à quatre pelotons, soit 80 gendarmes, par radio.</i>
Reference translation	<i>Virginie was worried because the Sorbonne had been in turmoil/in chaos for a month. The district had been secured for the Prime Minister's arrival. The prefecture /police headquarters had assigned a large team. She had a squadron that included four platoons, or eighty police officers, available by radio.</i>
Text version	<i>Virgine has worries because the Sorbonne was been fire and blood while un month. The district was security for the minister arrived. The prefecture previews a big device <u>she</u> disposes a four platoon squadron is eighty policeman through radio</i>

Example 14. Riley, pre-instruction text

In another example (Example 15, Riley, pre-instruction text), as also discussed in section 3.2.3. Cohesion, “their” is considered as an inappropriate pronoun that should change to “them” when considering “les” as the origin of *them* to refer to “en les rassurant”. The video shows that Riley translates “les” to “their” manually. Comparing this observation with Riley’s coherence and cohesion scores (sections 3.2.2. Coherence and 3.2.3. Cohesion) could shed light on the student’s proficiency level in L2 in terms of difficulty distinguishing parts of speech and its potential effect on coherence and cohesion.

Sentence drafted in L1	<i>le commandement a demandé aux hommes de quitter l'échafaudage et a convaincu les étudiants de descendre de l'échafaudage en les rassurants qu'ils seront pas interpellés.</i>
Normalized draft	<i>Le commandant a demandé aux hommes de quitter l'échafaudage et a convaincu les étudiants de descendre l'échafaudage en les rassurant qu'ils ne seraient pas interpellés.</i>
Manual translation	<i>The commandment has ask a men to go out the scaffolding and has convince the students to go down and has convince and reassure <u>their</u> they will not be questioned</i>
Reference translation	<i>The commander asked the men to move away from the scaffolding and convinced the students to get down from the scaffolding, reassuring them that they would not be questioned.</i>
Text version	<i>The commandment has ask a men to go out the scaffolding and has convince the students to go down and has convince and reassure <u>their</u> they will not be questioned</i>

Example 15. Riley, pre-instruction text

As well, in the following example, Riley’s use of “this” seems to be ambiguous, as it is not clear to which antecedent it refers. The recording shows that the whole original sentence is translated manually to English.

Sentence drafted in L1	<i>un appel de la salle de commandement lance un appel le groupe le perturbateur a été repousse force et agressivité ont été utilisés par virginie et son équipe pour y arriver. Mais cette victoire a été de courte durée a cet effet la salle de commandement a envoyé la CRS en renfort pour secourir l'équipe face a la manifestation violente des étudiants.</i>
Normalized version	<i>Un appel de la salle de commandement lance un appel. Le groupe le perturbateur a été repoussé. De la force et de l'agressivité ont été utilisées par Virginie et son équipe pour y arriver. Mais cette victoire a été de courte durée. À cet effet, la salle de commandement a envoyé la CRS en renfort pour secourir l'équipe face à la manifestation violente des étudiants.</i>
Manual translation	<i>One call of commandment room calls the disruptor group has been repulsed virginie and team has been use forced and aggressivity for to win. But this victory has been during court for <u>this</u> purpose the room commandments has send the crs in reinforcement for succour team to face a violence manipulation student.</i>
Used in the text	<i>One call of commandment room calls the disruptor group has been repulsed virginie and team has been use forced and aggressivity for to win. But this victory has been during court for <u>this</u> purpose the room commandments has send the crs in reinforcement for succour team to face a violence manipulation student.</i>
Text version	<i>One call of commandment room calls the disruptor group has been repulsed virginie and team has been use forced and aggressivity for to win. But this victory has been during court for <u>this</u> purpose the room commandments has send the crs in reinforcement for succour team to face a violence manipulation student.</i>

Example 16. Riley, pre-instruction text

Interestingly, Casey, who used FOMT more than the other participants in this stage, seems to have added the appropriate markers produced by FOMT into the body of their text (Example 17).

FOMT input	elle	étudiants	équipe	avant que	<i>mais</i>	après	a
FOMT output	<i>she</i>	<i>students</i>	<i>team</i>	<i>After that</i>	<i>but</i>	<i>after</i>	<i>and</i>
Reference translation	<i>she</i>	<i>students</i>	<i>team</i>	<i>After that</i>	<i>but</i>	<i>after</i>	<i>and</i>
Text version	<i>she</i>	<i>students</i>	<i>team</i>	<i>After that</i>	<i>but</i>	<i>after</i>	<i>and</i>

Example 17. Casey, pre-instruction text

Overall, the common theme emerging from all the videos corresponding to the participants who used FOMT is that they do not revise their input initially before inserting it in FOMT. As discussed earlier, we observed some editing behaviour (e.g. Jean and Casey); however, they applied editing to the output generated by FOMT. This could imply that the participants may consider FOMT as an assistive tool helping them with editing without their being engaged in editing their drafts in the first place.

3.3.7. Student baseline video findings

Overall, the video analysis of the students' performance revealed that a group of students exceeded the drafting time and another group spent considerably less time than the permitted

timeframe. This suggests exploring factors that may have contributed to these behaviours in the Interview section. In addition, the video analysis revealed that the FOMT was used by the participants (except for Alex) for short consultations rather than longer periods. This could suggest that, at least for the purpose of this project, their survey reports indicating that they use FOMT frequently for translating words and longer segments do not go in line with their actual use. This contradictory behaviour will be addressed and discussed with the participants in the Interview section.

The videos also illustrate that the participants who used FOMT demonstrated a low to moderate tendency to adjust the FOMT-translated text (with the considerable range of variation in the proportion of items). In addition, the qualitative analysis of the videos and comparison with the texts revealed how FOMT and manual translations had contributed to some errors in the text, with the subsequent effects on the levels of coherence and cohesion in the texts. For instance, Example 10 shows that Jean disambiguates the anaphoric reference “his” produced by GT to “her,” which is the correct pronoun in the context of their sentence. However, in the process of manual translation, Riley does not demonstrate the tendency to edit the original text drafted in L1 (Example 15, Riley, pre-instruction text). In one of their sentences, “their” is an inappropriate pronoun that should be changed to “them” to render in English “les” in the participial phrase “en les rassurant”. The video shows that Riley translates “les” to “their” manually. As discussed, Riley’s coherence and cohesion scores (sections 3.2.2. Coherence and 3.2.3. Cohesion) could shed light on the student’s proficiency level in L2 in terms of difficulty distinguishing parts of speech and its potential effect on coherence and cohesion. Overall, these observations point to the importance of editing skills and the potential for enhancing and thereby raising coherence and cohesion quality.

The video analysis showed that a considerable number of the CDs that were considered inappropriate by the judges were not produced by FOMT; they were either added manually to the original texts in English or translated manually from the original text in French. While, overall, a small proportion of CDs were deemed inappropriate, there is still scope to raise students’ awareness about the proper use of CDs in the texts to enhance coherence and cohesion levels, given their overall scores of coherence and cohesion in their texts (cf. sections 3.2.2. Coherence and 3.2.3. Cohesion).

In light of the Interview section, we will be able to probe factors that have contributed to the participants' drafting time, techniques and editing behaviour and their self-reported answers regarding the FOMT use. However, to complete the portrait, we will compare the pre-instruction and post-instruction results before moving on to the Interview section.

3.4. Comparison of pre- and post-instruction results

In this section, the pre-and-post-instruction results will be compared to investigate any changes in the student participants' texts and behaviour after the initial tutorial session. This comparison will assist in examining any changes between the students' baseline performance and their post-instruction performance. As well, we will examine the results of interviews with the volunteer students to explore their perceived differences in writing and the reactions to the project activities. Finally, the results of student interviews will be compared with the judges' interview and instructors' survey responses to achieve a portrait of the beliefs and perceptions shared by the three camps.

3.4.1. Post-instruction text analysis

This section will compare the students' baseline writing performance with their performance after receiving the instructions. In parallel with the pre-instruction analysis, we examine the lengths of the produced texts and assess the texts in terms of the levels of coherence and cohesion.

3.4.1.1. Length

The second set of produced texts contained an average of 191 words, with a minimum of 149 (Riley) and a maximum of 242 (Robin) (Table 40). Overall, with the exception of Jean, students produced slightly longer texts.

	Jean		Riley		Taylor		Casey		Alex		Robin		Average	
	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-
Text length (words)	189	218	163	149	173	200	167	180	161	154	167	242	170	191

Table 40. Comparison of pre- and post-instruction text length

3.4.1.2. Coherence

Comparing the pre- and post-instruction texts, overall, we can observe similar findings in coherence scores. While the results show an increase of 11% in the total scores, there is still a considerable variation in the range of scores with Robin's score the highest and Riley's the lowest. As indicated in Table 41, the average scores of sentence and paragraph coherence still do not show an exact correlation, with, again, Alex and Riley scored on the lower end of the two measures. This suggests the division between two groups of students that was observed in the

pre-instruction stage still exists, although with a smaller gap between Alex and Riley at the lower end of the scores. This observation is worth exploring in more detail in the following sections to identify potential reasons for these differences.

Compared to the students' baseline scores, while the post-instruction scores demonstrate a modest improvement, ranging from a maximum of 82% of the total possible score to a minimum of 52%, with an average of 71%, the element of textual coherence remains as a valid target for improving writing skills among the participants. Comparing these scores with the video data (e.g. 3.4.3.2. Drafting technique and 3.4.3.4. Drafting of topic and concluding sentences) can shed light on whether the participants' writing behaviour (implementation of different strategies in producing the texts such as employing FOMT) may have changed with a subsequent impact on their coherence scores.

Overall, in a similar manner to the pre-instruction stage, the two elements of paragraph and sentence coherence are relatively comparable. While we observe improvements in the scores in both categories, once again, paragraph coherence scores remain slightly higher than sentence coherence scores, suggesting scope for improvement. To better understand how these two elements have been relatively enhanced, a breakdown of the scores corresponding to each element will be provided next.

The scores for various factors contributing to overall sentence coherence value seem to stay consistent with the scores in the pre-instruction stage (Table 42). However, observation shows that while, in general, the students have gained higher scores on each of the sentence coherence elements, the scores of attribution markers are still at the low end. This indicates there is still a need to address the use of attribution markers in establishing sentence coherence, and in particular, as far as incident report writing is concerned. The importance of this aspect will be explored in the Discussion and conclusion chapter.

	Robin		Taylor		Jean		Casey		Alex		Riley		Average	
	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-
Sentence coherence (1200)	834 (70%)	963 (80%)	790 (66%)	839 (70%)	777 (65%)	805 (67%)	685 (57%)	843 (70%)	642 (54%)	768 (64%)	469 (39%)	623 (52%)	700 (58%)	807 (67%)
Paragraph coherence (900)	698 (78%)	760 (84%)	597 (66%)	709 (79%)	581 (65%)	612 (68%)	596 (66%)	714 (79%)	571 (63%)	691 (77%)	325 (36%)	579 (64%)	561 (62%)	678 (75%)
Total (2100)	1532 (73%)	1723 (82%)	1387 (66%)	1548 (74%)	1358 (65%)	1417 (67%)	1281 (61%)	1557 (74%)	1213 (58%)	1459 (70%)	794 (38%)	1202 (57%)	1261 (60%)	1484 (71%)

Table 41. Comparison of coherence scores, pre- and post-instruction texts

	Robin		Taylor		Jean		Casey		Alex		Riley		Average	
	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-
Resemblance (300)	218	225	219	233	208	218	179	219	180	209	123	160	188	211
Contiguity (300)	219	259	208	218	200	213	189	223	179	204	118	160	186	213
Cause-effect (300)	214	250	208	218	199	212	174	214	138	188	134	155	178	206
Attribution (300)	183	229	155	170	170	143	143	187	145	167	94	148	148	174
Total (1200)	834	963	790	839	777	805	685	843	642	768	469	623	700	807

Table 42. Comparison of sentence cohesion scores, pre- and post-instruction texts

Some examples of how sentence coherence was created in the post-instruction texts are presented below (Table 43). They can shed light on the establishment of the relevance and continuity of meaning within a sentence.

Robin	<i><u>Based on this video</u>, Valerie who is a female police officer receives a call about some disruptions in a residential area caused by a group of young people. One of the neighbors, a lady, started complaining about the youngsters explaining that they smoke drugs and cause inconveniences for them. <u>As a result of this complaint</u>, Valerie and her colleague searched the building to find some evidence of drugs, <u>but</u> they were not able to find any drugs causing the bad smell.</i>
Taylor	<i>Suddenly, a call from police headquarters informs Virginie that a group of manifestants have entered from an adjacent route which poses a threat for the Prime Minister. Virginie has to place a platoon <u>consequently</u> to secure the area.</i>
Riley	<i>Unfortunately, the odour was not enough for youngsters arrestation. <u>as a result</u>, the youngsters were insult Valerie and police team.</i>

Table 43. Sentence coherence examples, post-instruction texts

Based on the excerpts (Table 43), we observe how contrast (e.g. the use of “but” in Robin’s text) as well as cause-effect relations (e.g. the use of “consequently” by Taylor and “as a result” by Robin and Riley) are developed in the texts. Another example, “based on this video,” also demonstrates how an attribution relation is constructed.

As for the scores of paragraph coherence, similar patterns to sentence coherence are observable (Table 44), with a considerable improvement in the scores for the conclusion (17% increase in the overall average score). There is more consistency between the scores of factors contributing to paragraph coherence. However, we also observe that Casey has scored the second highest in this area — a change from the pre-instruction phase. This observation is worth exploring to investigate the corresponding factors and will be discussed in the following sections.

	Robin		Taylor		Casey		Jean		Alex		Riley		Average	
	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-
Topic sentence (300)	234	260	204	233	199	238	202	215	183	224	123	185	191	226
Development (300)	225	251	215	238	200	238	200	218	195	228	147	191	197	227
Conclusion (300)	239	249	178	238	197	238	179	179	193	239	55	203	174	224
Total (1200)	698	760	597	709	596	714	581	612	571	691	325	579	561	677

Table 44. Comparison of paragraph coherence scores, pre- and post-instruction texts

The examples selected can help to better understand how the scores have been assigned (Table 42). For instance, Riley’s conclusion to which the temporal marker “finally” covers the last sequence of events based on the video. However, Jean uses only “The end” to be “considered”³⁹ as a conclusion following their previous sentence, “Therefore, they control the drive, he did not have the car paper and he is illegal in France”. Finally, Robin’s concluding sentence, which is assigned the highest score, can potentially clarify how the point of discussion is concluded at the end.

Riley	Topic sentence: <i>This report is about to a female policy who mission to maintain order in building of drugged because the neighbour was worry.</i> Excerpt from the development of the idea: <i>Valerie’s evening was start bad because the younger sellted down in building staircase and the neighbour don’t have to support because they were pass their time to smoke drug in staircase. As soon as Valerie arrived, she is note odour due to youngers was smoked while evening.....</i> Concluding sentence: <i>Finally, the driver was taken to police post.</i>
Jean	Topic sentence: <i>Frist of all, in this video was about Valerie who is a police officer.</i> An excerpt from the development of the idea: <i>She woks at the night squad. At 22 pm, she goes on patrol with her colleague. Following a phone call of people who live in a building, they go to see what is going in this aera.....</i> Concluding sentence: <i>The end.</i>
Robin	Topic sentence: <i>Based on this video, Valerie who is a female police officer receives a call about some disruptions in a residential area caused by a group of young people.</i> Excerpt from the development of the idea: <i>Then, she and her colleague go to respond to this call and search the area. When they entered the building, they noticed a weird smell and also confronted a group of youngsters and neighbours...</i> Concluding sentence: <i>This video ends with placing the driver of the car inside Valerie’s car.</i>

Table 45. Examples of topic and concluding sentences and development of ideas, post-instruction text

This observation indicates that in producing the post-instruction summaries, students showed higher competency in terms of including a sentence that clearly articulates the point of the video as well as were able to use the topic consistently as the main point and develop it throughout the paragraph. In addition, excluding Jean, the participants demonstrated their attempts in presenting the point of discussion at the end, for the sake of clarity.

³⁹ I have quoted the individual and will examine this aspect in the Interview section.

Having explored the changes in the produced texts in terms of coherence, we explore whether any changes are also observable in the second set of texts in terms of establishing the element of cohesion.

3.4.1.3. Cohesion

With respect to cohesion, compared to the pre-instruction texts, we observe—except for Robin, whose score is considerably (by 16%) above the average—a relative consistency in the range of scores. Once again, despite a moderate increase in their post-instruction cohesion score, Riley is considerably below the average, with their counterparts clustered around the average (Table 46). However, in line with the pre-instruction results, the scores for cohesion are consistently lower than those for coherence, suggesting that despite improvements in the post-instruction scores, improving cohesion remains a need. A more detailed analysis of the number and variety of CDs used, as well as their appropriateness, will help to confirm this finding and provide a more detailed picture of students' post-instruction behaviour.

3.4.1.4. Types and distribution of CDs

The results of the post-instruction texts in terms of types and distribution of CDs demonstrate uniform patterns of findings explored in the pre-instruction texts with all the participants implementing various types of CDs in relatively stable patterns. Once again, the most frequently implemented types of CDs are pronoun references, followed by lexical references and then conjunction (Table 47). While we observe a slight increase in the use of conjunction and lexical references, the use of pronoun references demonstrates a relatively moderate decline.

The qualitative analyses of the pre-instruction videos revealed that the participants resorted to specific strategies to identify, choose and implement these common CDs (3.3.2. Drafting techniques). Further analysis of the videos in this phase is necessary as well to explore the means and strategies used by participants and compare the results to identify any changes of behaviour.

	Taylor		Robin		Jean		Casey		Alex		Riley		Average	
	<i>Pre-</i>	<i>Post-</i>	<i>Pre-</i>	<i>Post-</i>	<i>Pre-</i>	<i>Post-</i>	<i>Pre-</i>	<i>Post-</i>	<i>Pre-</i>	<i>Post-</i>	<i>Pre-</i>	<i>Post-</i>	<i>Pre-</i>	<i>Post-</i>
Cohesion scores (Total=1800)	1181 (66%)	1241 (67%)	1080 (60%)	1473 (82%)	1076 (60%)	1127 (63%)	990 (55%)	1227 (68%)	908 (50%)	1186 (66%)	616 (34%)	838 (47%)	975 (54%)	1182 (66%)

Table 46. Comparison of cohesion scores, pre- and post-instruction texts

	Casey		Taylor		Robin		Alex		Jean		Riley		Average	
	<i>Pre-</i>	<i>Post-</i>	<i>Pre-</i>	<i>Post-</i>	<i>Pre-</i>	<i>Post-</i>	<i>Pre-</i>	<i>Post-</i>	<i>Pre-</i>	<i>Post-</i>	<i>Pre-</i>	<i>Post-</i>	<i>Pre-</i>	<i>Post-</i>
CDs in the text	36	44	31	27	28	69	27	37	23	41	13	21	26	40
CDs per 100 words	22	24	18	14	17	29	17	24	12	19	8	14	16	21
Conjunction	23%	29%	28%	36%	12%	31%	24%	24%	17%	26%	50%	36%	26%	30%
Pronoun Reference	41%	33%	39%	14%	41%	31%	53%	36%	58%	68%	25%	36%	43%	36%
Lexical Reference	32%	38%	33%	50%	47%	38%	24%	40%	22%	6%	25%	28%	31%	33%

Table 47. Comparison of types and distribution of CDs, pre- and post-instruction texts

3.4.1.4.1. Types and distribution of conjunctives

Based on the post-instruction texts (Table 48), all the participants have implemented a relatively wide range of conjunctives with the highest density of these CDs in Robin's and Casey's texts, while the other participants used a roughly similar density of these CDs. Unlike the pre-instruction texts that show the range of conjunction types used varies considerably from participant to participant, the post-instruction texts illustrate more consistency in using a relatively wider range of conjunction types (apart from Jean using no additive conjunction), with Alex using no causals, Riley using mostly temporal and causal with the occasional additive and adversative, while Casey and Robin used the full range of types identified.

	Taylor		Riley		Alex		Casey		Jean		Robin		Average	
	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-
Conjunction per 100 words	5	5	4	5	4	6	5	7	2	5	2	9	4	6
Additive	40%	20%	25%	13%	16%	33%	40%	42%	50%	0%	100%	43%	45%	30%
Temporal	20%	40%	25%	38%	50%	44%	40%	17%	50%	40%	0%	24%	29%	32%
Causal	40%	30%	25%	38%	16%	0%	10%	25%	0%	40%	0%	19%	15%	22%
Adversative	0%	10%	25%	13%	16%	22%	10%	17%	0%	20%	0%	14%	9%	15%

Table 48. Comparison of pronoun reference types and distribution, pre- and post-instruction texts

3.4.1.4.2. Conjunction appropriateness and variety

The scores allotted for appropriateness of the choices are higher than the variety of conjunctives used, suggesting room for improvement (Table 49). It is worth noting that Casey, who had earned higher scores in earlier areas of the analysis, including cohesion scores, still shows little variety in their use of conjunction. It is also necessary to explore how the other types of CDs are used (in terms of appropriateness and variety) to better understand whether they contribute to the overall coherence and cohesion in the texts and whether changes have occurred compared to the pre-instruction results.

	Taylor		Robin		Jean		Casey		Alex		Riley		Average	
	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-
Appropriateness (300)	204 (68%)	223 (74%)	184 (61%)	249 (83%)	184 (61%)	204 (68%)	179 (60%)	214 (71%)	159 (53%)	199 (66%)	143 (48%)	173 (58%)	176 (59%)	210 (70%)
Variety (300)	203 (68%)	217 (72%)	169 (56%)	248 (83%)	160 (53%)	179 (60%)	163 (54%)	198 (66%)	125 (42%)	183 (61%)	70 (23%)	149 (50%)	148 (49%)	196 (65%)
Total (600)	407 (68%)	440 (73%)	352 (59%)	497 (83%)	344 (57%)	383 (64%)	342 (57%)	412 (67%)	284 (47%)	382 (64%)	213 (36%)	322 (54%)	324 (54%)	406 (67%)

Table 49. Comparison of conjunction appropriateness and variety, pre- and post-instruction texts

To better depict the results, we explore some examples of conjunction. In one example, Riley has added “furthermore” when adding new information to the previous sentence and establishes a tie to the proceeding one; this also introduces a new additive marker, complementing “and”, the only additive marker in their first summary text.

Riley	<i>Unfortunately, the odour was not enough for youngers arrestation. as a result, the youngers were insult Valerie and police team. <u>Furthermore</u>, the arrival of Valerie and his team has created voltage.</i>
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Table 50. Example of additive marker, post-instruction text

The following provides some examples of contiguity devices, as well. For instance, in the first example, Jean has employed “while” and “then”, which convey the temporal relation in the sentence, adding to the variety of markers as compared to their first summary text. However, in the second example extracted from Jean’s text, the use of “first of all” is not necessary, as it does not introduce a sequence of events based on the video content.

Jean	<i><u>While</u> they were driving back, they saw a car who drive without light, <u>then</u> they follow it. <u>Frist of all</u>, in this video was about Valerie who is a police officer.</i>
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Table 51. Example of temporal markers, post-instruction text

As for the use of causal markers in the texts (Table 52), Taylor used “consequently,” which establishes a causal relationship with the previous sentence in their paragraph. In another example extracted from Riley’s text, despite the issues in the sentence structure (issues with verb tenses and subject-verb agreement — “was start” and “neighbour don’t”, for example), “because” has been used to establish a causal relation between “they were pass their time to smoke drug in staircase” as the cause and+ “the neighbour don’t have to support.”

Taylor	<i>Suddenly, a call from police headquarters informs Virginie that a group of manifestants have entered from an adjacent route which poses a threat for the Prime Minister. Virginie has to place a platoon <u>consequently</u> to secure the area.</i>
Riley	<i>Valerie’s evening was start bad because the younger settled down in building staircase and the neighbour don’t have to support <u>because</u> they were pass their time to smoke drug in staircase.</i>

Table 52. Example of causal marker, post-instruction text

Regarding the use of adversative markers (Table 53), in the sentence produced by Robin, the use of “however” can convey the contrast between what was expected, based on the video content, and how the next event contradicted this.

Robin	<i>the youngsters insulted them and acted very disrespectfully; <u>however</u> valerie and hear colleague did not respond to their disrespectful behavior.</i>
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Table 53. Example of adversative marker, post-instruction text

Comparing the above-mentioned observations with the video and interview data can better explain the means and strategies used by the participants when choosing and implementing

these common CDs (cf. sections 3.4.3.7. Qualitative analysis of the videos and 3.4.7.8.2. FOMT assisting with learning about CDs).

3.4.1.4.3. Types and distribution of pronoun references

The results in the second category of CDs, pronoun reference—which is used with approximately the same density as lexical cohesion and to some extent conjunction overall—are noticeably similar to the pre-instruction texts demonstrating a much greater use of personal than demonstrative pronoun reference (Table 54).

Unlike the pre-instruction results, Taylor rather than Riley stands at the lower end of the scale. The distribution of the other participants changes relative to that for conjunction. This may suggest that the participants still tend to rely on personal than demonstrative references in their writing; this aspect will be discussed in the Discussion chapter.

	Jean		Alex		Robin		Casey		Taylor		Riley		Average	
	<i>Pre-</i>	<i>Post-</i>	<i>Pre-</i>	<i>Post-</i>	<i>Pre-</i>	<i>Post-</i>	<i>Pre-</i>	<i>Post-</i>	<i>Pre-</i>	<i>Post-</i>	<i>Pre-</i>	<i>Post-</i>	<i>Pre-</i>	<i>Post-</i>
Pronoun references per 100 words	7	13	9	9	7	9	9	8	7	2	2	5	7	8
Personal	93%	96%	93%	93%	83%	81%	93%	93%	67%	100%	100%	86%	88%	92%
Demonstrative	7%	4%	7%	7%	17%	19%	7%	7%	33%	0%	0%	14%	12%	8%

Table 54. Comparison of types and distribution of pronoun references, pre- and post-instruction texts

3.4.1.4.4. Appropriateness and variety of pronoun references

The post-instruction texts show similar results to those of the pre-instruction texts, with the participants scoring relatively higher for the appropriateness than for the variety of their choices, which was the case for the use of conjunction as well (Table 55).

However, except for Jean, whose text does not demonstrate notable improvements in the appropriate use and variety of these markers, the participants show considerable improvement in the implementations of these CDs. Riley showed the highest increase in both categories.

	Taylor		Jean		Robin		Alex		Casey		Riley		Average	
	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-
Appropriateness (300)	204 (68%)	213 (71%)	203 (68%)	207 (69%)	199 (66%)	248 (83%)	188 (63%)	210 (70%)	169 (56%)	204 (68%)	109 (36%)	154 (51%)	179 (60%)	206 (69%)
Variety (300)	190 (63%)	195 (65%)	173 (58%)	179 (60%)	179 (60%)	239 (70%)	174 (58%)	199 (66%)	164 (55%)	194 (65%)	50 (17%)	134 (45%)	155 (52%)	190 (63%)
Total (600)	394 (66%)	408 (68%)	376 (63%)	386 (64%)	378 (63%)	487 (81%)	362 (60%)	409 (68%)	333 (56%)	398 (66%)	159 (27%)	288 (48%)	334 (56%)	396 (66%)

Table 55. Comparison of pronoun reference appropriateness and variety, pre- and post-instruction texts

The following examples (Table 56) selected from Taylor’ text can shed light on how the coreferential ties have been established in their text. For instance, in the sentence, the use of “them” establishes the coreferential tie with “a few manifesters”.

Taylor	<i>A few manifestants snuck past and climbed a construction building with scaffolding. Virginie decided not to use physical force to take <u>them</u> out, and instead asked <u>them</u> to come down without any judicial repercussion.</i>
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Table 56. Examples of personal reference, post-instruction text

As well, when examining the examples of demonstrative references in the texts (Table 57), we observe that in the example taken from Casey’s text, the determiner “this”, produced by FOMT, is used appropriately as a demonstrative reference to the video. Also, in the example taken from Jean’s text, it is clear that the demonstrative reference “this” refers back to the antecedent “building.”

Casey	<i><u>This</u> report is about Valerie, à police officer, who is working her night shift when she receives a call that there are dozens of disruptors in a building.</i>
Jean	<i>Following a phone call of people who live in a building, they go to see what is going in <u>this</u> aera.</i>

Table 57. Examples of demonstrative references, post-instruction text

3.4.1.4.5. Types and distribution of lexical cohesion features

The final category of CDs, lexical cohesion, was used in a relatively similar density to pronoun references in the post-instruction texts, which reflects a similar pattern observed in the pre-instruction texts (Table 58). As also observed in the pre-instruction texts, the participants showed a strong preference for the use of repetition rather than synonymy, while in the post-instruction texts, the use of synonymy was observed at a higher frequency in the texts produced by Casey, Taylor, Alex and Robin. Overall, as in the pre-instruction results, there is considerable variability in the various participants’ use of the CDs, with Riley still remaining at the lower end of the scale.

	Casey		Taylor		Alex		Robin		Jean		Riley		Average	
	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-
Lexical references per 100 words	7	9	6	7	4	10	8	11	3	1	2	4	5	7
Repetition	100%	82%	90%	85%	100%	67%	100%	81%	80%	100%	100%	100%	95%	86%
Synonymy	0%	18%	10%	15%	0%	33%	0%	19%	20%	0%	0%	0%	5%	14%

Table 58. Comparison of lexical reference types and distribution, pre- and post-instruction texts

3.4.1.4.6. Appropriateness and variety of lexical cohesion features

The repeated pattern is that while students have made progress in the appropriateness of their choices of lexical cohesion features and in their variety (Table 59), there is still scope for improvement in these two categories and in particular in the use of a wider variety of lexical choices. As well, as was the case for the pre-instruction results, Riley scored towards the bottom of the scale and below average, with a very considerable gap between them and the others. However, unlike the pre-instruction results, Robin and Casey are considerably above the average, but the others are clustered more closely together.

The examples selected by the judges can shed light on how the students used repetition and synonymy devices in producing the second texts. For instance, Casey (Table 60) has used the lexical repetition “the building” to create semantic ties with the previous sentence.

Casey	<i>This report is about Valerie, a police officer, who is working her night shift when she receives a call that there are dozens of disruptors in a building. Afterwards, when Valerie arrives she notices a strange smell, and that people in <u>the building</u> have been smoking herbs.</i>
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Table 59. Example of repetition devices, post-instruction text

In contrast, “the building” has been used by Robin (Table 61) as a synonym that establishes a referential tie to “a residential area” in the previous sentence. As well, Alex has used “property” as a synonym for the “building”. Despite their effort to avoid repetition, in terms of proximity, it could be somewhat challenging for the reader to identify the co-referential element easily. Furthermore, writing “the property” could be considered a reference to a specific property, which in the context of their paragraph could be a synonym for the “building”, but the general word, “property” cannot be convincing enough to establish a co-referential tie to the “building”.

Robin	<i>Based on this video, Valerie who is a female police officer receives a call about some disruptions in <u>a residential area</u> caused by a group of young people. When they entered <u>the building</u>, they noticed a weird smell and also confronted a group of youngsters and neighbours.</i>
Alex	<i>..... The police conduct an unfruitful search around the area for marijuana, they then escort the adults out of <u>the building</u> despite their protests. Once dispersed onto the street, they begin yelling and grouping up with more adults. Valerie and her coworker ignore the yelling and make their way back to the station, but notice a driver driving irrationally. After following the driver and pulling him over to do a check, they learn he does not have any identification, nor any registration papers for the car. During this search the inebriated adults from earlier begin approaching the police team, yelling and damaging <u>property</u>.</i>
Riley	<i>Unfortunately, the odour was not enough for youngsters arrestation. as a result, the youngsters were insult Valerie and police team. <u>Furthermore</u>, the arrival of Valerie and his team has created <u>voltage</u>.</i>

Table 60. Examples of synonymy devices, post-instruction text

	Taylor		Jean		Robin		Casey		Alex		Riley		Average	
	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-
Appropriateness (300)	195 (65%)	199 (66%)	188 (63%)	188 (63%)	185 (62%)	249 (83%)	174 (58%)	213 (71%)	154 (51%)	198 (66%)	110 (37%)	118 (39%)	168 (56%)	194 (65%)
Variety (300)	185 (62%)	194 (65%)	170 (57%)	170 (57%)	165 (55%)	240 (80%)	163 (54%)	208 (70%)	120 (40%)	197 (66%)	40 (13%)	55 (18%)	141 (47%)	177 (59%)
Total (600)	380 (63%)	393 (66%)	358 (60%)	358 (60%)	350 (58%)	489 (82%)	337 (56%)	421 (70%)	274 (46%)	395 (66%)	150 (25%)	173 (29%)	308 (51%)	372 (62%)

Table 61. Comparison of lexical reference appropriateness and variety, pre- and post-instruction texts

Overall, despite the increases in the use of synonymy devices by around 9% compared to the pre-instruction stage, the recurrent pattern is the students' reliance on repeating the same words to construct lexical ties, rather than to employing synonymy. This echoes the same indications that the students' lexical repertoire is still restricted and with language development, this aspect could improve accordingly. This could also suggest that they may be able to improve their restricted lexical repertoire by using MT strategically. However, as far as lexical cohesion is concerned, we can also refer to an interesting observation (Table 61) regarding the word "voltage" in Riley's text. In the sentence originally drafted in L1, they wrote "tension" and the FOMT-generated translation is "voltage" added by Riley to their submitted sentence. This translation could be an example of semantic ambiguity which is addressed in section, 3.4.9. Summary of the overall findings.

3.4.2. Student post-instruction writing performance and findings

A comparative analysis of the students' baseline writing performance with the post-instruction performance reveal that while students, overall, have shown progress in terms of their coherence and cohesion scores, there is still scope for improvement in these two areas, and in particular, in implementing a wider variety of CDs in their texts. In light of the participants' self-reported and interview results on the use of FOMT (sections 3.4.5. Post-instruction student survey analysis and 3.4.7. Semi-structured student interviews), we will better understand whether they used the tools with some selectivity and evaluated the appropriateness of the produced items (e.g. of different CDs) in the process of producing their second set of texts.

In addition, the post-instruction texts show some patterns similar to the pre-instruction texts: we still observe three levels of competence in writing coherent and cohesive text, overall. However, this time, Casey and Robin represent the higher level of competence, Jean, Taylor and Alex demonstrate a more moderate level; and, as in the pre-instruction stage, Riley illustrates the level requiring the most development. Comparing levels of performance with self-reported behaviour and attitudes (3.4.5. Post-instruction student survey analysis), as well as with the strategies, tools and behaviours observed in the video recordings (e.g. 3.4.3.2. Drafting technique) and with the students' perceptions and beliefs shared via interviews, may help us to understand the challenges and potential for each of these participants.

3.4.3. Post-instruction video analysis

In line with the pre-instruction video analysis, we have explored various phenomena in each participant's writing process, including the time spent on various tasks while drafting and revising their texts, the strategies and tools used, and the ways in which various elements of coherence and cohesion (particularly CDs) were produced. By combining these observations with those from the analysis of the texts and comparing them with the pre-instruction analysis, we hope to be able to better judge the participants' reactions to the instruction and observe if they make any changes in their behaviour in the writing process as well as to observe their approaches, strengths and weaknesses. In addition, in the next section (3.4.5. Post-instruction student survey analysis and 3.4.7. Semi-structured student interviews) the analysis of the post-survey data and interview results will complement these observations and provide more clarifications on the students' perceptions and behaviour.

3.4.3.1. Drafting time

Overall, in writing the post-instruction texts, students took slightly more time overall and per 100 words produced, producing slightly longer texts as well (Table 62). One exception was Jean, who reduced the time spent overall and per 100 words produced, producing a slightly shorter text. However, it is important to note that Jean had been on the high side of the three scales for the pre-instruction text, leaving scope for reduction. These differences between the pre-instruction and post-instruction text production invites exploration of participants' approaches and processes in order to identify factors that may have contributed to the variation.

As well, once again, the time scores do not correlate with the division that appeared to be emerging based on the majority of the text analyses. On the contrary, Riley, who spent most time per 100 words produced, scored lower on the text length and coherence and cohesion measures. Also, Jean, who placed after Riley in terms of time spent per 100 words, scored the second lowest in both coherence and cohesion measures. Interestingly, Robin scored the highest in coherence (both sentence and paragraph) but the third lowest in minutes spent per 100 words produced. By exploring the video analyses as well as examining the students' perceptions and views in the Interview section, we will be able to offer some explanations for these observations.

	Jean		Riley		Taylor		Casey		Alex		Robin		Average	
	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-
Text length (words)	189	218	163	149	173	200	167	180	161	154	167	242	170	191
Time spent (min.)	71	64	69	69	23	41	18	33	15	16	13	29	35	42
Min. per 100 words	38	29	42	46	13	21	11	18	9	10	8	12	20	23

Table 62. Comparison of percentages of the text drafted using FOMT, pre- and post-instruction

3.4.3.2. Drafting technique

On average, the participants tended to draft the majority of their texts manually in English both pre- and post-instruction, with little variation in proportion. There was only a slight decrease in the amount of time used for drafting in L1 and manually translating into English and a corresponding slight increase in the use of FOMT (Table 63). Comparing these findings with the participants' self-reported use of FOMT (3.4.5.1. Perceptions and use of FOMT) will clarify whether the participants' perceptions will reflect their actual behaviour in completing their second summary tasks.

A comparison of FOMT use in the pre- and post-instruction texts highlights considerable change in frequency. We saw in section 3.1. (Pre-instruction student survey analysis) that most students reported using FOMT quite often and finding it fairly useful and that most reported using it to translate small blocks such as words, phrases and expressions, but rarely larger blocks such as sentences and paragraphs. The reported frequency of use was generally confirmed by the analysis of the pre-instruction videos (Section 3.1), in which the students made relatively frequent but short use of FOMT. In the post-instruction videos, three of the participants (Riley, Jean and Taylor) made considerably more frequent use of FOMT than in the pre-instruction phase (Table 63). Two remained stable (Alex who never used FOMT and Robin who used the tool at low frequency), while only Casey made less use of FOMT post-instruction. When these variations are compared per 100 words produced and per 10 minutes of drafting time (Table 64), the larger increases (Riley, Jean, Taylor) and decrease (Casey) remain, and Robin's values decrease somewhat as well, perhaps due to the considerably longer time spent and words produced in the post-instruction text than pre-instruction. This does suggest that the instruction may have influenced the participants' choices in making use of FOMT. Therefore, cross-referencing this observation with the participants' post-survey data and interview answers will be necessary.

	Jean		Riley		Taylor		Casey		Alex		Robin		Average	
	<i>Pre-</i>	<i>Post-</i>	<i>Pre-</i>	<i>Post-</i>	<i>Pre-</i>	<i>Post-</i>	<i>Pre-</i>	<i>Post-</i>	<i>Pre-</i>	<i>Post-</i>	<i>Pre-</i>	<i>Post-</i>	<i>Pre-</i>	<i>Post-</i>
Uses of FOMT (n)	23	40	28	35	7	16	13	6	0	0	5	5	13	17
Uses of FOMT per 100 words	12	18	17	23	4	8	8	3	0	0	3	2	8	9
Uses of FOMT per 10 min.	3	6	4	5	3	4	7	2	0	0	4	2	4	3
Time spent on drafting using FOMT	11%	23%	12%	9%	13%	10%	6%	18%	0%	0%	8%	3%	8%	11%
Time spent on manual drafting in French	46%	8%	42%	35%	30%	0%	6%	61%	0%	0%	0%	0%	21%	17%
Time spent on manual drafting in English	42%	69%	46%	57%	57%	90%	89%	18%	100%	100%	92%	97%	71%	72%

Table 63. Comparison of time spent using drafting techniques, pre- and post-instruction texts

	Pre-instruction (n)	Post-instruction (n)	Difference (%)
Riley	28	35	25%
Jean	23	40	74%
Casey	13	6	-54%
Taylor	7	16	129%
Robin	5	5	0%
Alex	0	0	-
Average	13	17	31%

Table 64. Comparison of drafting time, pre- and post-instruction

However, the large increase in frequency of use of FOMT does not necessarily reflect consistency at an individual level. While most of the individuals increased or decreased their use of FOMT only slightly, the percentage of the text drafted using FOMT by Casey increased by almost 50% of the text (Table 65). Another observation is that Casey produced more text using FOMT in less time in the post-instruction stage than in the pre-instruction stage (Table 40 and Table 64), which could suggest that MT facilitated the writing process for Casey.

	Riley	Jean	Casey	Taylor	Robin	Alex	Average
Pre	17%	12%	40%	5%	3%	0%	13%
Post	23%	17%	88%	8%	2%	0%	23%
Difference	6%	5%	48%	3%	-1%	0%	10%

Table 65. Comparison of percentages of the text drafted using FOMT, pre- and post-instruction

As well, a corresponding decrease in the proportion of the text drafted directly in English was noted for Casey, while Jean increased the drafting in English to 83% of the text from the initial reluctance to draft in English at all, and the other participants showed much more modest differences (Table 66). These pronounced changes will be explored more fully in the analysis of the videos (e.g. 3.4.3.7. Qualitative analysis of the videos) and of the interviews (3.4.7.1. Frequency of use).

	Riley	Jean	Casey	Taylor	Robin	Alex	Average
Pre	0%	0%	60%	84%	97%	100%	57%
Post	0%	83%	12%	92%	98%	100%	64%
Difference	0%	83%	-48%	8%	1%	0%	7%

Table 66. Comparison of proportions of text drafted in English, pre- and post-instruction

Moreover, the time spent consulting FOMT does not necessarily correlate with the number of consultations (Table 64). The average proportion of time spent using FOMT increased; however, while Jean and Casey did indeed increase their time using FOMT, the others

decreased or held steady. In particular, Riley and Jean, who used FOMT more, showed a dramatic decrease in the proportion of time spent on manual translation from L1 to English, suggesting that they may have replaced manual translation with FOMT. Except Casey and Riley, the participants who used FOMT spent a higher proportion of their time drafting directly in English, suggesting that they did not use FOMT to replace writing in English. Interestingly, when comparing the participants' cohesion and coherence scores in the pre-and-post-instruction phases (Table 41 and Table 46), we observe moderate-to-considerable increases in the total scores of coherence and cohesion in the texts produced by Riley, Alex and Taylor.

The highest and second highest scores belong to Robin and Casey, and there was almost no increase in Jean's text. The qualitative analysis of the videos will be further explored (section 3.4.3.7. Qualitative analysis of the videos) to better understand such observations. Another topic for video analysis will be the choices made by Casey, which show a very different trend from that of the other participants.

Table 67 shows that, compared to the pre-instruction stage, the portion of FOMT-generated text postedited shows only a 2% increase overall, although the proportion ranged from very low (e.g. almost 5% postedited for Jean and Casey) to the majority (e.g. 60% postedited for Robin). It is well worth noting that the highest declines in editing are observed in the behaviours of Jean and Taylor, demonstrating considerably less effort (5% and 6% in postediting their texts respectively) than in pre-instruction. Comparing these observations with the overall scores of coherence and cohesion may suggest links between less effort in editing and decreases in overall values. While, overall, the data confirm that the participants demonstrate awareness of the need to evaluate the FOMT-generated texts, it is important to analyze the reasons/motivations that may have contributed to demonstrating these behaviours in the Interview section. An analysis of the changes made as well as their effects will be presented in the section 3.4.3.7. (Qualitative analysis of the videos) to provide a better understanding.

	Riley		Jean		Casey		Taylor		Robin		Alex		Average	
	<i>Pre-</i>	<i>Post-</i>	<i>Pre-</i>	<i>Post-</i>	<i>Pre-</i>	<i>Post-</i>	<i>Pre-</i>	<i>Post-</i>	<i>Pre-</i>	<i>Post-</i>	<i>Pre-</i>	<i>Post-</i>	<i>Pre-</i>	<i>Post-</i>
Text length	163	149	189	218	167	180	173	200	167	242	161	154	170	191
Drafted in English and not translated*	0%	0%	0%	83%	60%	12%	84%	92%	97%	98%	100%	100%	57%	64%
Drafted in French and manually translated*	83%	77%	88%	0%	0%	0%	12%	0%	0%	0%	0%	0%	31%	13%
Translated using FOMT*	17%	23%	12%	17%	40%	88%	4%	8%	3%	2%	0%	0%	13%	23%
<i>No editing</i>**	96%	89%	48%	95%	99%	94%	43%	94%	80%	40%	0%	0%	61%	82%
<i>Postedited</i>**	4%	11%	43%	5%	1%	5%	43%	6%	0%	60%	0%	0%	16%	18%
<i>Replaced</i>**	0%	0%	9%	0%	0%	1%	14%	0%	20%	0%	0%	0%	11%	0%

Table 67. Comparison of drafting techniques, pre- and post-instruction texts

* Percentage of text

**Percentage of FOMT-translated text

		Riley		Jean		Casey		Taylor		Alex		Robin		Average	
		Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-
Words	Total	25	32	14	38	10	0	6	15	0	0	5	5	10	15
	<i>L1 to En</i>	100%	100%	93%	92%	100%	0%	100%	87%	0%	0%	100%	80%	82%	60%
	<i>En to L1</i>	0%	0%	7%	8%	0%	0%	0%	13%	0%	0%	0%	20%	1%	7%
Phrases	Total	0	3	1	0	2	0	1	1	0	0	0	0	1	1
	<i>L1 to En</i>	0%	100%	100%	0%	100%	0%	100%	100%	0%	0%	0%	0%	50%	33%
	<i>En to L1</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Clauses	Total	0	0	0	0	4	0	0	0	0	0	0	0	1	0
	<i>L1 to En</i>	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	17%	0%
	<i>En to L1</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Sentences	Total	0	0	1	0	1	6	0	0	0	0	0	0	0	1
	<i>L1 to En</i>	0%	0%	100%	0%	100%	100%	0%	0%	0%	0%	0%	0%	33%	17%
	<i>En to L1</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Paragraph		0	0	1	0	0	0	0	0	0	0	0	0	0	0
	<i>L1 to En</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	<i>En to L1</i>	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	17%	0%

Table 68. Comparison of translated units and directions, pre- and post-instruction

	Robin		Taylor		Jean		Casey		Alex		Riley		Average	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Topic sentence in the text	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Drafted in English and not translated*	100%	100%	100%	100%	0%	100%	72%	7%	100%	100%	0%	0%	62%	68%
Drafted in French and manually translated*	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	100%	93%	33%	16%
Translated using FOMT*	0%	0%	0%	0%	0%	0%	18%	93%	0%	0%	0%	7%	3%	17%
<i>No editing**</i>	0%	0%	0%	0%	0%	0%	0%	84%	0%	0%	0%	0%	0%	14%
<i>Postedited**</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<i>Replaced/deleted**</i>	0%	0%	0%	0%	0%	0%	0%	9%	0%	0%	0%	0%	0%	2%

Table 69. Drafting of topic sentences, post-instruction text

* Percentage of text

**Percentage of FOMT-translated text

	Robin		Taylor		Jean		Casey		Alex		Riley		Average	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Concluding sentence in the text	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes		
Drafted in English and not translated*	100%	100%	100%	100%	0%	0%	10%	13%	100%	100%	0%	0%	62%	52%
Drafted in French and manually translated*	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	100%	30%	33%	5%
Translated using FOMT*	0%	0%	0%	0%	0%	0%	90%	87%	0%	0%	0%	70%	3%	26%
<i>No editing**</i>	0%	0%	0%	0%	0%	0%	0%	97%	0%	0%	0%	0%	0%	16%
<i>Postedited**</i>	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%
<i>Replaced/deleted**</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Table 70. Drafting of concluding sentences, post-instruction texts

* Percentage of text

**Percentage of FOMT-translated text

3.4.3.3. Items and direction of translation

Table 68 shows that the nature of items translated using FOMT remains relatively consistent pre- and post-instruction, with only a very small increase in use to translate words into the participants' L1, although Casey's use changes somewhat more than is typical and warrants more detailed analysis based on the videos (3.4.3.7. Qualitative analysis of the videos). Comparing these observations with the post-survey data will be necessary as well to investigate whether the self-reported data aligns with the video data.

3.4.3.4. Drafting of topic and concluding sentences

The post-instruction results demonstrate similar patterns showing that the topic sentences constructed by the participants are manually drafted (Table 69). Also, once again, students who used FOMT in constructing a proportion of their topic sentence rarely edited the FOMT-generated portions.

In a similar vein, the results in Table 70 show that the proportion of manually drafted concluding sentences considerably outweighs the FOMT-generated ones, with the exception of Riley and Casey, and that the editing behaviour remains consistent.

3.4.3.5. Drafting of CDs

To identify any changes in strategies that may have played a role in the participants' performance and development of coherence and cohesion, we compare the production of CDs in the pre-instruction stage with CD production in the post-instruction stage. Overall, as in the pre-instruction findings, for the participants who consulted FOMT, the proportion of manually drafted CDs is far greater than of FOMT-generated CDs. This observation is consistent with their overall drafting approach, as indicated in Table 67. As in the pre-instruction stage, Casey is still an outlier, using a much higher proportion of FOMT-generated CDs than their counterparts. The use of FOMT-generated CDs may simply be linked to their more substantial FOMT consultations (Table 67 and Table 71).

Overall, the pre- and post-instruction results show that participants who used FOMT did not tend to adjust the CDs that originated with FOMT⁴⁰. While this is the case, it is worth mentioning that we also observe a dramatic increase in Robin's editing behaviour and a small

⁴⁰ We will learn in sections 3.4.3.6. Appropriateness of CDs and 3.4.3.7. Qualitative analysis of the videos the reason why students did not adjust the CDs produced by FOMT.

increase of around 6% in Casey's adjustment of the CDs initially suggested by FOMT. These observations will be worth exploring in the recordings to study how Robin's and Casey's use of FOMT may differ from that made by other participants (3.4.3.7. Qualitative analysis of the videos).

3.4.3.6. Appropriateness of CDs

An analysis of the appropriateness of the CDs generated using FOMT (Table 72) confirms the findings of the pre-instruction stage, that a considerable proportion of CDs are appropriate. As explained in the pre-instruction video analysis (3.3.5. Appropriateness of CDs), this may explain why the participants did not display a tendency to edit or replace the items in the texts. However, a qualitative analysis of the videos (section 3.4.3.7. Qualitative analysis of the videos) can be informative in cases where a problem contributed to difficulty in producing the texts. As well, by exploring the participants' perceptions and beliefs in the Interview section, we will be able to gain a better understanding of why the participants did not tend to adjust the FOMT output.

	Casey		Riley		Jean		Robin		Taylor		Alex		Average	
	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-
CDs in the text	36	44	13	21	23	41	28	69	31	27	27	38	26	40
CDs inserted manually in the text*	61%	16%	80%	81%	91%	93%	96%	93%	100%	100%	100%	100%	88%	80%
CDs in FOMT translated sections*	39%	84%	20%	19%	9%	7%	4%	7%	0%	0%	0%	0%	12%	20%
<i>Used as is**</i>	100%	95%	100%	100%	100%	100%	100%	40%	0%	0%	0%	0%	100%	84%
<i>Postedited and used**</i>	0%	3%	0%	0%	0%	0%	0%	60%	0%	0%	0%	0%	0%	16%
<i>Replaced/deleted**</i>	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%

Table 71. Comparison of CD production, pre- and post-instruction texts

* Percentage of text

**Percentage of text translated using FOMT

		Casey		Taylor		Robin		Alex		Jean		Riley		Average	
Types of CDs	<i>Appropriateness</i>	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-
Conjunction		9	12	9	10	3	21	7	9	4	10	6	8	6	12
	Appropriate	100%	92%	100%	90%	100%	86%	100%	100%	100%	70%	75%	75%	96%	86%
	Inappropriate	0%	8%	0%	10%	0%	14%	0%	0%	0%	30%	25%	25%	4%	15%
Pronoun References		15	15	12	4	12	21	14	14	14	28	3	7	12	15
	Appropriate	100%	100%	100%	100%	83%	100%	93%	100%	93%	93%	100%	100%	87%	99%
	Inappropriate	0%	0%	0%	0%	17%	0%	7%	0%	7%	7%	0%	0%	13%	1%
Lexical references		12	17	10	13	13	27	6	15	5	3	4	6	8	14
	Appropriate	100%	88%	90%	100%	92%	96%	100%	100%	100%	100%	33%	100%	86%	97%
	Inappropriate	0%	12%	10%	0%	8%	4%	0%	0%	0%	0%	67%	0%	14%	3%

Table 72. Comparison of types and appropriateness of CDs, pre- and post-instruction

3.4.3.7. Qualitative analysis of the videos

As explored above, as in the pre-instruction stage, the drafting time and techniques varied among the participants, with the overall use of FOMT by the participants (except for Casey) found to be relatively modest and in the form of short consultations. Also, the recurrent theme that emerged was that participants rarely edited their texts and, in particular, the product of FOMT. Nevertheless, based on the judges' opinions, a considerable proportion of CDs (produced manually and by FOMT) were appropriate.

An observation well worth exploring was that Casey's translated items differed from those of the rest of participants, as Casey consulted FOMT for longer segments to construct the second summary than at the pre-instruction stage. They also drafted their second summary in both L1 and L2.

A qualitative analysis of the videos helped to understand the strategies the participants used, the problems they faced, the factors that may have contributed to the problems and the various ways they may have tried to tackle the issues before they submitted their texts.

While the participants mainly consulted FOMT (e.g. GT) to double-check and/or identify the meaning of the words or (in the case of Casey) sentences, we can see that Jean is using other tools (dictionaries [such as WordReference], concordancers [such as Linguee], databases, and grammar aids [such as The Conjugator], in addition to MT [such as GT]), in the writing process. For instance, in Example 18, Jean's strategy to identify the meaning of the word "brigade" before drafting the sentence "she works at the night squad" is through dictionary consultation from L1 to English. While, in Example 19, Taylor mainly uses GT for the same purpose, searching for the word "escadron", before drafting the sentence, and it appears that the FOMT is adequate for them; therefore, they add the input to the text.

Sentence	<i>She works at the night squad.</i>
L1 input	<i>Brigade</i>
Dictionary consultation (WordReference)	<i>team (e.g. équipe de travailleurs) squad (e.g. subdivision policière)</i>
Text	<i>Squad</i>

Example 18. Jean, post-instruction text

Sentence	<i>Virginie, a high-ranked police officer, is in command of one squadron composed of 4 platoons, with a total of 80 police officers.</i>
L1 input	<i>escadron</i>
FOMT (GT)	<i>squadron</i>
Text	<i>squadron</i>

Example 19. Taylor, post-instruction text

However, the videos also show a different type of behaviour in using the FOMT output in Example 20. Robin uses FOMT for identifying the equivalents of words, particularly conjunctives (mostly from L1 to English), and applies editing to the output, although the output may in fact be adequate. Based on the video, more critical thinking was shown in the post-instruction behaviour than in the pre-instruction behaviour. For instance, after conducting a search about “alors”, they wrote this sentence: “Then, she and her colleague go to respond to this call and search the area.” This sentence followed “Based on this video, Valerie who is a female police officer receives a call about some disruptions in a residential area caused by a group of young people.” Also, after searching for equivalents for “par consequent”, they wrote this sentence: “As a result of this complaint, Valerie and her colleague searched the building to find some evidence of drugs.” This sentence followed “One of the neighbors, a lady, started complaining about the youngsters explaining that they smoke drugs and cause inconveniences for them”. As for the use of “consequently” in their submitted draft, after reviewing equivalents for “Par conséquent”, they wrote this sentence: “Consequently, they took the driver with them to the police station to check his status.” This sentence followed “Valerie asked for the car’s documents, but they realized that the driver did not possess a driver’s license”.

	Example of CDs		
FOMT input	<i>Alors</i>	<i>Par consequent</i>	<i>As a result</i>
FOMT input normalized		<i>Par conséquent</i>	
FOMT output	<i>So</i>	<i>Therefore</i>	<i>Par conséquent</i>
Reference translation	<i>so, then</i>	<i>As a result, as a consequence, therefore...</i>	<i>Consequently, as a result, ...</i>
Text version	<i>Then</i>	<i>As a result</i>	<i>Consequently</i>

Example 20. Robin, post-instruction text

In addition to the above-mentioned behaviours in consulting the tools, the video analysis reveals more complex processes in Jean’s text. Based on Example 21, Example 22 and Example 23, Jean demonstrates more complex processes in resorting to tools in the writing process. For instance, they use multiple sources and cross-check between them to determine the best possible solution in context. While the submitted draft shows inaccurate additions (for example, the incorrect verb tense, “starting” in “the youth starting to insult them”), the overall behaviour may demonstrate an awareness of the different strengths and weaknesses of various tools and how they can be complementary.

Sentence	<i>In fact, when they arrived, a woman is complaining about the gathering of youth who were smoking some kind of drug.</i>
L1 input	<i>par ailleurs</i>
FOMT (GT)	<i>otherwise</i> alternatives: <i>furthermore</i>
Dictionary input 1 (WordReference)	<i>Furthermore</i>
Dictionary output (WordReference)	L1 equivalents : de plus
Dictionary input 2 (WordReference)	additionally, in fact
Dictionary output (WordReference)	in addition, in fact
Text	<i>in fact</i>

Example 21. Jean, post-instruction text

Sentence	<i>In fact, when they arrived, a woman is complaining about the gathering of youth who were smoking some kind of drug.</i>
L1 input	<i>se plaindre</i>
Concordancer (Linguee)	<i>complain, whinge</i>
Text	<i>is complains</i>
Grammar aid (Word)	<i>is complaining</i>
Text	<i>is complaining</i>

Example 22. Jean, post-instruction text

Sentence	<i>Through they way out, the youth starting to insult them.</i>
L1 input	<i>Insulter</i>
Concordancer (The Conjugator)	<i>Insult</i>
Text	<i>to insult</i>
FOMT (GT)input	<i>the youth starting to insult</i>
FOMT (GT) output	<i>Les jeunes commencent à insulter</i>
Text	<i>the youth starting to insult</i>

Example 23. Jean, post-instruction text

The motivation behind Jean's behaviour will be explored further in section 3.4.7. (Semi-structured student interviews). Another behaviour well worth noting is observed in Casey's writing process. Their decrease in tool use, as discussed in section 3.4.3.2. (Drafting technique), is due to the strategy that they employed in drafting. While they used the tools for translating shorter segments such as words, phrases and clauses in the pre-instruction stage, leading to a higher number of FOMT consultations, they consulted the tools six times, in total, for translating five sentences in the post-instruction stage (constructed in both L1 and English in most cases) and added the entire translated sections to their text.

We can also observe a change in their editing behaviour. For instance, in Example 24, Casey has edited the translation of "drôle" from "funny" to "strange" (that can be indicative of polysemy in MT output), which in the context of their sentence is a more meaningful choice than "funny".

FOMT input	<i>Après, quand Valerie arrive elle remarque un drôle smell, et que les gens dans le building ont fumée des herbes.</i>
FOMT input normalized	<i>Après, quand Valérie arrive, elle remarque une drôle d'odeur, et que les gens dans l'immeuble ont fumé des herbes.</i>
FOMT output	<i>Afterwards, when Valerie arrives she notices a funny smell, and that people in the building have been smoking herbs</i>
Reference translation	<i>Later, when Valérie arrives, she notices a funny/strange smell, and that people in the building have been smoking weed.</i>
Text version	<i>Afterwards, when Valerie arrives she notices a strange smell, and that people in the building have been smoking herbs</i>

Example 24. Casey, post-instruction text

As well, in Example 25, Casey submits a sentence constructed in both L1 and English, in a form that also includes some language errors (a misspelled word, *coéquipiers*) and a wrong pronoun (*lui*), which, as discussed earlier (1.9.2. Machine translation in the translation industry), might be expected to contribute to translation difficulties for FOMT. After viewing the initial output, Casey revises the FOMT output as “she and her teammates”.

Their editing is not limited to adjusting the translation of words; they also add CDs to the FOMT output manually. For instance, after viewing the initial output in the same example, Casey adds “however” to establish a coreferential tie to the previous sentence. These observations, overall, suggest the individual is demonstrating more awareness in postediting the FOMT output, a positive sign. As well, their initial draft is constructed in both L1 and English, which may indicate their preferred method in the drafting stage. To better understand these aspects, we will explore the individual’s perception and beliefs in the Interview section.

FOMT input	<i>Valerie peuvent pas interpellier les gens sans evidence du drugs donc lui et ses coequipers search the building mais elles trouvent rien</i>
FOMT input normalized	<i>Valérie ne peut pas interpellier les gens sans preuves de drogue, donc elle et ses coéquipiers fouillent le bâtiment, mais ils ne trouvent rien.</i>
FOMT output	<i>Valerie can't call people without drug evidence so he and his teammates search the building but they find nothing</i>
Reference translation	<i>Valerie can't charge people without evidence of drugs, so she and her teammates search the building, but they find nothing.</i>
Text version	<i>However, Valerie cannot call people without drug evidence so she and her teammates search the building but they find nothing</i>

Example 25. Casey, post-instruction text

When reviewing the recordings and comparing them with the produced texts, we find that the CDs included inappropriately in the texts are manually added to the original text in English. For example, the recording shows that Jean adds “first of all” to the text manually and in English

in the very beginning. As discussed earlier, this was considered as an “inappropriate choice” by the judges.

Jean	<i><u>Frist of all</u>, in this video was about Valerie who is a police officer.</i>
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Example 26. Jean, post-instruction text

As well, in Example 27, Robin’s choice of “the building,” as explained in section 3.4.1.4.6. (Appropriateness and variety of lexical references), and Alex’s choice of “property”, could be somewhat inappropriate; however, they are added manually to their texts.

Robin	<i>based on this video, Valerie who is a female police officer receives a call about some disruptions in <u>a residential area</u> caused by a group of young people When they entered <u>the building</u>, they noticed a weird smell and also confronted a group of youngsters and neighbours.</i>
Alex	<i>..... The police conduct an unfruitful search around the area for marijuana, they then escort the adults out of <u>the building</u> despite their protests. Once dispersed onto the street, they begin yelling and grouping up with more adults. Valerie and her coworker ignore the yelling and make their way back to the station, but notice a driver driving irrationally. After following the driver and pulling him over to do a check, they learn he does not have any identification, nor any registration papers for the car. During this search the inebriated adults from earlier begin approaching the police team, yelling and damaging <u>property</u></i>

Example 28. Robin, post-instruction text

3.4.4. Student post-instruction video findings

Overall, the video analysis of the students’ performance revealed that in terms of drafting time, we still observe two groups: Jean and Riley exceeding the drafting time and the others spending less time than the permitted timeframe. To gain a full picture about these observations in pre-instruction and post-instruction phases, the factors that may have contributed to these behaviours will be examined in the Interview section. In addition, except for Casey (who used FOMT for long segments) and Alex (who never used the tools), in line with the pre-instruction observations, the post-instruction video analysis revealed that FOMT was used by the participants for short consultations. This observation necessitates exploring the survey reports to investigate whether they reflect the video observations.

As at the pre-instruction stage, the videos show that the participants who used FOMT demonstrated a willingness to adjust some portions of the FOMT-translated text (although with a considerable range in the proportion of items). However, based on the video analysis, we did not observe a dramatic increase in the participants’ baseline levels of editing skills and the critical evaluation of the product of FOMT. This motivated more explanations through interviews to identify the reasons that may have impacted students’ levels of editing skills.

As well, given the overall increase in the scores of coherence and cohesion, it seemed necessary to identify whether FOMT had contributed to these scores. Based on the results of

Table 67, while in both pre-instruction and post-instruction phases FOMT contributed to the production of texts, the proportions of texts produced manually in English was much considerable than the proportions generated by FOMT. This clarifies that CDs existing in the manually produced texts are in a larger quantity. Therefore, after analyzing the videos qualitatively, we observed that, overall, a small proportion of CDs were deemed inappropriate none of which was produced by FOMT at either of the stages. In particular, Casey who used the tool at a considerably higher frequency in the post-instruction phase, gained higher scores and demonstrated increased levels of critical thinking by editing the FOMT-generated product including CDs, based on their video data. However, despite the overall increase in the scores of cohesion and coherence of the participants, there is still scope to raise students' awareness about the proper use of FOMT in the text to enhance coherence and cohesion levels. In addition, while the video data showed that Jean, Robin and Casey used FOMT to learn about a wider variety of CDs, which is a positive tendency and element in the writing process, the combination of the analyses of their texts and videos can suggest (c.f., section 3.4.1.3. Cohesion scores) that they will benefit from instruction about using a wider variety of CDs in L2.

In light of the Interview section, we will be able to probe factors that have contributed to the participants' drafting time, techniques and editing behaviour.

3.4.5. Post-instruction student survey analysis

In light of the post-instruction observed behaviour and results, we will establish a comparison between the survey reports of the students with their behaviour in the screen recordings to identify whether the survey responses correspond to the students' behaviour observed in the screen recordings during the first and second summary writing tasks.

In light of the results of post-survey analysis, we will be able to make a comparison between the instructors' reports and the reports shared by the students in response to the same questions, to identify if there are any differences in their perceptions (section 3.4.8. Semi-structured instructor interviews and comparing the results).

3.4.5.1. Perceptions and use of FOMT

The results of post-surveys demonstrate more homogeneity in the participants' use of and attitudes towards FOMT (Table 73). Except for Alex, the respondents agreed that they used FOMT in the process of writing both summaries. These reports align with their initial reports (section 3.1.1. Perceptions and use of FOMT) mentioning that they use the tools at relatively high frequencies. In addition, they reported that, overall, they used the tools to translate both from their L1 to English and from English to their L1 (the single exception being Riley again, who indicated using it only to translate from their L1 to English), and for small units of text (to translate words, phrases and expressions) rather than larger ones (except for Casey), which reflects the same tendency reported in the initial surveys. Moreover, while all the participants (except Alex) used the tools to translate words, the participants' reported responses in using the tools for other purposes were less homogeneous. Finally, with the exception of Alex, all the participants considered the tools very useful, which shows positivity in the perceptions of tools.

	Riley		Jean		Casey		Taylor		Robin		Alex	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Use of FOMT	Usually	Both	Usually	Both	Usually	Both	Often	both	Usually	both	Often	Neither
Use of FOMT by direction	L1 to L2	L1 to L2	Both	Both	Both	Both	Both	Both	Both	Both	Both	Neither
Perception of FOMT usefulness	Fairly	Very	Fairly	Very	Fairly	Very	Fairly	Very	Fairly	Very	Somewhat	Not very
<i>Tasks performed</i>												
Translating phrases/expressions	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Translating words	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Checking meaning in L1	Yes	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	No	No
Translating sentences	No	No	No	No	Yes	Yes	No	No	No	No	No	No
Translating paragraphs	No	No	No	No	Yes	No	No	No	No	No	No	No

Table 73. Perceptions and use of FOMT, post-instruction survey

Except Alex, the reported use of FOMT is also confirmed by the video recordings, in both pre-and post-instruction phases. This casts light on the hypothesis that students would be frequent users of FOMT (as reported), both for general ESL writing and for specific tasks such as this project, but also that they would be able to write in their second language without recourse to such tools in at least some circumstances (e.g. Jean and Casey). To explore the contributing factors, this aspect has been addressed in section 3.4.7. (Semi-structured student interviews)

Comparing the reported FOMT use with the results of the video analysis, we can observe that students' perceptions and use of MT in summary writing correspond somewhat to their perceptions of MT use in ESL writing in general, while acknowledging that this does not necessarily reflect their actual use. For instance, while Alex's general reported perception of MT use in ESL writing is that they use the tools often, the recordings demonstrate that they did not consult any tools in completing the summaries. As well, Robin's general perception of MT use is "usually", while based on the information in section 3.4.3.2. (Drafting technique), they spent a considerable portion of their time (92% in pre-instruction phase and 97% in the post-instruction phase) on manual drafting of their summaries. In addition, except Riley who reported using the tools for translation from L1 to L2, the general perceptions of the participants about MT use reveal they use the tools in both directions; however, the results of section 3.4.3.3. Items and direction of translation demonstrate some inconsistency: For instance, Alex never used the tools, and others used the tools mainly from L1 to L2. The Interview section (e.g. sections 3.4.7.5. Brainstorming and organization of ideas in L1 boosts confidence and 3.4.7.6. FOMT as a learning tool) will also shed light on the reasons behind consulting the tools. Therefore, we will be able to understand more about students' general perception about FOMT and their actual use in this project.

3.4.5.2. Motivations for FOMT use

Unlike their relative agreement on preferring to write in L1 than to directly write in L2, in general, the participants reported stronger agreement on drafting in L1 and then using FOMT to translate to L2 in their post-instruction surveys (Table 74). While they indicated again that they were somewhat in agreement with statements indicating that using FOMT was faster, easier and allowed more focus than writing without this tool, they demonstrated a higher level of disagreement with the statements that using FOMT could cause problems and that they did not

trust FOMT for help with class work (although the variability was relatively low). This indicates that, in comparison with their initial reports, the students showed higher levels of positive perceptions of FOMT's potential role as a writing aid, with two respondents remaining cautious, which is in line with their reported use. However, these results are also interesting when we examine the information in sections 3.4.3.1. Drafting time and 3.4.3.2. Drafting technique, demonstrating that their overall time on manual drafting considerably outweighs their drafting time using FOMT. To clarify, the participants who used FOMT spent more time on manual drafting than on drafting with FOMT and post-editing the output. Also, when comparing the proportion of time versus the proportion of text produced in each mode, the time spent on manual drafting outweighs the time spent of drafting using FOMT.

Motivations		Strongly agree (5)		Agree (4)		Disagree (2)		Strongly disagree (1)		Neither agree nor disagree (3)		Weighted average	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Ease	It can be easier for me to write in my L1 and then use FOMT to translate to English than to write directly in English.	1	3	3	1	2	1	0	0	0	1	3.5	4
Speed	It can be faster for me to write in my L1 and then use FOMT to translate to English than to write directly in English.	1	3	3	1	2	1	0	0	0	1	3.5	4
Organization	I can organize my ideas better, if I write in my L1 and then use FOMT to translate to English than if I write directly in English.	1	3	3	0	2	1	0	0	0	1	3.5	3.3
Preference	I prefer to write in my L1, and then use FOMT to translate to English than to write directly in English.	0	4	4	4	2	0	0	0	0	1	3.3	6.5
Effectiveness	Problems with FOMT make it harder for me to communicate my ideas in an understandable form in ESL writing.	1	0	1	1	2	3	1	1	1	1	2.8	2.3
Trust	I don't trust FOMT to help me with my ESL work.	1	0	1	0	2	3	1	2	1	1	2.8	1.8

Table 74. Motivations for FOMT use, post-instruction

3.4.5.3. Advantages and disadvantages of FOMT

The post-instruction surveys sought the participants' beliefs about the advantages and disadvantages of FOMT tools in for the purpose of this project. These points were combined into sub-groups based on my interpretation of each comment's main topic.

3.4.5.3.1. Advantages

The advantages listed by the participants in the post-survey responses are of similar nature to the those of the initial survey reports (Table 75). In particular, the most frequently reported benefit is that the tool eases the task of writing in different ways.

Benefits		Frequency
FOMT simplifies ESL writing	Grammar and word look up: "I verified the meaning grammar when I completed the summaries"	1
	FOMT tools are useful with some restrictions since:	1
	• Translation: "Learning about the disadvantages of FOMT in the workshop prevented me from blind translation. I edited the translated part and then used it" ⁴¹	1
	• Required editing skills: "Google translate is similar to a TA (teacher's assistant) who needs advice."	
FOMT helps with the organization of ideas	"I did not write in French in the second summary, and I was confused"	1
FOMT boosts confidence in the ESL writing process	"I was confident when I wrote the second summary because I checked all the sentences in Google translate"	1
Total		5

Table 75. Advantages of FOMT, post-survey

Alex, who did not use the tool for completing the summary tasks, did not mention any advantages in their response to the post-survey question. Jean stated that they were not confident in writing the second summary because they "did not write in French." The video recording collected from Jean as mentioned in the previous sections (e.g. 3.4.3.2. Drafting technique) confirms this report. If we also consider their post-instruction coherence and cohesion scores (sections 3.4.1.2. Coherence and 3.4.1.3. Cohesion scores), one may conclude that the low increase in the scores could be attributed to their drafting techniques. The interview analysis will provide more information on this aspect.

⁴¹ It should be noted that I did not provide a unit on MT, while talking about editing for cohesion and type of CDs during the workshop sessions, some of the students were referring to literal translations produced by MT and that they "sounded funny", I assume they referred to that discussion here.

Overall, the common theme points to the fact that benefits of FOMT are limited, not as they had hoped, whether from a general perspective or based on a specific task (in the context of this project, for instance).

3.4.5.3.2. Disadvantages

While in the initial surveys from the total of six students, five reported disadvantages associated with FOMT tools, in the post surveys, two students reported some disadvantages including 1) syntax issues and 2) meaning errors.

Disadvantages		Frequency
Syntax issues	“I translated some parts of my text and I had to fix the grammar before I emailed it to my teacher.”	1
Meaning errors	“When I was translating the words, Google gave me wrong meanings, I could feel it was wrong, but I was not able to fix it”	1
Total		2

Table 76. Disadvantages of FOMT, post-survey

In particular, Riley referred to “meaning” errors which seemed a challenge to them while writing for this project. Comparing this report with the Riley’s coherence and cohesion scores as explored (sections 3.4.1.2. Coherence and 3.4.1.3. Cohesion scores), we seem to see the effect of language proficiency while using the tools. Riley’s challenge could imply the idea that while the tool seems advantageous to them for general ESL writing, they may need to possess a higher proficiency level in L2 to be able to edit the produced text and use the proper terminology when producing the L2 texts that may require more advanced skills in creating coherent and cohesive summaries. On the other hand, Casey has referred to editing the produced translation in terms of grammar before submitting their task, which is confirmed by the results of their video analysis. In addition, when exploring Casey’s scores, we see they have achieved the second highest scores (sections 3.4.1.2. Coherence and 3.4.1.3. Cohesion scores). While this observation can bring our attention to the different levels of L2 proficiency that Riley and Casey possess, we need to remember that their drafting techniques were quite different and may have contributed to their final scores.

3.4.6. Student post-survey findings

As explored above, by comparing the video and survey data in both phases of pre- and post-instruction, we observe that, except for Alex, the participants can be considered as

somewhat frequent users of FOMT both for general ESL writing (based on their survey reports) and in doing specific tasks such as writing for this project. However, this does not mean that they cannot write in L2 without recourse to such tools, based on the video analysis.

This means that in most (but not all) cases, the participants' perceptions of the use of FOMT in summary writing were in line with their perceptions of MT use in ESL writing in general. However, we also observed some inconsistencies in the respondents' reports that will be addressed in the Interview section. In addition, the participants who outlined some advantages and disadvantages of the tools appeared to agree that FOMT comes with restricted advantages. For instance, they mentioned the tools are beneficial if the users have the competency to edit the output. To better understand all these aspects, the Interview section (e.g. sections 3.4.7.5. Brainstorming and organizations of ideas in L1 boosts confidence and 3.4.7.6. FOMT as a learning tool) will discuss the participants' opinions and beliefs and bring more clarity.

3.4.7. Semi-structured student interviews and comparison of results

Earlier in the thesis, we compared text, video and survey data and observed areas that required more explanations and discussion. To cast more light on these aspects, one-on-one interviews with the students were conducted to seek their opinions and perceptions after the initial tutorial sessions.

To complement students' beliefs and to address changes in summary texts after the initial tutorial session, I also conducted one-on-one interviews with the judges (evaluators of the writing samples) to study any (perceived) differences in writing (3.4.8. Semi-structured instructor interviews and comparing the results).

3.4.7.1. Frequency of use

From a general ESL perspective, the participants stated they have been resorting to different tools such as GT in completing their schoolwork in ESL or for work-related purposes to various degrees. While, overall, there seems to be a match between the students' self-reported frequency of tool use, their recorded behaviour (3.4.3.2. Drafting technique), and their interview answers, Riley's, Robin's and Jean's answers in the interviews showed they may have felt hesitant to demonstrate their natural FOMT use behaviour in this project. For instance, Riley and Robin agreed that they were unsure about the use of tools in this project due to their previous classroom experiences, where they were prohibited from using them. In particular, Riley added

they used the tool, but not as they “liked,” and Jean mentioned they felt “confused”; therefore, they did not use the tool as they “normally” would. Robin also stated that, if they were assured that they “would have never been judged”, they would have employed the tools more often, in particular, when completing the second summary task, which seemed more challenging in terms of “pulling the text together”. Based on these statements, one could suggest that this study underestimates the use of FOMT in natural conditions.

In addition, Taylor said they did not use the tool “much”, which is consistent with their video data; however, they found it useful “enough”, in particular when composing the second summary. They added that they were not sure about the use of some words in English, such as “peloton”, as they would use the same word in French. This behaviour could suggest the individual was demonstrating critical thinking when constructing the second text. I reminded Taylor that they had rated the tools as “very useful” in the post-survey, despite not using the tool often. They explained, “I may have not consulted the tools at higher frequencies, but I did not find it fair to rate the tools ‘negatively’”. Taylor’s statement about the usefulness of the tool and their actual frequency of use in this project could also indicate that frequency of use, by itself, may not necessarily reflect the aspect of usefulness. This observation is worth exploring in more details in the Discussion chapter.

3.4.7.2. Purpose and direction of use

The interviews addressed the purpose and direction of tool use, in general, and for this project, in particular. While, overall, regarding the general use, the participants’ answers to the interview question confirmed the video and survey data that they mainly use the tools for small segments (e.g. identifying the meaning of words/expressions) with the exception of Casey (who had reported the use for bigger segments) and in both directions, they also shared different reasons and special circumstances for doing so. In general, Jean, Taylor and Riley believed that the type of a task can contribute to their purpose and direction of tool use. Taylor mentioned that, if a task in general was a “big deal”, they would resort to using the tools and in both directions. In addition, Riley’s opinion was that for complex tasks, they resort to GT for translating bigger segments such as phrases and sentences from L1 to L2, whereas, for “easier” tasks they use GT for identifying the words from L1 into L2 only. In a similar vein, Jean said that, when a “subject” at work or school was “challenging”, they would resort to tools for translating short and long

segments. These could suggest that students' needs (i.e. "a big deal" and "challenging" versus an "easier" task) can influence the purpose and direction of tool use, which may be shaped by their proficiency levels in L2.

Regarding this project, Taylor referred to the second summary as an example of a "big deal" that seemed challenging to complete without recourse to any tool. As well, as discussed earlier in section 3.4.3.7. (Qualitative analysis of the videos), compared to the participants who used FOMT, Jean demonstrated a more complex use of tools. To gain a more comprehensive picture, we watched two parts of the collected recordings demonstrating the individual consulting different tools such as WallstreetEnglish, Wordreference, GT, Linguee and Theconjugator for different purposes from L1 to English and vice versa. They responded that they consulted different tools to ensure the accuracy, in particular, in writing the second summary. Jean believed they resort to different tools because some tools are "more professional" than the others. For example, they mentioned they can search a word in WordReference and be provided with a list of options from which they can select the choice that is most suitable. Next, they can use GT, insert the full sentence that includes the specific word or expression to identify to what extent the translation provided by GT is "suitable" compared to the translation produced by WordReference, for instance. When asked what they mean by "suitable", Jean explained that it "makes sense, I mean I heard it before and it's not bizarre". Jean added that in writing the second summary, they used more tools to have a "better comparison" when constructing their paragraph. They further mentioned that each of these tools has specific functions; for instance, while Theconjugator assists the individual to select and write the appropriate verb tense in the context of their writing, GT provides a "complete picture" of the intended meaning. While Jean's statements reveal they may possess a higher level of MT literacy, which could have been beneficial in constructing L2 texts, their coherence and cohesion scores in both summaries (section 3.4.1.2. Coherence and 3.4.1.3. Cohesion) did highlight the need to improve these measures in L2 writing. This could suggest that factors such as their lack of assurance in using the tools in a "normal" manner, as they discussed above, could have made them uncomfortable when using the tools under the supervision of an instructor, the case of this project.

In terms of inconsistencies between the self-reported and video data, I asked Riley why in their initial survey they had reported they use the tools for translating phrases, while they mainly used the tools for short segments such as words. They clarified that, in writing for this project,

they were not confident if they could use the tools “for real”, as they have been always prevented from such consultations in ESL classrooms by other instructors. They added that in writing for the second summary, they used the tool for translating the “connections” i.e. cohesion markers. As for Casey, we watched the parts of their first and second screen recordings together and observed that they used the tool mainly for translating from L1 to English. They explained that they had made a mistake when reporting the direction of their use as “both”, in response to the post-survey question. They added, “I may have mixed it up with my schoolwork due last week”. Casey’s statement could outline a limitation here regarding how perceptions and memories can be influenced by different factors that may not necessarily result in accurate answers. This aspect will be captured in the Discussion chapter (sections 4.1.5. Students’ perception of the tool use may not necessarily reflect their actual use and 4.2.4. Students’ performance and influential factors).

3.4.7.3. Ease and speed of use

Regarding the use and speed of the tool, Jean, Taylor and Riley confirmed their self-reported responses. In particular, Jean explained that drafting the entire text in French is their “routine” strategy and using GT to translate to English is “less painful” and reduces drafting time. They clarified that they found it “challenging” to consult different tools for writing in L2, overall. In a similar vein, Riley confirmed that consulting GT is not “complicated” and accelerates their writing process; otherwise, they would not be able to meet their ESL assignment deadlines. In addition, Taylor mentioned that they preferred to focus on their French courses, and would therefore resort to FOMT for ESL writing to make their task easier.

For the purpose of this project, we reviewed Jean’s second summary and also a portion of their second video recordings. They mentioned that they were “exhausted of writing in English” and if they had “thought” and organized their ideas in French, they would have had “more energy” to think about how to end the report by adding a concluding sentence, instead of writing “the end” to replace the conclusion. While these statements, in terms of using the tools for ease and speed, are in line with Jean’s survey reports identifying the benefits of tools, I asked why they did not follow their “routine” strategy and resorted to manual translation in the first task and drafting mainly in L2 in the second task. The recurrent theme was their lack of certainty as to whether following their “routine” strategy was not causing negative judgments. It is important to further analyze this point due to the affect it has had on the production of their texts;

therefore, we will examine the argument in light of the scholarly research in section 4.2.4. Students' performance and influential factors.

I also asked Taylor why their statement about ease and speed of use is not reflected in the video recordings (3.4.3.2. Drafting technique), as they used the tool in low frequency. In response, they mentioned that the task was not complex, and that they could manage it with short consultations, which goes in line with their previous statement in section 3.4.7.2. Purpose and direction of use.

3.4.7.4. Time spent on drafting

As discussed earlier in this chapter (3.4.3.1. Drafting time and 3.4.3.2. Drafting technique), we observed some differences in the time spent on drafting between the first and the second set of summaries. This directed attention to what students had previously mentioned about FOMT easing and accelerating the writing process, which seemed contradictory to the video data. Therefore, we explored this aspect during the interviews.

In particular, Taylor, Casey and Robin mentioned that they intended to put the workshop instruction into practice while producing their second text, and this resulted in more drafting time on producing the second summary text. For instance, Taylor mentioned that "I was looking at the feedback on my first summary and also the PowerPoint content not to miss anything". The results of their screen recording confirm their statement, since the individual consults the PowerPoint document that provides information about the different types of CDs and also reviews the feedback on their first summary task. In addition, Casey explained, they employed two "tactics" in writing the second summary: they preferred to take some notes while watching the video content, as they had learned from the workshop and to use GT to check the sentences drafted in French and translate into English to ensure "a better job in every step of the way." Their statements are also confirmed by the video data. Finally, Robin said the second video seemed "more challenging", and they also wanted to follow the instructions they had received, as "they had never had this opportunity before"; as a result, they needed more time to make sure about what they had learned. Although Robin and Taylor did the videos in a different order, both found the second task more demanding than the first; this suggests that the complexity of the second summary arises from the writing task itself, rather than the video on which the summary was based. Therefore, it brings another aspect to light: the videos may have not necessarily

engaged Taylor and Robin in more complex tasks. Instead, they may have wanted to follow the workshop instructions, and pay attention to their tasks to improve on the first summary.

Overall, based on these statements, students' willingness to demonstrate what they had learned from the workshop instructions, as well as the strategies they employed in constructing their second summary, are the common reasons contributing to spending more time on drafting the second text in comparison with the first text.

3.4.7.5. Brainstorming and organization of ideas in L1 boosts confidence

Jean, Taylor, Casey and Robin stated that FOMT tools help them organize their ideas. For instance, Jean mentioned that if they think in English, they would not be able to “think straight” and this results in being “confused”. They added that they always write in L1 and translate to L2, since this helps them construct a more “logical” text and “connect the dots”. In addition, Taylor mentioned that they “think in French” while writing in English, to organize their thoughts better. As well, Casey said, “sometimes, I mix English and French when I am jotting down my notes and brainstorming, sometimes in French only”. They believed this strategy keeps them “on track” and they are not “lost”. This statement is confirmed by their video data as well, specifically, in constructing the second summary. Finally, Robin mentioned that “My brain starts thinking in French, while I am fully bilingual.”

As for this project, Jean mentioned that, specifically in completing the second summary, they did not follow this strategy and “that was a mistake.” Robin added as well, in this project, while “I obviously did not write my things in French, I was categorizing things in French when I was watching the videos.” Complementing these statements with the text analysis (3.4.1.2. Coherence and 3.4.1.3. Cohesion) and the video data (3.4.3.2. Drafting technique), we can observe that organization of ideas in L1 contributed to their confidence, as they shared.

3.4.7.6. FOMT as a learning tool

The analysis of the interview results showed that the participants perceived FOMT tools as a learning opportunity. Casey, Jean and Robin regarded the tool as an “online” instructor and Jean also added that, at work, they check the whole text produced by GT for spelling and grammar correction and ensure the accuracy of the final product. As well, Casey mentioned the quality of their texts that are originally drafted in English would be different from the texts that

are written in French and translated to English using GT. They explained that the texts that are translated “look more formal and have better structure.”

Casey continued that for the purpose of this project, the second summary text that was drafted in French and translated to English, in their opinion, seemed “a higher-level text” than the first summary that was mainly drafted in English.

The above-mentioned beliefs about the advantages of FOMT are worth considering, since they are in contrast with some of the literature (as explored in section 1.12.2. Machine translation in L2 and translation settings: On the downside) that discourages the use of such tools. Another theme that emerged in light of comparing and contrasting these statements with the video data sheds light on the students’ editing behaviour. The results (3.4.3.2. Drafting technique) show that the participants, overall, tended to use the FOMT-generated segments as is. In particular, the post-instruction video data showed that Jean, Casey and Robin used 95%, 94% and 40% of the FOMT output with no editing. While the percentage of Robin’s revision of output may seem considerable, the video demonstrated that they adjusted the translation of CDs with the goal of finding synonyms/equivalents. Therefore, while the participants believe FOMT contributes to their learning, at least in this project and based on the video data, it seems challenging to suggest that their actual use of FOMT reflects their perception of its usefulness as a learning tool. Once again, after comparing all the collected data, it seems difficult to claim that FOMT has assisted the participants with acquiring knowledge or skills that they can transfer for future purposes. While we acknowledge this, it is also important to investigate how there seems to be a contradiction between the students’ perceptions and the video data. This aspect is also addressed in sections 4.1.5. Students’ perception of the tool use may not necessarily reflect their actual use and 4.2.4. Students’ performance and influential factors.

3.4.7.7. Disadvantages

During the interviews, the participants referred to some general issues associated with FOMT tools. These issues are categorized below.

3.4.7.7.1. Grammar issues

Another theme that emerged during the interviews was about grammar issues some of the participants had encountered when using the tools. In particular, Taylor mentioned that since “French is gender-based, sometimes the English translation is not correct, the same for English to

French.” As well, I asked Taylor about their survey responses when they mentioned the user should possess “editing skills” to employ the tools. They stated that, due to the issues they shared, the user must possess information to create “perfect texts” that are “logical” and flow well; however, in many instances, the tools provide them with a “decent text”.

Robin also added, “if the writer doesn’t pay attention to the French writing, the translation into English will come with many grammar mistakes.” As well, Casey mentioned, “I have seen grammar issues with pronouns a lot, especially when I don’t follow a good French grammar”. Not only do Taylor’s, Robin’s and Casey’s statements refer to grammar issues observable in the FOMT-produced texts, but they also suggest the idea of language transfer and the fact that mistakes in the source text could be the causes of errors in the FOMT produced texts, which is discussed by some of the literature earlier in the thesis (1.9.2. Machine translation in the translation industry).

Casey volunteered to watch a portion of their second screen recording to clarify what they meant. They referred to the words “donc lui et ses coéquipiers,” translated as “he and his teammates” and then edited to “she and her teammates”. They clarified they should have written “elle et ses coéquipiers” in the first place. This example brought back the idea of editing and I asked Casey why, based on the recordings, no considerable change regarding editing of the produced text is seen. They replied that they only had one opportunity to show what they had learned in the workshop by writing the second text; therefore, they could not apply “everything in one text”.

3.4.7.7.2. Meaning issues

Jean and Riley also referred to another type of problem which prevents the reader from comprehending the FOMT-produced text clearly. Jean mentioned that in some cases when they use GT to translate an expression in French, the translations sound “bizarre”. This statement is also covered in the literature (section 1.9.2. Machine translation in the translation industry), for example regarding the inaccurate translation of idiomatic expressions by FOMT.

I reviewed the results of the survey reports with Riley and asked about their perceptions when they expressed their lack of trust in tools. Riley mentioned that while they feel

“disappointed sometimes”, since the tools provide them with incorrect meaning or grammar, they still resort to GT due to their “weak English”.

I asked both Jean and Riley whether the issues they reported in the surveys and in the interviews would discourage them from consulting the tools for future purposes. They both agreed that, despite the problems, they would still consult the tools. These statements suggest that FOMT can still be considered as an assistive tool, despite the user’s awareness regarding the associated issues.

3.4.7.8. Perceptions about the workshop instructions

Two main themes emerged regarding the workshop instructions: acquiring knowledge about coherence and cohesion and learning about CDs through using FOMT.

3.4.7.8.1. Acquiring knowledge about coherence and cohesion

In particular, Jean and Taylor mentioned they had “never” received “explicit instruction” on how to ensure coherence and cohesion in the text. In a similar vein, Casey and Robin mentioned that they had not received clear instruction on how to enhance coherence and cohesion in texts or been given an opportunity to practice writing for coherence and cohesion. Casey added, “they always say make sure your text flows well” but “we didn’t get the information you shared” either in French or in English courses. Riley also said that when they are expected to write a 911 report, they teach us “direct versus indirect speech” and ask them to write “what happened.”

Casey and Riley further added that they could now distinguish between what coherence is and how cohesion is achieved. Casey mentioned, “I liked how I finally understood the difference between the two.”

3.4.7.8.2. FOMT assisting with learning about CDs

Another aspect worth mentioning that was shared by the participants relates to acquiring knowledge about CDs. They reported feeling that consulting GT helps to expand information about different types of CDs in French writing as well. Jean and Riley mentioned that they liked the instruction regarding how CDs can be classified for different purposes. They added they were able to “look at more possibilities now” by learning about different categories of CDs for different purposes. These observations could suggest that more explicit instruction of coherence

and cohesion, either in French or in English, and in particular as far as incident report writing is concerned, will benefit students.

Furthermore, Jean mentioned that they inserted most of the CDs manually, which is consistent with the video results, and that they learned about CDs during the workshop instruction. However, they also said, “my problem is I don’t know much about them in French”; therefore, they believed using the tool for translating the CDs will assist them in better writing. Moreover, Casey mentioned that GT would be “useful” in linking the ideas in a text, provided that the individual “has a clue about linking words in French.” Jean’s and Casey’s statements could indicate to the need for importance and solid knowledge of cohesion in L1 for using FOMT and writing in general, in addition to possessing knowledge of cohesion in L2 to be able to recognize errors and correct them. This aspect was addressed earlier in the thesis (cf. sections 1.11. Translation and L2 writing and 1.12. Machine translation in L2 settings) and will be discussed in section 4.1.1. Need for developing L2 coherence and cohesion).

Robin commented on the use of CDs in this project as well, adding that they used GT to check for the translation of a few CDs and edited the translation of some of them. Accordingly, they believed this helped them to ensure that their texts demonstrated links between the sequences of events and that “the text flows logically”. Robin’s note is worth more discussion, as it may suggest a possible distinction between logical selection and order of ideas that corresponds to coherence (which in theory would be more language-neutral) and the expression and connection of those ideas that pertains to cohesion (which in theory would be more language-dependent), that could ultimately lead to more FOMT use. The individual had mentioned above that they organize their thoughts in French while writing in English.

From the participants’ statements, another idea can be inferred: not only have they started thinking about the nature of CDs to establish connections between the ideas in a text, but they also critically analyze the types of markers that can be employed to fulfill this aspect. While the former can be considered as a more language-independent aspect, the latter can be regarded as a language-dependent feature in academic writing, which has inspired the participants to resort to FOMT to ensure accuracy.

3.4.7.8.3. Suggestions for improvements

The unanimous theme that emerged regarding any suggestions for improving the workshop was to extend the workshop sessions. Jean added “the amount of information was so huge, I needed time to digest and needed at least two more writing evaluations.” In a similar vein, the rest of participants stated they would have encouraged more than two writing evaluations. In particular, Taylor mentioned, they had learned from the workshop and considered the feedback; however, it was “only after the second summary that I started to learn how to connect my sentences and how to use the tool and it was OK to use the tool”. These statements could somewhat explain that, if they did not demonstrate considerable improvements in editing skills, they may have needed more practice and time to fully bring this aspect into light.

Students’ perceptions about the FOMT tools and their reactions to project activities resulted in gaining meaningful insights. To achieve a comprehensive picture, we will examine the judges’ opinions about their observations based on the writing samples they evaluated in the following section.

3.4.8. Semi-structured interviews with the judges and comparing the results

As stated above, another aspect of this research sought to address changes in summary texts from the judges’ perspectives after instructions were provided. During the one-on-one interviews with the judges, they shared their classroom observations and perceptions about the use of FOMT tools, in general, as well as their observations concerning the texts they had graded regarding this project. I analyzed their answers to the interview questions according to qualitative research principles and the following themes emerged regarding the use of FOMT tools and changes in the texts.

3.4.8.1. Perceptions and use of FOMT tools

Concerning the use of tools, the following themes emerged: 1) frequency of tool use, 2) purpose and direction of tool use and 3) reactions towards the tool use. Each of these themes include their subordinate themes, which will be discussed in the following section in detail. In addition, since some of the themes also emerged from the instructors’ survey data, we will cross-examine the themes where there is a common ground.

3.4.8.1.1. Frequency of use

The judges, Andy, Charlie and Kelly, said that, based on their observation, their students “usually” use the tools. In particular, Andy said, their students use the tools “when we are not around”. Charlie and Kelly mentioned that they always observe the tool use in English classes where students’ L2 proficiency levels are low. These statements seem to reflect the considerable frequency of use the student participants shared, as well. Since this question was addressed by student and instructor surveys, it is important to compare the interview answers of the judges and students with the student and instructor survey responses to seek commonalities or differences in their opinions and perceptions. Prior to that, to refresh our recollections, the second research question sought to address ESL students’ writing behaviours (i.e. what writing behaviours such as the use of technologies including FOMT could influence students’ coherence and cohesion challenges). To address this question, I ran the Students’ initial survey. As explained in sections, General methodology and 2.5.4.1. Surveys, I also ran an Instructors’ survey that was anonymous and acted as a complementary explanation to help understand students’ current FOMT use. In this survey, 23 instructors shared their opinions and perceptions regarding the use of FOMT tools in ESL writing.

Comparing the instructors’ reports and students’ initial survey reports regarding the frequency of students’ FOMT tool use in ESL writing (Table 77), given the instructors’ bigger sample size, we can observe more variations in the instructors’ responses. However, “usually” and “often” are still the most selected choices by both the student and instructor participants. This shows that the judges’, instructors’ and students’ opinions and perceptions are in line and could imply that students resort to tools, regardless of being prohibited from consulting the tools by their instructors.

Choices	Instructors	Average	Students	Average
Usually	10	43%	4	67%
Often	6	26%	2	33%
Always	4	17%	0	0%
Sometimes	2	9%	0	0%
Never	1	4%	0	0%
Total	23		6	

Table 77. Comparing instructors’ and students’ responses to frequency of FOMT use in ESL writing

3.4.8.1.2. Perceptions, purpose and direction of use

Andy and Charlie seemed hesitant to express positive opinions about the tools; they would rather consider the tools as “not very useful” and “somewhat useful” respectively. Kelly, on the other hand, considered the tools “fairly useful”. Based on the judges’ class observations, while some students use the tools for longer segments, others use the tools for shorter segments, but in both directions. The judges agreed that students whose English proficiency levels are lower use the tools for longer segments such as sentences and paragraphs to translate from L1 to L2, whereas students with higher proficiency levels use the tools for translating words or double-checking the meaning of words from L2 to L1. However, Kelly also stated that, when classes were held in person, they had noticed that their “strong” students also relied on the tools for translating longer segments, such as sentences in both directions.

Overall, based on the student participants’ interview results, and not necessarily based on the writing scores, Kelly’s statements seem to relate more to the results of this project. For example, Riley, who referred to their English level as “weak”, used the tools infrequently and only for short segments. In contrast, Casey, whose main portion of the first summary text was constructed in English, switched the strategy in writing the second summary texts, drafted the text initially mainly in French and translated the text sentence by sentence to produce the final draft. However, once again, we should note that Riley mentioned that they did not demonstrate their natural behaviour, since they felt “shy” to use the tool in my presence.

Comparing the students’ and instructors’ survey data with the judges’ and students’ interview answers, we observe that the students’ perceptions of FOMT usefulness differ from the judges’ and instructors’ perceptions, although a considerable proportion of all three groups found the tool “somewhat useful”. Table 78 shows that consulting the tools for shorter segments and in both directions is echoed by the students and instructors in the survey reports. The same theme is reflected in the student interview responses as well. However, we should also acknowledge that the judges mainly believed the students’ preferred direction of use is from L1 to L2. In general, while, based on the judges’ opinions, it may seem that the “weaker” students rely on the tools for translating longer segments compared to “stronger” students, students may still demonstrate different strategies in using the tools. As well, these strategies, based on the results of the students’ interviews, explored above, could be impacted by various factors. This project, with its

small sample size, cannot therefore provide sufficient data to recommend a direction of FOMT use.

	Students			Instructors
	Total (pre)	Total (post)	Average	Total
<i>Use of FOMT by direction</i>				
Both	5 (83%)	4 (67%)	75%	20 (87%)
L1 to English	1 (17%)	1 (16%)	17%	3 (13%)
Neither	0 (0%)	1 (16%)	16%	0 (0%)
<i>Perception of FOMT usefulness</i>				
Very useful	0 (0%)	5 (83%)	83%	5 (22%)
Fairly useful	5 (83%)	0 (0%)	83%	4 (17%)
Somewhat useful	1 (17%)	0 (0%)	17%	4 (17%)
Not very useful	0(0%)	1 (17%)	17%	6 (26%)
Not useful at all	0 (0%)	0 (0%)	0%	4 (17%)
<i>Task performed</i>				
Translating phrases/expressions	6 (100%)	3 (50%)	75%	18 (78%)
Translating words	5 (83%)	5 (83%)	83%	18 (78%)
Checking meaning in L1	2 (33%)	5 (83%)	58%	17 (74%)
Translating sentences	1 (17%)	1 (17%)	17%	4 (17%)
Translating paragraphs	1 (17%)	0(0%)	17%	4 (17%)

Table 78. Comparing instructors' and students' perceptions, purpose and direction of use

From a more in-depth standpoint, since the instructors constitute a bigger sample, the results could also suggest that their perceptions about the overall usefulness of FOMT tools may vary by gender and age (Table 79)⁴².

Perceptions	Gender		Age			
	Male	Female	20-29	30-39	40-49	50 or over
Not very useful	4	2	0	2	2	2
Very useful	1	4	1	1	1	2
Fairly useful	1	3	1	2	1	0
Somewhat useful	1	3	0	1	2	1
Not useful at all	4	0	1	1	1	1

Table 79. Instructors' perception of the overall usefulness of FOMT tools

In particular, it seems that female instructors demonstrate more openness towards FOMT tools by endorsing the choices “very useful”, “fairly useful” and “somewhat useful”. To this end, a logistic regression test between the characteristics of instructors and their overall perceptions of usefulness of FOMT tools in ESL writing was run (Table 80). Based on the test results, the gender characteristic has a t-value greater than two; therefore, it is statistically significant. It indicates that the female instructors are associated with a higher likelihood of positively rating the overall usefulness of FOMT tools in ESL writing.

Variable	Categories	p-value	t-value
Gender	• Male	0.003	-2.963
	• Female		
First Language	• American	0.261	1.124
	• Others		
Age	• 30-39 years old	0.448	0.758
	• 40-49 years old		
	• 50 or over		

Table 80. Correlation between the instructors' characteristics and their perception about the overall usefulness of FOMT

*Note: variables are statistically significant at 95% Confidence Interval (CI), if the p-value for a variable <0.05 or the absolute value of t-value (|t|) for the variable >1.96

However, the first language and age characteristics show a p-value greater than 0.05; thus, they are not statistically significant. Accordingly, it is concluded that there is no statistically

⁴² As mentioned in section 2.5.3. Participants, the first languages of the instructor participants were classified under three categories.

meaningful relationship between the first language and age of the instructor participants and rating the overall usefulness of FOMT tools in ESL writing.

3.4.8.2. Reactions to the use of the tool

The evaluators shared their reactions to the use of tools, in general, as well as based on their observations of the writing samples, in particular. These aspects are presented below.

3.4.8.2.1. Overall reactions

While analyzing the overall reactions of the judges, two main themes emerged: advantages and disadvantages of the tools. The areas addressed by the judges in each theme are explored below.

3.4.8.2.1.1. Advantages

Assisting in organizing ideas in L2

Overall, Andy's and Charlie's views towards tool use were negative, but Kelly demonstrated cautious optimism about the employment of such tools in ESL classrooms. Kelly explained that students become "independent learners" when they consult the tools in the learning process. They also added that using the tools helps both "weaker" and "stronger" students better demonstrate their ideas and produce a "sketch" of their thoughts. They added that, regardless of their proficiency levels, students start organizing their thoughts in L1 and can therefore produce "more organized" texts in L2. Kelly had also observed similar situations in their courses other than English when their students are grouped with other classmates for discussion/debate activities: they jot down notes in L1 and in some cases "create mind-maps" in L1. Kelly's statements seem to be in line with what the student participants shared above about consulting FOMT as a learning tool and, in particular, Casey's experience in constructing the texts in both L1 and L2.

Once again, it is beneficial to examine instructors' survey responses to seek similarities between their reports and those of students and with the judges' and students' interview answers. As shown in Table 81, the common ground between instructors' responses and judges' interview answers is that FOMT helps with organization of ideas. In comparing the students' survey reports with the instructors' reports, overall, students demonstrate a unanimous positivity toward FOMT, while instructors share divided opinions. The comment regarding enhancing critical

thinking/awareness presented in Table 81 is relevant to the discussion of video data (cf. sections 3.3.6. Qualitative analysis of the videos and 3.4.3.7. Qualitative analysis of the videos), because the data showed some levels of critical thinking by cross-checking different tools (i.e. Jean), or ensuring the accuracy of CDs (e.g. Robin).

Benefits		Frequency
FOMT simplifies ESL writing	Ease: “It’s easier for students to use FOMT to construct a text than to write it up independently” Speed: “Unfortunately, some students use the tools because they would like to bypass the time spent on constructing sentences.” Access: “FOMT tools are easy to access and in a click students can find their preferred tools, which in most cases is Google translate.” Free of charge: “When I was a student, for every translation I should have paid, now, however, students have access to different types of translation tools that are free of charge. Everything free can be tempting to give a try.” Entertaining: “FOMT tools are fun to work with, one of my students said she always used the tools to create the list of words and expressions in a table done by Google translate.” FOMT tools are useful with some restrictions since: • Overall knowledge: “These tools can be helpful if students know why and how to use them; otherwise, they will end up having a text that is not edited based on the context of the writing for an overall meaning” • Word and collocation lookup: “can be used as a dictionary and help students with collocations and the meaning of words, if the students know how to use them” • Required editing skills: “The tools are helpful for advanced students who can detect grammar errors, but for weaker students, I doubt they have the editing skills to reproduce the translated text properly” • Critical thinking/analytical writing: ○ “The tools can push the students above their comfort zone, when they see the translated parts, they start reflecting about them, this is all we want, to think outside the box.” ○ “FOMT can expose students to differentiate between the passive and active voices. My ESL students at intermediate level always find it easier to use active voice when writing in L2. I ask them, is it the same way you speak in L1 too? Asking them to write in L1 and then translate to L2 will teach them the areas in a sentence where they can use passive voice.”	11
FOMT helps with the organization of ideas	Brainstorming: “These tools allow students to free themselves from the pressure of how to organize their ideas in L2. When they use the tools, especially for brainstorming and jotting down the ideas, they can put their texts together in a more meaningful way and produce a better text.” Translation: “when students write in L1 and translate to L2, they can get a better sense of what coherence is.”	2
FOMT boosts confidence in the ESL writing process	Tackle the challenging topics: “Some instructors would argue this, but I strongly believe that the tools, regardless of the students’ proficiency level, make students more confident about writing in L2. Especially in circumstances when the writing prompt is a challenging topic” New ways of learning: “give the learners new learning opportunity and feeling of confidence and/or progress” and especially when it comes to “ESL students at the beginning of learning a new language”, the tools help the learners to build confidence	3

Table 81. Advantages of FOMT, instructor survey

3.4.8.2.1.2. Disadvantages

Preventing students from “decent” learning

Andy and Charlie expressed their negative opinions about the use of tools in classrooms. Andy believed that FOMT tools prevent students from “decent” learning opportunities and Charlie mentioned that such tools promote a “superficial education” that, overall, will not benefit students. They explained, with the emergence of COVID-19 and switching to an online education platform, students are already prevented from facing “real” challenges that they would

encounter in in-person classes. Andy continued, “Students do not participate in discussions anymore, have stopped critical thinking, and this is not proper education”. They added that if GT is considered as a learning platform in ESL classes, there would be “no point in learning” anymore. Andy’s statement seems to reflect some of the editing behaviour that was observed via videos in this project as well. While the post-instruction texts (3.4.3.2. Drafting technique) demonstrated a moderate increase in the editing behaviour of the students, the recurrent observation was that students preferred to use the FOMT output without editing. As explained before, at least in the context of this project, students stated they needed more practice to demonstrate better editing skills. However, Andy’s note is still worth-considering.

Contributing to plagiarism

The judges unanimously stated that, based on their classroom observations, in particular in the pre-intermediate ESL level, some students consult FOMT to the extent that they disregard the instructions and produce texts that are not compatible with their English proficiency levels. In particular, Charlie mentioned that in one of their lower-level English courses, they read an advanced text in English which was produced by a student who was not able to “make a phrase in English.” Similarly, Andy and Kelly mentioned, they have encountered several cases of plagiarism in their classes, where students had copied content from online resources and translated them into English for the purpose of their assignments.

The judges’ opinions about FOMT preventing students from “decent learning” and contributing to plagiarism remind us of the instructors’ survey reports demonstrating diverse opinions concerning such tools in ESL classrooms. Table 82 demonstrates some of the themes (since there are commonalities in the statements, not all the examples are included) that have been indicated by the instructors and are in common with the students’ reports as well as reflected in the judges’ interview answers.

Disadvantages		Frequency
Meaning errors	• “FOMT tools cannot detect the context of the given output and the output they produce shows mismatch of meaning.” • “If we enter a wrong word in L1, it will produce the wrong meaning in L2.” • “Polysemic words are troublemakers in translation.”	4
Contribution to plagiarism	• “Students copy and paste translated texts as their own”	4
Learning issues	• “ESL learners, or I would say L2 learners will think that there is always a back door for them to escape the learning process, that back door being translation in stead of learning” • “Prevents students from being engaged in real learning” • “Translation equals fake learning”	3
Syntax issues	• “Not all students are able to detect grammar errors in the translated output.” • “For gendered languages such as French and Arabic, the translation to English can come with grammar mistakes.”	3
Stylistic issues	• “Idiomatic expressions are not easy to translate”	1
Confidence issues	• “While such tools are a part of our daily lives, an overreliance on them could be detrimental for the learning experience of students in the long term.”	2
Unspecified issues	• “Causes issues for both students and instructors” • “Translation tools are big troublemakers in L2 classrooms”	6
Total		23

Table 82. Disadvantages of FOMT, instructor survey

I asked them why the instructors’ survey reports showed diverse beliefs in this regard. In response, they mentioned that while some instructors pay attention to this issue, others disregard the texts that are plagiarized. Andy, in particular, said that some instructors may use the tools themselves for various purposes, and that is why they could be under the impression that these tools are useful. However, they do not consider the fact that students use the tools to plagiarize assignments. In contrast, Kelly mentioned that the diversity could be due to the instructors’ lack of information about the tools and added, “We need to move away from focusing on ESL classrooms, as students use the tools in different classes”. These opinions, once again, are diverse, similar to the results of the instructors’ reports. This diversity in opinions suggests that efforts should be made to better address the use of tools in ESL classrooms.

Discussing plagiarism brought up another aspect that was previously mentioned by some of the student participants, who stated that their French courses are prioritized over their English courses. I asked the judges for more clarifications about this perception and whether this could have contributed to behaviours such as plagiarism. The judges unanimously agreed that while

English courses seem to be mandatory for students according to the curriculum, they are not considered as important as the courses that are being taught in French.

Another interesting aspect is that instructors and judges somewhat disagree with the students that FOMT can be beneficial as learning tools, which is also confirmed by the literature. However, issues with syntax and meaning seem to be a common concern shared by all the three groups.

3.4.8.2.2. Levels of coherence and cohesion in the texts

The judges shared their beliefs about the students' levels of coherence and cohesion in the first set of samples in comparison with the second set of samples.

First set of samples

The judges agreed that students demonstrated various levels of competency in establishing coherence and cohesion in their texts. For instance, Charlie selected Alex's text as an example of a text that needed improvement in terms cohesion and mentioned that the grammatical structure in Riley's text prevented them from following the ideas and assessing the text "desirably".

Andy also chose Alex's texts as examples presenting "minimum-level" connectedness, while Kelly considered Robin's as demonstrating "flow of meaning" as well as "links" between the sentences and throughout the text.

Second set of samples

Kelly stated that, overall, they could see "more connectedness" in the second set of writing samples; however, according to them, the levels of coherence and cohesion were "considerably better" in some texts than in others. In some papers, it was "clear that the student had started to learn to stick the ideas together, but it was not considerable effort". I shared all the texts (the first and the second sets without clarifying which ones were written in the pre-instruction stage) with them again and asked them to provide an example. They pointed to Alex's paper demonstrating "minimal" improvements and considered Riley's text as an example of "considerable" improvement. They added that, while Alex's second summary can be understood clearly compared to Riley's second summary, they believed Riley's text demonstrated improvements in "learning how to create a meaningful story".

Charlie referred to Riley and Casey as examples of “progress”, but also, interestingly, felt these two participants consulted the tools in producing their second summaries. They referred to Riley’s text and selected the excerpt (Example 29), that demonstrated a “sense of connection”. The results of Riley’s screen recordings (sections 3.4.3.2. Drafting technique and 3.4.3.5. Drafting of CDs) demonstrated that they consulted FOMT to produce CDs in four instances, including lexical and pronoun references as well as a conjunctive of contrast (“cependant” translated to “however” by GT). According to Charlie, this excerpt was indicative of establishing an “appropriate” semantic relationship in this text.

Sentence: L1 draft	<i>L'arrivée de valerie st ses collègues a créé une tension cependant ils ont décidé de partir pour éviter le pire.</i>
FOMT (GT) input	<i>Cependant</i>
FOMT (GT) output	<i>However</i>
Manual translation	<i>the arrival of Valerie and his team has created voltage. However, the police have decided to go out to avoid the worst.</i>
Text	<i>Furthermore, the arrival of Valerie and his team has created voltage. However, the police have decided to go out to avoid the worst.</i>

Example 29. Riley, post-instruction text

Charlie and Andy also referred to Casey’s text (Example 30. Casey, post-instruction text) and mentioned they observed improvements in the second summary text. According to Charlie, not only did Casey’s second summary demonstrate higher levels of vocabulary and sentence structure, but it also showed “smoother” transitions of ideas from the beginning to the end. Accordingly, they believed Casey had constructed their texts in L1 and used FOMT in producing the second summary. Their perceptions, based on the results of video analysis (3.4.3.2. Drafting technique and 3.4.3.5. Drafting of CDs), are correct, since Casey consulted GT in building 88% of their text. Example 30 shows that six sentences from Casey's post-instruction text for which FOMT was consulted.

Pour commencer, Valerie est en train de travailler sa ronde de nuit quand elle reçoit un appelé qu'il y à des dizaines des perturbateurs dans un building.

Après, quand Valerie arrive elle remarque un drôle smell, et que les gens dans le building ont fumée des herbes.

En plus, les résidents du building sont mad parce que cela arrive tout le temps.

Valerie peuvent pas interpellier les gens sans évidence du drugs donc lui et ses coéquipiers search the building mais elles ne trouvent rien.

Les gens commence à dire des bad words et insults aux valerie et ses coéquipiers quand ils sont en train de leaving the building. Finalement, sur le chemin de retourn Valerie et ses coéquipiers voit qu'il y à un car qui roule sans lights",

Quands ils sont entrain de questionner l'homme qui était dans le car, des personnes dans le neighborhood commence à insulter Valerie encore. Après vérifier, Valerie et ses coéquipiers voit que l'homme n'à pas un drivers license donc Valerie lui ammene au police station pour un vérification d'identité.

Example 31. Casey, post-instruction text

Alex's texts were chosen by Kelly and Andy as demonstrating lower levels of cohesion and coherence than did Casey's. This could suggest that, in particular, in producing the second summary, GT has played a positive role in enhancing Casey's text. While Alex never used FOMT, Casey is classified as a user who employed the tool at a higher frequency than the others and drafted the entire second summary text in French and (partially in English) and used GT to produce translations into English, sentence by sentence. However, another factor that should be considered when reflecting on this observation is that Casey's French language proficiency level may have played a role in producing drafts in L1. Subsequently, the translated text demonstrates more connectedness between ideas (as pointed out by the judges) than a text directly written in English. Also, it can be inferred that while Alex follows a more language-independent approach, Casey seems to demonstrate both a language-independent aspect in writing as well as a language-dependent perspective through consulting FOMT for more "accuracy".

Overall, by comparing the students' and judges' perspectives, we observe some common ground. For instance, all the student participants stated that they found the workshop instructions useful and explicitly referred to the usefulness of instructions regarding how to establish coherence and cohesion. While this opinion was not unanimously stated by the judges, they believed they saw "some improvements" in some of the texts produced in the post-instruction stage.

Finally, the coherence and cohesion levels in both sets of texts led to another question. I asked the judges why they had assigned scores to the students' papers on some categories, such as the category of "concluding sentence", while in some of the produced texts there was not an explicit mention of a concluding sentence. Kelly mentioned that, in some texts, they could get "the sense" that they would have "reached the final step", although the attempt was not "clearly made"; they referred to Jean's concluding sentence, which in fact constituted two words, "The end". In a similar vein, Andy and Charlie agreed that despite the lack of a concluding sentence, they were able to comprehend the text was finished. In particular, Andy mentioned, they preferred to assign "even a small portion" to "encourage the students do a better job" in developing their second summaries.

Policy regarding the use of tools

Finally, after analyzing the interviews with the judges, their lack of information about the existence of (any) policy concerning the FOMT tool use in ESL classrooms came to light. They all said that they were not aware of any "written" policy that could guide them in determining whether the tools are allowed or not. Kelly stated that when they observe that their students consult the tools, they cannot "sweep it under the rug" and they would like to share the advantages and disadvantages of the tools with them; however, they are not sure whether they are "officially" allowed to do so. They all stated that, due to the lack of any "confirmed" policy, they are to report the cases of use as plagiarism.

The above-mentioned observations are in line with the students' interview answers regarding the same aspect, as well as survey reports of the students and instructors that will be explored below.

The instructor survey asked whether the instructors were aware of any policy about the use of tools in ESL classrooms, to allow for a comparison with the students' perspectives on this issue. As can be seen in Table 83, 22 instructors (96%) reported that they are not aware of any policy regarding the use of tools and one instructor selected "not sure."

Policy regarding FOMT tool use	
No	22
Not sure	1
Yes, I have some guidelines, but I don't share them with my ESL students	0
Yes, I have some guidelines and I share them with my ESL students. Please explain your answer briefly.	0
Total	23

Table 83. Policy regarding FOMT tool use in ESL classrooms, instructor survey

The instructors were also presented with a follow-up question: ***If you notice that a student has used FOMT for ESL writing, how will you address this?*** Based on Table 84, all the instructors react to tool use in their ESL classrooms. While a majority seem to prohibit the students from using the tools (15 in total), some others (6 instructors) approach this use from a pedagogical perspective and explain how such tools can be employed “strategically”.

Reactions towards the tools use	
I discuss the case with the student to avoid future use of FOMT in ESL writing	10
I explain the advantages and disadvantages of FOMT use in ESL writing and guide the student how to use FOMT strategically in ESL writing	6
I report it to the program coordinator as a plagiarism case	5
I don't mind if my students use FOMT tools for ESL writing	2
It does not happen in my class	0
Total	23

Table 84. Addressing students' use of FOMT in ESL classrooms, instructor survey

The reports indicate that, while a large number of instructors are not aware of any policy regarding the FOMT tool use in ESL classrooms, many of them do not approve of such use and (attempt to) prevent students from consulting the tools. This could imply that, from the perspective of the ESL instructors who participated in the survey, such tools influence the L2 writing process negatively, which seems to be in line with the judges' general opinions about FOMT (as explored in section 3.4.8.2.1.2. Disadvantages). The lack of awareness about the same aspect in ESL classrooms is also reflected in the students' reports (Table 85) and interview answers. The individual explained their answer as “we are not allowed to use the tools”.

Policy regarding FOMT tool use	
No	5
Not sure	0
Yes	0
Other: please explain your answer	1
Total	6

Table 85. Policy regarding FOMT tool use in ESL classrooms, student survey

The explored observations about the participants' lack of awareness regarding the use of FOMT in ESL classrooms requires more discussion in the following chapter for some potential pedagogical implications.

As explained earlier in the Methodology chapter (section 2.5.2.3. Writing samples: pre- and post-instruction), the initial plan for alternating the videos as the sources for writing the first and second summary texts was not achieved due to some circumstances. As mentioned, Taylor was the only participant who wrote their first task based on Video 2. The following section will discuss the results of data analysis corresponding to Taylor.

3.4.9. Taylor

Compared to the other participants, Taylor's coherence and cohesion scores (i.e. 66%) in the pre-instruction stage are higher than the total average scores for each of these criteria (see Table 9 and Table 16). However, this does not suggest that, in terms of baseline levels of coherence and cohesion, they have achieved a significantly higher score on both criteria. As well, their average score is below 70% in both areas, which reflects the same need for improvement that was observed for the other participants.

To gain a better understanding, we can explore their post-instruction coherence and cohesion scores and compare these scores with the scores of the other participants. Based on the results, Taylor's coherence and cohesion scores increased by about 8% (Table 41) and 1% (Table 46), placing them slightly above the total average scores on both criteria. Considering the results of Table 41 and Table 46, we observe improvements in the coherence and cohesion scores of the other participants at the post-instruction stage, as well. This could suggest that while Taylor constructed the text based on a different video in each stage, the video content itself likely did not substantially affect their coherence and cohesion scores. To better discuss the results, we can review Taylor's screen recordings and interview data.

Based on the pre- and post-instruction screen recordings, in a similar fashion to the other students, with the exception of Alex, Taylor resorted to MT for drafting both texts, and at almost similar frequencies (cf. Table 63 and Table 64). In terms of the proportions of text translated, Table 65 demonstrates that Taylor's proportion of translation in their second text has increased. This observation is also seen in the texts produced by the others, with the exception of Alex; therefore, we cannot find a significant difference in this regard. Overall, the results show that Taylor resorts to translation, FOMT in particular, as a strategy during the writing process. This

reflects the same behaviour observed in the other participants who used translation during the writing process. In addition, as explained, in terms of drafting time and techniques, we do not observe noticeable changes between their baseline and post-instruction behaviour. This also tells us that in terms of illustrating language-dependent and language-independent abilities, as highlighted by the scholars (e.g. Marian & Fausey, 2006; Marian & Kaushanskaya, 2011; Marian, 2020; Olivares, 2002; Saalbach et al., 2013), Taylor demonstrated both types of ability at both stages almost in a similar manner (cf. Table 63 and Table 65). Based on these results, it seems that Taylor's behaviour in producing the texts in the pre- and post-instruction stages may have not been impacted by the video content and appears to be consistent with the other participants who resorted to translation in constructing their texts.

An analysis of Taylor's interview responses (section, 3.4.7.4. Time spent on drafting) also demonstrated that they found the task for writing the second summary (based on Video 1) a "big deal," because of which using MT was indispensable. This statement is interesting when compared with Robin's (section, 3.4.7.4. Time spent on drafting), who also stated that the second task (based on Video 2) was more challenging. As well, the statement raises the question as to why, based on their interview responses, the participants perceive the second summary as more challenging, regardless of the video content. The results of Taylor's screen recordings in both stages show that, similar to other participants, they spent more time on drafting their second text (Table 64). This observation could imply that, like the other participants, Taylor also wanted to follow the instructions and apply them when composing their second text. As discussed above, this could reflect the literature on the development of critical awareness in evaluating the texts. In particular, when we compare Taylor's pre- and post-instruction screen recordings, we observe that they review the side notes that they received as feedback on their first draft while drafting their second text. They also review the instructional materials (i.e. coherence PowerPoint). Similar to the other participants, Taylor's interview analysis reveals that their L1 cohesion knowledge (i.e. knowing about CD types) was limited and that they were able to enhance their information in this respect by the virtue of the workshop instructions (cf. section 3.4.7.8. Perceptions about the workshop instructions). Having mentioned these, it seems reasonable to suggest that alternating the videos as the source of writing may have not contributed to perceiving the second task as more challenging. It appears that following the workshop instructions may have contributed to this perception.

3.4.10. Summary of the overall findings

Comparing the text, video, survey and interview results of student participants with the instructor survey reports and the judges' interview answers brought important aspects (both from a general [ESL] perspective as well as for the purpose of this project) into light. The interview results illuminated the aspect that for some participants such as Riley, Jean and Robin, frequency of tool use was impacted by their writing environment, under my supervision. Otherwise, based on their interview statements, they would have used the tools more often, as they had also reported in their surveys. The tendency towards frequent use for ESL purposes was also echoed by the judges and instructors' survey reports.

We also observed higher levels of critical evaluation and analytical awareness (based on the video and interview data) demonstrated by Jean, Riley, Casey and Robin, and to some extent by Taylor in terms of consulting different tools during the writing process. As well, Taylor and Robin, who had spent considerable time on drafting their second drafts, said that they wanted to apply what they had learned from the workshop instructions in writing their second summaries. These statements could be again indicative of the element of critical thinking/awareness during the writing process.

In addition, we observed that while the students' overall perception of FOMT's usefulness was positive, the judges' interview answers and instructors' survey responses presented the opposite. We also found that, based on Taylor's survey and interview data, the aspect of usefulness may not necessarily correlate with the frequency of tool use.

Moreover, Jean's, Taylor's and Riley's statements showed that, based on their needs and the level of "seriousness" of a task, they can decide whether and how to use a tool; however, they reported that the purpose of tool use was for short consultations and in both directions. While the students' purpose of use seemed to reflect the instructors' survey reports, it seemed to be somewhat in contrast with the judges' opinions.

While some participants referred to grammar and meaning issues in the FOMT output (which was also reported by the instructor survey data), they nevertheless mentioned they are still willing to consult the tools, as they believed that FOMT contributes to their learning and organizing their thoughts. Regardless, considering the tools as assistive in learning was not unanimously confirmed by the judges. For instance, they referred to semantic ambiguity which could be observed in MT output. A clear example confirming this observation can be seen in this

sentence, “L’arrivée de valerie st ses collègues a créé une tension cependant ils ont décidé de partir pour éviter le pire,” drafted originally in L1 in Riley’s text. FOMT-generated translation of ”tension” is “voltage”. Tension could mean tension or stress (psychology) or voltage or power (electricity). GT has given the second one, and the student has not recognized the problem and has reproduced it.

The student participants appreciated the workshop instructions and believed that they improved their knowledge of coherence and cohesion. These beliefs were also somewhat supported by the judges, referring to some examples demonstrating improved levels of coherence and cohesion.

Finally, the comparison of the interview results of the students and the judges and the student and instructor survey responses revealed a lack of awareness regarding a clear policy about the use of FOMT in ESL classrooms. This entails some pedagogical implications to be discussed in the following chapter.

Chapter 4: Discussion and conclusion

The aim of this research study was to address a series of research questions seeking to better understand ESL students' L2 coherence and cohesion challenges in academic writing and writing behaviours such as how the use of technologies (particularly FOMT tools) influences these challenges. In light of the analysis of the results, the findings of this study pertaining to each research question (explored in the previous chapters, cf. section Research questions) will be discussed. Subsequently, based on the discussion of the findings, some conclusions will be presented, and some recommendations will be made.

The study's findings are based on a small sample. However, after triangulating the data interesting themes emerged. Triangulating the results of the collected texts, video recordings and interviews revealed that, overall, while the results of the second set of texts displayed some improvements in coherence and cohesion in comparison with the results of the first set of texts, students demonstrated challenges in establishing coherence and cohesion in their summary reports. This warrants investigation, as these are important aspects in L2 writing.

Comparing the students' and instructors' interview results with the students' and instructors' survey results revealed a broad area of agreement, which casts light on the prevalence of translation including FOMT in L2 classrooms. While the students believed that, despite causing meaning and grammar errors, FOMT tools can assist them in constructing more "linked" and "organized" texts, instructors and the judges demonstrated diverse opinions. Some instructors and judges shared more positive opinions about the use of such tools in L2 classrooms, while others were skeptical of such uses. These findings echo the literature explored previously on this matter (e.g. Ata & Debreli, 2021; Clifford et al., 2013; Gentil, 2018; Laird Eriksson, 2021; Lee, 2020; Rico & Gonzalez Pastor, 2022; Somers et al., 2006). These initial findings were supplemented by another aspect based on comparing student and instructor survey data with the students' and judges' interviews. Both camps unanimously expressed the view that there is no policy considering FOMT use at The Institution. This observation could stem from the mainstream controversial perception of tool use in educational settings, causing confusion for both camps, as explored earlier in this thesis (section 1.12.2. Machine translation in L2 and translation settings: On the downside).

In addition, a careful analysis of the results of the students' writing samples, screen recordings and their interview data showed that some participants' behaviour in completing their

writing task did not always match their self-reported tool use and may not be considered “natural”. The apparent reason behind this discrepancy was my presence while they were completing their tasks, due to their lack of certainty about whether they could “really” consult the tools in the process of completing their tasks. This suggests that examining the learner behaviour is contingent on some factors (e.g. the case of Riley “feeling shy” about consulting the tools while being supervised) that are not necessarily recognizable based on a specific set of data (e.g. writing samples, survey reports and video data), unless the behaviour is addressed in more depth (e.g. via interviews).

This reluctance to use FOMT in a supervised task may reflect a point also observed in the results of students’ and judges’ interviews and students’ and instructors’ surveys, that policies regarding the use of FOMT tools in L2 classrooms are not clear to either instructors or students.

Having outlined some of these general observations, I will continue with a detailed discussion of the findings corresponding to each aspect of this research, guided by the research questions set out in section 2.2. Research questions and objectives. I will present the discussions pertaining to research questions 1 and 2 together, due to the connections between the results pertaining to each question and to facilitate the review.

4.1. Discussions of the first and second research questions

The goal of the first research question “what are ESL students’ typical coherence/cohesion challenges in academic writing?” was to examine students’ baseline L2 coherence and cohesion challenges. The goal of the second research question “what writing behaviours, such as the use of technologies including FOMT, influence these challenges?” was to identify behaviours influencing students’ coherence/cohesion challenges. Analysis of students’ pre-instruction texts and screen recordings, coupled with comparison with findings of surveys of the students and of instructors, allowed me to assess students’ baseline abilities in developing coherence and cohesion and how the use of technologies including FOMT can contribute to them. These findings are presented below.

4.1.1. Need for developing L2 coherence and cohesion

As mentioned in the section, entitled The debate on the use of FOMT in ESL/ESP classrooms, while, based on anecdotal evidence, coherence and cohesion were considered as factors contributing to ILOs in course assignments at the Ontario post-secondary institution

where the study was conducted, these elements were not always explicitly mentioned by instructors in either course descriptions or evaluation grids. In the first set of samples, overall, we observed that students achieved relatively low scores on coherence and cohesion. Comparison of this initial finding and the analysis of the first set of video recordings suggested the participants may benefit from learning about CDs, their appropriate use and, most notably, the variety of CDs at their disposal. In particular, the results confirmed that the participants demonstrated low levels of competency in using markers of attribution and synonymy, among the other types of CDs.

During the semi-structured interviews, some participants expressed a low level of previous knowledge of coherence and cohesion and low confidence levels in choosing and using CD options as well. They also said that their knowledge of coherence and cohesion in L1 was limited; as a result, they were not able to refer to their L1 CD repertoire to identify how they could implement CDs in writing their summary texts in L2.

The judges also expressed that a sense of “direction” was not respected in most of the texts. This seems to confirm the results of previous research highlighting that coherence and cohesion are indispensable in academic writing (e.g. Ahmad, 2019; Alarcon & Morales, 2011, p. 115), Translation Studies (e.g. Bawden et al., 2017; Williams, 2013; Yuan Ke & Hoey, 2014) and, in particular, in incident report writing (e.g. Stolp, 2002; Yu & Monas, 2020). Therefore, these two challenging features merit more attention.

As far as sentence coherence is concerned, despite demonstrating some initial skills in utilizing the markers of “resemblance”, “contiguity” and “attribution”, as discussed in section 3.2.2. Coherence, the need to inform the students about all the CD options they had not yet used seemed necessary. For instance, due to the nature of the summary text, which can be considered as an incident report written based on watching a sequence of events, the use of “attribution” markers ensures “certainty about the truth of the proposition” and ensuring the credibility of statements. This observation draws attention to the research studies emphasizing the importance of attribution markers in argumentative⁴³ texts (e.g. Murphy, 2005, p. 131), and highlights the need to address this gap for the purpose of composing the second set of texts. This also confirms Károly’s (2017, p. 33) argument in evaluating the quality of translation in terms of distinct features pertaining to each text type. In the case of the produced summaries, the role of

⁴³ As mentioned in section 1.4. Modes of discourse/text types, the participants compose an incident report in the form of a summary paragraph whose mode can be deemed narrative in its primary sense. However, since they also need to put together the ideas coherently and cohesively, the mode of discourse in this case can be considered argumentative as well.

attribution markers contributes to a better-quality text in terms of cohesion with a subsequent impact on coherence.

In addition, the analysis of the first set of texts confirms the findings of previous studies concerning the importance of establishing paragraph coherence and highlighting the challenges in this regard (e.g. Candelo et. al., 2018). While, overall, students showed baseline skills in developing a chronology of events based on the video content, concluding the progression of the topic seemed to be a challenge for them. This challenge prevented the judges (based on the interview results, section 3.4.8. Semi-structured instructor interviews and comparing the results) from observing a concluding statement at the end of the produced texts. Therefore, in line with the literature (Candelo et. al., 2018, p. 164), the need for the existence of a concluding remark that provides “full description, or the outcome of the narrative” to fully maintain paragraph coherence comes to light in this project as well.

Establishing cohesion was another significant predictor of the quality of a text, in general, and particularly in this project. The importance of this textual feature was also highlighted by the scholars (e.g. Šnajder, et. al., 2019) in summary writing, in general, in ESL summary writing, in particular (e.g. Golparvar & Khafi, 2021; Strobl, 2017; Wang et. al., 2012) and in ESL report writing as well (e.g. Murphy, 2005). The findings of this study suggested that the density of CDs cannot be considered as the significant predictor in achieving overall high scores on cohesion in the texts (cf. Table 16 and Table 17 and compare Casey’s and Robin’s overall cohesion scores and CD density). In this project, as mentioned in section (3.2.3. Cohesion) the use of CDs was analyzed along three dimensions (density, appropriateness, and variety). The analysis of the texts showed students obtained lower scores on the variety element than the appropriateness element on the cohesion assessment (cf. Table 20). Based on this result, the need to concentrate on developing knowledge of/familiarity with various CD options seemed necessary for the participants. This finding may reflect the literature emphasizing that CD variety and text quality are correlated (e.g. Ahmad, 2019; Emilia & Bangsa, 2018; Liu & Braine, 2005; Meisuo, 2000).

In addition, another emerging theme was the participants’ choices in using some CDs at higher frequencies than other types of CDs⁴⁴. The results of text analysis revealed that the

⁴⁴ This is to highlight that presenting small quantitative differences based on such a small group does not mean to claim any significant statistical results to be generalized to a bigger population and implicate conclusions. Rather, these differences are presented as complementary points to help the analyses and discussions of video, survey and interview data.

participants seemed slightly more successful in using pronoun references (e.g. “she”, “they”) than in using conjunction/conjunctives (restricted to the use of “and” in most cases) and lexical cohesion (almost exclusively limited to the use of repetitions of the same words, such as “Virginie” or “the building” rather than other means such as synonyms). During the interviews, students (e.g. Jean) mentioned that their ESL CD knowledge was limited and that they were not familiar with all CD types. The video analysis also confirmed students’ perception by showing they resorted to MT for translating CDs from L1 to L2 to use in their summary reports. Comparison of this data, while modest, reminds us about previous research regarding the need to explicitly teach CDs as a feature in the language learning/writing process (e.g. Ahmad, 2019; Emilia & Bangga, 2018; Liu & Braine, 2005; Meisuo, 2000) and that the ESL students may possess restricted lexical repertoire; therefore, they may rely more on the use of a small set of markers compared to a wide range of CDs (e.g. Dumlao & Wilang, 2019; Liu & Braine, 2005; Meisuo, 2000).

Overall, triangulating the results of coherence and cohesion also brought out the fact that there was consistency between the scores of cohesion and coherence, which echoed the previous studies (e.g. as cited in Faradhibah, 2017, p.10), that “cohesion and coherence interact to a great degree” (in the case of Robin, for instance, cf. Table 41 and Table 46).

4.1.2. Prevalence of translation in completing the summary texts

The results of self-reported survey data (both students’ and instructors’) showed that students use FOMT for general ESL purposes, fairly frequently, and in most cases, for short segments from L1 to L2. The analyses of the video and interview data confirmed these reports, and the videos showed that students, except for Alex, used FOMT in completing their first summary task. These observations, overall, reveal similar themes shared by the previous studies on prevalence of translation in language classrooms (e.g. Clifford et al., 2013; Garcia & Pena, 2011; Jolley & Maimone, 2015; Jolley & Maimone, 2022; Károly, 2014; Lee, 2019; Lee, 2021; Lee & Briggs, 2021; Niño, 2008; Xu & Wang, 2011).

The prevalence of translation in completing the first set of texts brought another aspect to light as well; MT can assist in the L2 writing process from a language-dependent perspective. As discussed in section, 1.11. Translation and L2 writing, in the process of communication in a verbal or written form, the cognitive abilities of a bilingual learner can be examined from various perspectives. These two perspectives, language-dependent and language-independent abilities are

of relevance to this project. It was discussed (Marian, 2020; Marian & Fausey, 2006; Marian & Kaushanskaya, 2011; Olivares, 2002; Saalbach et al., 2013) that when the language of learning differs from the language of “retrieval”, the learner is involved in a language-dependent knowledge representation that may “cost” errors for the learner. The analysis of the interviews (cf. 3.4.7.8. Perceptions about the workshop instructions) and the first set of recordings (3.4.3.7. Qualitative analysis of the videos), except for Alex’s, show the students demonstrated both language-dependent and language-independent abilities, to various degrees, in the process of drafting their texts to communicate their written message ultimately. Thinking about organizing the sequences of events and the nature of CDs can be considered as language-independent abilities. They also show language-dependent abilities, which according to the literature (e.g. Olivares, 2002) are activated when a bilingual learner recalls L1 linguistic features such as syntax and lexicon to be able to check and transfer to L2. In this case, it can be suggested that resorting to MT to check and identify the meaning of different lengths of segments can be a strategy to avoid a “cost”. On the other hand, based on the video recordings and informed by the literature discussed previously (e.g. Olivares, 2002), Alex seems to demonstrate language-independent capabilities including the learner’s reliance on verbal memory and analytical thinking. Alex seems to rely on prior knowledge and then apply it to form new knowledge.

4.1.3. Challenges of FOMT can lay the foundations for critical thinking/awareness

As mentioned in section (1.9.2. Machine translation in the translation industry) various types of errors including problems with ambiguity may occur in MT texts. Based on the video recordings, we observed (3.3.6. Qualitative analysis of the videos) problems in some MT-generated portions. For instance, Jean’s source text included language errors (a missing word and two that are misspelled) and an anaphoric reference, *son*, that required disambiguation, which subsequently led to ambiguities in the MT version in English. However, the participants’ self-reported use of FOMT suggested that they were aware of challenges that FOMT poses, including meaning and grammar issues. The video recordings also confirmed that they consulted the tools not only for identifying the meaning of various types of segments, but also finding better equivalents in L2. For instance, after reviewing the MT output regarding the ambiguity mentioned here, Jean revised their source text and also the MT output. The video recordings also show that Jean used the tool, but with some selectivity. This behaviour may assist them, at least to some extent, in judging the appropriateness of any new options (e.g. of different CDs)

suggested by such a tool. This behaviour also reminds us of the literature (e.g. Ismail Omar, 2021; Lee, 2020; Lee, 2021; Medvedev, 2016; Niño, 2008) regarding the role of MT in raising language awareness but also improving the critical awareness/thinking.

4.1.4. Students' perception of the tool use may not necessarily reflect their actual use

A comparison between the students' self-reported data and their video recordings revealed some inconsistencies between the reports and the actual use of tools. On the one hand, the students reported using the tools "always" and in "both directions" for general ESL purposes and that they perceive the tools as "fairly useful". On the other hand, the video recordings revealed that in completing the first summary, Alex never used the tool, Taylor used it at low frequency and Riley and Jean relied heavily on manual translation in completing their tasks. Based on the videos, the main direction of use was from L1 to L2. The observed inconsistency suggests that the students' perception of tool use may differ from their actual tool use, which directs our attention to a previous study conducted by Farzi (2016). As Farzi (2016, p. 187) explained, "self-reported data rely on imperfect human memory". Therefore, the observed inconsistency could suggest that the students misremembered their frequent use. This potential explanation is also reflected in Casey's interview answer that they mixed up the information they reported with what they had done for their schoolwork.

However, a complementary [and not the sole] explanation concerning the inconsistencies may be the fact that the participants' use of tools for general ESL purposes can vary from their use of tools for specific purposes, such as for the purpose of this project. In this case, based on these observations, we can refer to the findings of Chung's and Ahn's (2021) studies that the type of texts (e.g. narrative versus argumentative) may impact the use of MT by the learners. As far as this project is concerned, one would assume that the participants may have perceived it easier to use MT for general ESL purposes than to use MT for summary reports, which is a specific type of text.

The above-mentioned discrepancy between the self-reported data and the video data could also suggest that students did not demonstrate their natural behaviour when completing their tasks. Based on the interview results, some participants (e.g. Jean and Riley) also supported this hypothesis, explaining that they were uncertain whether they could use the tools in the writing process, as they are always banned from using the tools. One potential explanation for this observation could stem from research studies emphasizing that the process of L2 learning in

students is impacted by their personal and contextual factors (e.g. Dörnyei, 2005, 2020; Dörnyei & Ryan, 2015; Gkonou, 2013, 2015). As reviewed, these factors constitute several sub-elements including L2 writing instructions (e.g. Karaca & Inan, 2020) and fear of negative evaluation by instructors (as cited by Gkonou, 2013). Reviewing these studies can suggest that some participants such as Jean and Riley felt uncomfortable using MT while completing their drafts due to their previous experiences of being banned from such practices. As a result, in an attempt to avoid negative evaluation during their writing process, they did not demonstrate their natural behaviour, which, as reported in their survey, was frequent use of MT.

In light of the discussion of the themes pertaining to the first and second research questions, we can now move to exploring the aspects that are relevant to the second research question.

4.2. Discussion of the third research question

As mentioned earlier in this thesis, the third research question comprises two parts. The first part, “Can ESL students be trained to better achieve coherence/cohesion in academic writing?” sought to identify changes in texts and the goal of the second part of the third research question, “How does this training affect writing behaviours, such as the use of technologies including FOMT?” was to explore changes in students’ behaviours after the initial tutorial session. The changes in texts were investigated by collecting follow-up writing samples, and screen recordings demonstrating the use of various strategies, as well as one-on-one interviews with the judges. The changes in behaviour were sought via follow-up screen recordings as well as a post-survey after collecting the samples, and finally through one-on-one interviews with the volunteer students. After analysing the collected data, the themes discussed below were revealed.

4.2.1. Development of L2 coherence and cohesion

After running the tutorial sessions, and by comparing the students’ baseline writing performance with the post-instruction performance, overall, we observed progress in terms of their coherence and cohesion scores. During the interviews, students revealed that they learned about coherence and cohesion during the workshop and had the chance to learn about CD types as well. The judges’ opinions revealed the same perception, as they believed the texts were indicative of better coherence and cohesion quality. This, as mentioned earlier in this section, can direct attention to the literature that the explicit instruction of these two elements can positively

enhance the quality of texts. Given the short interval between the collection of the first and second sets of texts, one of the judges believed that this improvement in enhancing L2 coherence and cohesion could be due to the use of MT in producing the second texts (referring to Casey, for instance). This mention of noticeable improvement by the judge, as discussed earlier, was confirmed by the video recording. It reminds us of Steding (2009) cited by Jolley and Maimone (2022), who noted that MT output demonstrates an “unexpected” level of cohesion and coherence. After comparing the scores of coherence and cohesion with the screen recordings and interviews, it seems reasonable to state that the improvements in the scores can be attributed to both explicit instruction of coherence and cohesion and the use of FOMT in producing the second sample of texts. As for the explicit instruction of coherence and cohesion during the workshops, Jean, Taylor, Casey and Robin stated that the workshop was beneficial to them (section 3.4.7.8. Perceptions about the workshop instructions) and they enhanced their L2 knowledge about coherence and cohesion. In particular, Taylor and Robin mentioned they considered the workshop instruction while constructing their second text (cf. section 3.4.7.4. Time spent on drafting). Comparing their statement with their coherence and cohesion scores (Table 41 and Table 46) demonstrates an increase in their scores too. Considering the assistive role of FOMT in the produced texts, Riley, Jean, Casey and Robin mentioned how they considered MT as a learning tool (cf. section 3.4.7.8.2. FOMT assisting with learning about CDs). Specifically, Riley felt that GT assisted them with expanding their information about different types of CDs and that they were able to “look at more possibilities now”. When considering Table 41 and Table 46, we see a noticeable increase in their scores and when reviewing their video data (3.4.3.7. Qualitative analysis of the videos), we see their attempts in checking for finding equivalent translations.

However, the results also cast light on the fact that there is still scope for improvement in these two areas, in particular, in implementing a wider variety of CDs in the texts that are also used appropriately. As mentioned in section 3.4.7. Semi-structured student interviews, some participants mentioned that their knowledge of coherence and cohesion in L1 was limited; as a result, it was challenging for them to take advantage of their L1 CD knowledge in order to use CDs in their L2 texts. This perception could imply the idea of transfer explored by scholars (e.g. Cook, 2010; Chung et al., 2019; García & Wei, 2014; Pym & Ayvazyan, 2016; Wei, 2020). In particular, the mentioned perception may also be an illustration of what Bardovi-Harlig and

Sprouse (2018) referred to as transferring “good habits”. Having mentioned this, the above-described observations lead us to the discussion of FOMT as a potential means/vehicle for transferring “good habits” from L1 to L2. When Riley mentioned that GT enabled them to “look at more possibilities” about different type of CDs, it is suggested that MT can act positively and assist the learners with enhancing their L2 lexical repertoire. This potentially can impact the level of cohesion in a text.

4.2.2. Prevalence of translation in completing the summary texts

The video data showed that, excluding Alex, the students resorted to manual translation and FOMT in completing their tasks at both stages. In particular, Jean and Riley, who relied on manual translation, believed that this strategy was helpful in constructing their drafts. With respect to the use of FOMT, in the post-survey, the students, except for Alex, reported they resorted to FOMT for completing the summary texts frequently and, more often, for short segments from L1 to L2. The analyses of the video and interview data confirmed these reports, and the videos also showed that students, again with the exception of Alex, used FOMT in completing both summary tasks. As mentioned earlier in this chapter, these observations, overall, (and of course not comprehensively, given the very small scope of this project) are reflective of the findings of previous scholarship on prevalence of translation in language classrooms (e.g. Clifford et al., 2013; Garcia & Pena, 2011; Jolley & Maimone, 2015, 2022; Károly, 2014; Lee, 2019; Lee, 2021; Lee & Briggs, 2021; Niño, 2008; Xu & Wang, 2011).

Based on the results, the scholarship highlighting the role of translation in L2 writing, specifically, translated writing in comparison with direct writing in L2 (e.g. Chon & Shin, 2020; Chon et al., 2021; Cohen & Brooks-Carson; Göpferich, 2017; Kobayashi & Rinnert, 1992; Van Waes et al., 2016) comes to mind. For instance, given the improvements in Casey’s scores for cohesion and coherence (Table 41 and Table 46), and in particular, the higher frequency of MT use in constructing their second draft (Table 66), and the results of their interview, it seems that translated writing assisted by GT has benefitted the individual in developing a better quality text in terms of coherence and cohesion.

The prevalence of translation in completing the second summary brings the similar pattern into light. The analysis reveals that the students showed both language-dependent and language-independent abilities in writing, to various degrees. Alex relied solely on their

language-independent abilities, whereas other participants demonstrated both abilities to various degrees (section 3.4.3.2. Drafting technique) by resorting to translation.

4.2.3. Development of critical thinking/awareness

The analysis of the second set of screen recordings showed that the participants showed some improved levels of critical thinking/awareness, as a result of challenges of FOMT and because of the influence of workshop instructions.

As far as FOMT challenges are concerned, based on the video data, FOMT-generated output included some errors, including problems with ambiguity. We also observed that some students reviewed and edited the output. For instance, Riley, Casey and Jean (as discussed in sections 3.4.3.2. Drafting technique and 3.4.3.7. Qualitative analysis of the videos), used FOMT more selectively to judge the appropriateness of any new options (e.g. of different CDs). Based on these observations, and informed by the literature (e.g. Ismail Omar, 2021; Lee, 2020; Lee, 2021; Medvedev, 2016; Niño, 2008), it seems that FOMT assisted the students to review their choices critically before using them and submitting their drafts. Having mentioned this improvement, we should not forget that not all the problems with ambiguity in the MT output are easy to detect. For instance, once again, we can refer to the examples of semantic ambiguity discussed earlier (1.9.2. Machine translation in the translation industry), which is caused by polysemic words in the source text. As discussed in section 3.4.9. Summary of the overall findings, the text produced by Riley included this sentence, “L’arrivée de valerie st ses collègues a créé une tension pendant ils ont décidé de partir pour éviter le pire,” drafted originally in L1. The video data showed that Riley used FOMT to translate the word “tension” in this sentence. They were provided with this translation, “voltage”. As described earlier, tension could mean tension or stress (psychology) or voltage or power (electricity). GT provided Riley with the second option, and they were not able to recognize the problem. However, in Example 24, we learned that Casey could detect and edited the translation of “drôle” from “funny” to “strange”, which in the context of their sentence is a more meaningful choice than “funny”. Given Riley’s lower L2 proficiency level as revealed earlier (cf. Table 9, Table 16, Table 46 and Table 41), this may draw attention to the idea that learner’s L2 proficiency level can also be a contributing factor that could influence critical thinking/awareness.

Considering the possible influence of workshop instruction on the students, we also observed that, overall, students spent more time on completing their second draft compared to

the time spent on the first one. Specifically, the increase in time Robin spent on drafting the second text was notable. They explained in their interview that they did so with the aim of following the workshop instructions and executing them when producing their second summary. While this behaviour may not link to MT directly, their behaviour can also illustrate levels of critical thinking when the individual recalls the instruction as an aid to construct a better-quality text.

4.2.4. Students' performance and influential factors

As stated previously in this chapter, several studies have shown that students' performance can be impacted by various factors that can subsequently prevent them from demonstrating their natural behaviour while accomplishing a task. Most notably, as discussed in (section 3.4.3.2. Drafting technique), Jean and Casey demonstrated different behaviour in completing the second set of texts compared to their behaviour in producing the first set. During the semi-structured interview with Jean, they wished they had followed their "normal" strategy (i.e. resorting to translated writing using MT) in completing the second draft. Casey, however, mentioned they were content with using FOMT in constructing their text. As also discussed earlier, Jean's behaviour was impacted by their confusion about FOMT policy in classrooms and this caused them to feel "exhausted" when writing directly in English, while Casey felt satisfied applying the opposite approach. In light of these statements, it can be hypothesized that had Jean followed their "normal" behaviour (i.e. using MT as they had explained earlier in the interview), they may have constructed a better-quality text in terms of coherence and cohesion.

4.3. Contributions of the study and its implications

In general, as hoped, the results of this study provide insights into the potential design of L2 coherence and cohesion instructional materials; the integration of translation and language teaching; and the use of translation tools and techniques.

As discussed earlier in the Literature review chapter, the ILOs of the course must be defined and met in order to assist ESL students in their learning and writing process. In particular, as far as cohesion and coherence as embedded parts of the ILOs are concerned, it is important for these two elements to be captured explicitly in the design of teaching and learning activities as well as assessment tasks. In this study, we designed materials that captured coherence and cohesion contributing to the ILOs. The findings of this study can help inform the

design and development of future class, instructions, and assessment grids that are aligned with the ILOs of the intended course and assignments to help students enhance their academic writing skills in terms of coherence and cohesion. Building upon this finding, future research in this area will need to analyze a corpus of incident reports composed by the learners to elucidate the recurrent coherence and cohesion issues and inform the design of relevant curriculum ultimately. ESL learners will then be able to learn these two elements theoretically and apply the knowledge practically within the course of their study as well as for workplace purposes.

As well, the findings of this study indicate that L2 students' lexical knowledge may be limited, which is also reported in the previously designed studies with a similar focus. This study presented the results collected from the participants who can be classified as high-intermediate ESL group based on the previous English courses they passed. However, based on the results, we observed a group of learners with varying degrees of English proficiency. The results of screen recordings showed that, except for Alex who did not employ FOMT, the rest of the participants struggled with finding the suitable CDs they intended to use in their text. As they shared in their interviews, they were not certain about their meaning in English. Therefore, they resorted to FOMT to assist them with the drafting process. In light of this observation, it is suggested that to assist students in establishing cohesion in their texts, instructors should not assume that CDs should only be taught at basic to intermediate ESL levels. Instead, ESL instructors should provide CD categories followed by examples as instructional materials as long as coherence and cohesion are embedded in their assessment criteria.

This study was small in size, and studies with a larger sample that potentially include a wider variety of ESL learners can produce more comprehensive findings in this regard. As a result, more help can be provided to learners whose lexical knowledge—in particular, as far as CDs are concerned—may not necessarily be at similar levels to their counterparts.

In light of previous studies that had addressed the role of translation and, in particular, integration of FOMT in the ESL curriculum as a resource for teaching—and especially for enhancing coherence and cohesion—this study hoped to contribute to this aspect as well. The results obtained from this project, albeit in a very small scope, cast light on the fact that translation, and in particular FOMT, can assist students in developing more organized texts with higher levels of coherence and cohesion. Furthermore, the results illustrate that FOMT can serve as a pedagogical tool allowing students to demonstrate their language-dependent strategies,

assisting them with improving their language awareness and helping them to demonstrate and develop their critical thinking/awareness skill by selecting among the given options. However, given that the focus of this project was not on how to employ FOMT more effectively, future work in this area is needed to pursue the ways instructors can teach about FOMT, its strengths and weaknesses to assist students in writing organized texts and provide them with opportunities to enhance their critical thinking/awareness skill. In light of future work in this area, we can hope for more effective language policy-making which not only benefits the learners, but also helps the instructors to know more about such tools, their effectiveness and best practices. As well, due to the small scope of this project, we were not able to elucidate whether age and gender can correlate with the FOMT use. Upon designing future studies encompassing a larger group of learners, we will be able to better understand whether these two factors contribute to tool use.

Moreover, the findings of this study reflected the previous research on divided opinions about the use of FOMT policy in L2 classrooms. It was revealed that while learners perceive such tools as beneficial, educators may not necessarily share this belief, but more importantly that there seems to be a lack of explicit policy in this regard. This causes confusion for learners and educators as to how approach the use of such tools on completing assignments in classrooms. A possible expansion of the present study would be through designing research studies highlighting this confusion for language policy makers, curriculum designers and instructors. In light of such exploration and in an attempt to foster certainty, all camps should obtain a clear picture of whether and to what degree such tools can and should be employed in classrooms.

Besides contributing to ESL education, I hoped that the results of this study would inform translation education. Primarily, it was hoped that in light of the results, differences that could exist in the use of cohesion markers between the source language (SL) and target language (TL) would emerge. Had this information been obtained, I would have been able to use the results to cast light on how such differences that exist between languages can impact cohesion and coherence subsequently. Given that the collected information is not sufficient, future studies are needed to cast light on this matter. While this hope was not fulfilled, other themes emerged that can contribute to translation education. First and foremost, the findings of this study complemented the scholarship on the importance of the explicit teaching of coherence and cohesion in educational contexts. This observation highlights the fact that the explicit teaching of

these two academic facets, coherence and cohesion, can be a benefit to translation students as well, as they construct target texts that should demonstrate developed levels of coherence and cohesion. Moreover, despite the controversy regarding the use of tools, the interview and survey data confirmed that students rely on FOMT resources. This could be a message for translation education as well; as much as instructors may perceive such tools skeptically due to their classroom observations, students may possess a diverse opinion. This invites for some reconciliations in considering the tools for educational purposes in translation classrooms.

4.4. Limitations

The size of the sample can be considered as a primary limitation of this study. The sample consisted of only 23 ESL instructors and 6 students. Scholars (e.g. Creswell, 1994; Creswell & Clark, 2017; Dörnyei, 2007; Hackshaw, 2008) believe that interpretations of research findings from a sample this size cannot be generalized to a larger population. Furthermore, convenience sampling (selecting participants based on their availability) was used. Admittedly, according to scholars (e.g. Creswell, 1994; Creswell & Clark, 2017; Dörnyei, 2007; O'Brien & Saldanha, 2014), this sampling method constrains the extent to which the research findings can be generalized.

While relevant approaches and studies have informed the design of this project from different angles (see Chapter 1: Literature review), another limitation of this study is that it does not mention any single theoretical framework(s) that would capture all the study components comprehensively. It does not do so due to the interdisciplinary nature of this study.

Naturally, there are also some limitations to the findings and generalizability of this study. First and foremost, the participants answered the survey and interview questions based on their personal experiences of using FOMT in L2 compositions (see, for example, section 3.4.8. Semi-structured instructor interviews and comparing the results). Other L2 learners may possess different opinions and perceptions about the use of tools. Moreover, while some participants employed the translation resources in their summary writing, based on what they shared via interviews, they did not necessarily demonstrate their natural behaviour in using the tools (e.g. 3.4.7. Semi-structured student interviews). They mentioned due to their previous classroom experience, they were under the impression that they were not allowed to do so, despite my confirmation.

Furthermore, research has shown that learners may not feel confident in their learning process in an online mode of delivery (Atmojo & Nugroho, 2020; Hashemi, 2021; Sepulveda-Escobar & Morrison, 2020; Siddiquei & Kathpal, 2021). While this project, in part, provided the students with online synchronous mode of teaching, a partial requirement for students was to review and practice the teaching materials independently. Informed by the literature, it is plausible that this independent learning may have impacted the participants negatively, as they may have felt isolated in their learning process and therefore, not necessarily motivated to review the materials with careful attention. In addition, in an online synchronous teaching platform, as

addressed by previous research (e.g. Halim & Hashim, 2019 as cited in Lukas & Yunus, 2021; Hassan & Hussain, 2020) technical glitches are inevitable. As stated earlier, the desirable plan was to ask three participants to watch Video 1 as the source for writing the first summary and three participants to watch Video 2 as their source for writing the first summary. However, the intended plan was not accomplished due to technical glitches. Had this issue not occurred, we would have been able to reduce the impact of one possible contributor to differences between the cohesion and coherence scores, the different video content.

Moreover, in this thesis we discussed the use of FOMT as a potential means/vehicle of transferring “good habits” from L1(French) to L2 (English). French and English are two relatively closely related languages for which MT works well. However, it would be difficult to generalize the findings here to other language pairs, because many issues might be encountered in the MT output.

In addition, a limitation that should be outlined is regarding the assessment of the collected samples by the three judges. They selected some examples from the students’ texts based on their own ESL teaching experiences and observations. While they have been teaching ESL courses for several years, there are several factors that may have affected their judgment. For instance, Carrell (1995) refers to how the holistic evaluation of writing can be impacted by raters’ personality. Carrell (1995, p. 188) mentions that raters may possess their own “biases” and “tendencies” in the assessment of the students’ writing tasks. To ensure consistency in the grading, inter-rater reliability was verified. However, in selecting the excerpts and choosing the examples, this limitation could remain.

To observe tool use, this study used as-authentic-as-possible situations (two sets of supervised screen recordings from a small sample). The small sample and variability of the relatively authentic task means that the data is somewhat limited and difficult to predict and compare. Had specific tasks that were more tightly controlled been set (e.g. adding supervised structured follow up practice and/or obtaining a third set of writing samples three-four weeks after the second set was collected in order to evaluate whether they could recall the instructions), they would have made it possible to focus more on specific things, while, of course, the results would be less authentic.

Despite these limitations, the data obtained from this study will be valuable, since it will emerge from a group in an authentic environment and since careful attention is paid to the

demographic profile of participants to ensure that the interpretation of the data is nuanced and sound. As Dörnyei (2007, p. 99) suggests, this careful approach to interpreting data will ensure that the small and limited nature of this sample will not lead to claims that over-generalize the findings. Moreover, the very detailed multi-methods approach that this study employed provides a thorough, holistic and very detailed portrait of the activities, which is not feasible with a much larger group of participants.

4.5. Conclusion

Complementing previous research that cast light on the importance of coherence and cohesion in academic writing and translation, this research aimed to achieve a better understanding of ESL students' L2 coherence and cohesion challenges in academic writing and the writing behaviours such as how the use of technologies (e.g. FOMT tools) influence these challenges. Taking the findings of this study into account, we make some recommendations for overcoming such challenges and improving their skills.

Based upon the first research question, a number of hypotheses were considered. First, it was hypothesized that students may encounter challenges in producing coherent and cohesive summaries. Based on the analysis of the collected texts, we observed coherence and cohesion challenges to varying degrees. In their interviews, some students reported that their knowledge about coherence and cohesion was restricted and that they had not received (adequate or explicit) instruction about these two dimensions of writing even in their L1. Therefore, when writing in L2, they were not able to resort to their L1 coherence and cohesion repertoire as an assistive source to write in L2.

Furthermore, relevant to the second research question, a few hypotheses were listed. It was assumed that ESL students commonly translate by writing in their L1 and translating—especially by resorting to FOMT—into their L2. Based on the results of the screen recordings and student surveys and interviews, all but one of the students resorted to translation, and in particular, FOMT, during their L2 writing process. The results of the instructor and student surveys also confirmed the assumption that students utilize FOMT for general ESL purposes. Once again, this study was small in scope, but its findings largely echo those of earlier scholarship. Another hypothesis was that ESL students might not demonstrate editing skills to construct coherent and cohesive texts, in particular, when they employ FOMT in producing their drafts in English. Upon analyzing the students' screen recordings, this hypothesis was partially confirmed. The results showed that while we observe more efforts in editing the post-instruction texts compared to editing the texts in the pre-instruction stage, students tended to submit their texts with minimal editing. In particular, when they employed FOMT, they tended to utilize the FOMT-generated passages with no editing.

As well, it was hypothesized that for some ESL students, composing in their L1 and then translating into their L2 could result in more coherent, more developed, and better organized

texts than composing directly in their L2. Based on the analysis of the first sample of texts and screen recordings, the students who resorted to translation to produce their L2 drafts, or employed FOMT in the writing process at higher frequencies, did not receive significantly higher scores on coherence and cohesion. However, we should not forget that they reported in their interviews that they were “confused” and were not able to demonstrate their natural L2 writing behaviour. Therefore, while we keep in mind that their natural behaviour may have been influenced by the factors we explored before, the initial hypothesis seems not to be confirmed.

The third research question had also given rise to several other hypotheses. For instance, informed by the previously designed scholarly studies, we expected that the teaching of coherence and cohesion would result in more coherent and cohesive texts. The scores assigned to the second sample were higher than those of the first sample, demonstrating improvements in the cohesion and coherence levels of the produced texts. The interviews with the students also revealed that they benefited from the instructions, in particular, given that they had limited knowledge about these two academic concepts.

Corresponding to the second part of the third research question, it was further hypothesized that for some ESL students, composing in their L1 and then translating into their L2 could remain as a preferred option even after instruction, and result subsequently in more coherent, more developed, and better organized texts than composing directly in their L2. The analysis of the second set of screen recordings showed that, overall, students resorted to FOMT for producing their texts at higher frequencies compared to their behaviour in writing the first set of texts. As mentioned earlier, for Casey in particular, organizing the ideas and drafting them in L1 originally and then using FOMT to produce the L2 draft was a “preferred” strategy as shared in their interview. Jean and Riley also highlighted this strategy as being helpful in the writing of their ESL texts. Triangulating the results of student surveys and interviews and screen recordings, overall, we can confirm that the students in this project demonstrated a tendency to use FOMT, as an aid in their ESL writing process. Finally, it was assumed that ESL students might demonstrate more developed levels of editing skills after instruction. Based on the second set of screen recordings, students who used FOMT demonstrated improved levels of editing skill and in some instances (Jean, for instance) compared different sources to conclude their choice of translated item critically. This could also suggest they demonstrated their language awareness

but also their critical thinking skills which indicates to a positive change in behaviour compared to their behaviour before the instruction.

Moving forward, in light of the literature and findings of this study, we recommended that these two challenging features of academic writing, coherence and cohesion, receive more attention in educational contexts. For instance, in designing the instructional materials for ESL writing courses, a separate section on coherence and cohesion should be added to the instructional package and include practical tasks. Of course, the teaching and design of such activities can be adapted to the learners' proficiency level and needs: the higher the level, the more advanced the teaching and learning components can be. In addition, a checklist of elements pertaining to coherence and cohesion criteria can be attached to the assignment descriptions and instructions. These elements should be explicitly outlined in the grading rubrics as well. By the virtue of these additions, learners will gain a clearer understanding of how to meet the assignment expectations. The same recommendation can be applicable to translation courses where students should perform a translation activity and submit their assignments for assessment. We were informed by the literature that the importance of coherence and cohesion—among many other factors—is constantly highlighted in evaluating translated texts. Based on Angelelli's (2009) functionalist approach, among the four main competencies in assessing the quality of a translation, textual competence embedding cohesive competence and rhetorical organization competence are relevant to the findings of this project. This calls for teaching about coherence and cohesion and including activities that assess students' performance on these challenging facets to assist students with evaluating the quality of their translation from a textual competence perspective. Upon the focus on the explicit teaching of these two academic facets in educational settings, we ensure that the scholars' emphasis on establishing "a sense of direction" in a text is reinforced.

The video data in this study showed the assistive role of manual translation during the writing process (cf. Table 33). This suggests reconsidering the use of translation in language teaching. In the wake of the recent scholarship (cf. section 1.11. Translation and L2 writing), we have observed constructive approaches recommending the use of translation activities in L2 classrooms. They have emphasized that L2 curricula should be flexible and be developed based on the needs of the learners. If we rethink this recommendation, we will be able to construct

creative activities that involve translation in the L2 learning and writing process based upon the needs analysis of the learners and their L2 competency level.

In the very beginning of this thesis, we mentioned that “the persistence of ESL students in using FOMT has led some scholars to hypothesize that it may be helpful to develop effective strategies that transform FOMT into a teaching/learning tool in the ESL classroom”. Now that the results of this study have reminded us again about students’ use of FOMT tools (Table 33 and Table 62), we need to rethink the existing policies pertaining to the use of tools in both ESL and translation education contexts. In ESL contexts, the integration of FOMT/MT will assist both educators and learners in experiencing a more constructive learning environment by knowing how FOMT can be of help, learning how to work with these tools as an aid in the learning/writing process, identifying where to integrate instructional materials that are inspired by the use of tools and clarifying the purposes for such integrations and activities. Upon this integration, learners and educators would also benefit from improving their information about how to work with such tools which leads to acquiring and enhancing their technological competence. Rethinking the use of MT/FOMT, in light of the literature and the findings cannot be limited to ESL classrooms. We also learned that scholars shared concerns and interests about this integration in translation education. While this study did not focus on translation activities in a translation education context, the observations may imply that translation trainees would also benefit from this reconciliation. Given that translation industry benefits from the use of technology, more work with MT/FOMT in translation classrooms can help to enhance technological competence. In addition, as described above, Angelelli (2009) highlighted the importance of cohesion competence among other factors in assessing the quality of translation. MT output can assist in expanding translation students’ lexical, and particularly, their CD repertoire. The use of MT will allow the students to search for CD equivalence in the TL that could assist them in creating target texts that are not solely based upon repetitive CD types under each category.

References

- Ahmad, M., Mahmood, M. A., & Siddique, A. R. (2019). Organisational skills in academic writing: A study on coherence and cohesion in Pakistani research abstracts. *Languages*, 4(4), 92.
- Ahmad, Z. (2019). Differences between Students' Linguistic Knowledge and Text Production Ability: A Case of the Use of Cohesion as a Resource of Texture in Academic Writing. *Online Submission*, 9(2), 55-63.
- Akbari Motlaq, M. D., & Sepora Tengku Mahadi, T. (2020). Advantages and disadvantages of using machine translation in translation pedagogy from the perspective of instructors and learners. *Akbari Motlaq, MD, & Tengku Mahadi, TS (2020). Advantages and disadvantages of using machine translation in translation pedagogy from the perspective of instructors and learners. Humanities & Social Sciences Reviews*, 8(4), 121-137.
- Alarcon, J. B., & Morales, K. N. S. (2011). Grammatical cohesion in students argumentative essay. *International Journal of English and Literature*, 2(5), 114-127.
- Allen, J. (2003). Post-editing. *Benjamins Translation Library*, 35, 297-318.
- Al-Qinai, J. (2000). Translation quality assessment. Strategies, parametres and procedures. *Meta: journal des traducteurs/Meta: Translators' Journal*, 45(3), 497-519.
- Althaus, E., Karamanis, N., & Koller, A. (2004). *Computing locally coherent discourses*. Paper presented at the Proceedings of the 42nd Annual Meeting on Association for Computational Linguistics.
- Anderson, D. D. (1995). Machine translation as a tool in second language learning. *CALICO journal*, 68-97.
- Andrews, R. (1995). *About argument: Teaching and learning argument*. Continuum International Publishing Group Ltd.
- Angelelli, C. V. (2009). Using a rubric to assess translation ability. *Testing and assessment in translation and interpreting studies: A call for dialogue between research and practice*, 14, 13.
- Arnold, D. (2003). Why translation is difficult for computers. *Computers and Translation: A translator's guide*, Amsterdam and Philadelphia: John Benjamins, 119-142.
- Ata, M., & Debreli, E. (2021). Machine Translation in the Language Classroom: Turkish EFL Learners' and Instructors' Perceptions and Use. *IAFOR Journal of Education*, 9(4), 103-122.
- Atmojo, A. E. P., & Nugroho, A. (2020). EFL classes must go online! Teaching activities and challenges during COVID-19 pandemic in Indonesia. *Register Journal*, 13(1), 49-76.
- Baker, C. (2011). *Foundations of bilingual education and bilingualism* (Vol. 79): Multilingual matters.
- Baker, M. (2018). *In other words: A coursebook on translation*: Routledge.
- Baker, M., & Saldanha, G. (Eds.). (2009). *Routledge Encyclopedia of Translation Studies*. Routledge.
- Bardovi-Harlig, K., & Sprouse, R. A. (2018). Negative versus positive transfer. *The TESOL Encyclopedia of English language teaching*, 1-6.
- Barzilay, R., & Lapata, M. (2008). Modeling local coherence: An entity-based approach. *Computational Linguistics*, 34(1), 1-34.
- Bawden, R. (2018). *Going beyond the sentence: Contextual Machine Translation of Dialogue* (Doctoral dissertation, Université Paris-Saclay).

- Bawden, R., Sennrich, R., Birch, A., & Haddow, B. (2017). Evaluating discourse phenomena in neural machine translation. *arXiv preprint arXiv:1711.00513*.
- Bazerman, C. (1989). Introduction: Rhetoricians on the rhetoric of science.
- Bentivogli, L., Bisazza, A., Cettolo, M., & Federico, M. (2016). Neural versus phrase-based machine translation quality: a case study. *arXiv preprint arXiv:1608.04631*.
- Berman, A. (2000). Translation and the Trials of the Foreign. *The translation studies reader, 2004*.
- Biber, D., & Gray, B. (2010). Challenging stereotypes about academic writing: Complexity, elaboration, explicitness. *Journal of English for Academic Purposes, 9*(1), 2-20.
- Biggs, J., & Tang, C. (2007). Teaching for quality learning at university: McGraw-Hill Education.
- Biggs, J., & Tang, C. (2010, February). Applying constructive alignment to outcomes-based teaching and learning. In *Training material for "quality teaching for learning in higher education" workshop for master trainers, Ministry of Higher Education, Kuala Lumpur* (Vol. 53, No. 9, pp. 23-25).
- Biggs, J., & Tang, C. (2015). Constructive alignment: An outcomes-based approach to teaching anatomy. In *Teaching anatomy* (pp. 31-38). Springer, Cham.
- Bowker, L., & Ciro, J. B. (2015). Investigating the usefulness of machine translation for newcomers at the public library. *Translation and Interpreting Studies. The Journal of the American Translation and Interpreting Studies Association, 10*(2), 165-186.
- Bowker, L., & Ciro, J. B. (2019). *Machine translation and global research: Towards improved machine translation literacy in the scholarly community*. Emerald Group Publishing.
- Brooks-Lewis, K. A. (2009). Adult learners' perceptions of the incorporation of their L1 in foreign language teaching and learning. *Applied linguistics, 30*(2), 216-235.
- Brown, H. D., & Lee, H. (1994). *Teaching by principles: An interactive approach to language pedagogy* (Vol. 1): Prentice Hall Regents Englewood Cliffs, NJ.
- Brunette, L. (2000). Towards a terminology for translation quality assessment: A comparison of TQA practices. *The Translator, 6*(2), 169-182.
- Byram, M., & Hu, A. (2013). *Routledge encyclopedia of language teaching and learning*: Routledge.
- Campbell, G. (1823). *The philosophy of rhetoric*. Printed for William Baynes & Son.
- Campbell, K. (1995). Coherence, Continuity, and Cohesion. New York: Routledge, <https://doi-org.proxy.bib.uottawa.ca/10.4324/9780203811931>
- Canagarajah, A. S. (2002). *A geopolitics of academic writing*: University of Pittsburgh Press.
- Candelo, J. E., Soto, J. D., Torres, L., Schettini, N., Calle, M., Garcia, L., & de Castro, A. (2018, April). Coherence and cohesion issues in argumentation documents written by engineering students. In *2018 IEEE Global Engineering Education Conference (EDUCON)* (pp. 156-160). IEEE.
- Carr, K. S. (1988). How can we teach critical thinking?. *Childhood education, 65*(2), 69-73.
- Carrell, P. L. (1995). The effect of writers' personalities and raters' personalities on the holistic evaluation of writing. *Assessing Writing, 2*(2), 153-190.
- Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*: Sage.

- Chatterjee, R., Negri, M., Turchi, M., Federico, M., Specia, L., & Blain, F. (2017, September). Guiding neural machine translation decoding with external knowledge. In *Proceedings of the Second Conference on Machine Translation* (pp. 157-168).
- Chon, Y. V., & Shin, D. (2020). Direct writing, translated writing, and machine-translated writing: A text level analysis with Coh-Metrix. *English Teaching*, 75(1), 25–48
- Chon, Y. V., Shin, D., & Kim, G. E. (2021). Comparing L2 learners' writing against parallel machine-translated texts: Raters' assessment, linguistic complexity and errors. *System*, 96, 1–12. <https://doi.org/10.1016/j.system.2020.102408>
- Chung, E. S., & Ahn, S. (2021). The effect of using machine translation on linguistic features in L2 writing across proficiency levels and text genres. *Computer Assisted Language Learning*, 1-26.
- Chung, S. C., Chen, X., & Geva, E. (2019). Deconstructing and reconstructing cross-language transfer in bilingual reading development: An interactive framework. *Journal of Neurolinguistics*, 50, 149-161.
- Church, K. W., & Hovy, E. H. (1993). Good applications for crummy machine translation. *Machine Translation*, 8(4), 239-258.
- Clifford, J., Merschel, L., & Munné, J. (2013). Surveying the Landscape: What is the Role of Machine Translation in Language Learning? @ tic. revista d'innovació educativa(10).
- Cohen, A. D., & Brooks-Carson, A. (2001). Research on direct versus translated writing: Students' strategies and their results. *Modern Language Journal*, 85(2), 169–188. <https://doi.org/10.1111/0026-7902.00103>
- Colina, S. (2002). Second language acquisition, language teaching and translation studies. *The Translator*, 8(1), 1-24.
- Colina, S. (2003). *Translation teaching, from research to the classroom: A handbook for teachers*. McGraw-Hill.
- Colina, S. (2008). Translation quality evaluation: Empirical evidence for a functionalist approach. *The translator*, 14(1), 97-134.
- Colina, S. (2009). Further evidence for a functionalist approach to translation quality evaluation. *Target. International Journal of Translation Studies*, 21(2), 235-264.
- Connor, U. (1984). A study of cohesion and coherence in English as a second language students' writing. *Research on Language & Social Interaction*, 17(3), 301-316.
- Connor, U. (2003). Changing currents in contrastive rhetoric: Implications for teaching and research. *Exploring the dynamics of second language writing*, 218-241.
- Connor, U. (2004). Intercultural rhetoric research: Beyond texts. *Journal of English for Academic Purposes*, 3(4), 291-304.
- Connor, U. (2008). Mapping multidimensional aspects of research. *Contrastive rhetoric: Reaching to intercultural rhetoric*, 299-315.
- Connor, U. (2011). *Intercultural rhetoric in the writing classroom*: University of Michigan Press.
- Connor, U., & Connor, U. M. (1996). *Contrastive rhetoric: Cross-cultural aspects of second language writing*: Cambridge University Press.
- Cook, G. (2010). *Translation in language teaching: An argument for reassessment*: Oxford University Press.
- Corbett, E., & Connors, R. (1999). *Classical rhetoric for the modern student*. New York: Oxford University Press
- Cress, U., & Hesse, F. W. J. T. i. h. o. c. l. (2013). Quantitative methods for studying small groups. 93-111.

- Creswell, J. W. (1994). Research design: Qualitative, quantitative, and mixed methods approaches.
- Creswell, J. W., & Clark, V. L. P. (2017). *Designing and conducting mixed methods research*: Sage publications.
- Crossley, S. A., Kyle, K., & McNamara, D. S. (2016). The development and use of cohesive devices in L2 writing and their relations to judgments of essay quality. *Journal of second language writing*, 32, 1-16.
- Crossley, S. A., & McNamara, D. S. (2010, January). Cohesion, coherence, and expert evaluations of writing proficiency. In *Proceedings of the Annual Meeting of the Cognitive Science Society* (Vol. 32, No. 32).
- Crossley, S. A., & McNamara, D. S. (2016). Say More and Be More Coherent: How Text Elaboration and Cohesion Can Increase Writing Quality. *Grantee Submission*, 7(3), 351-370.
- Crossley, S. A., Roscoe, R., & McNamara, D. S. (2014). What is successful writing? An investigation into the multiple ways writers can write successful essays. *Written Communication*, 31(2), 184-214.
- Cummins, J. (1981). Four misconceptions about language proficiency in bilingual education. *Nabe Journal*, 5(3), 31-45.
- Cummins, J. (2008). Teaching for transfer: Challenging the two solitudes assumption in bilingual education *Encyclopedia of language and education* (pp. 1528-1538): Springer.
- Dastjerdi, H. V., & Samian, S. H. (2011). Quality of Iranian EFL learners' argumentative essays: Cohesive devices in focus. *Mediterranean Journal of Social Sciences*, 2(2), 65-76.
- Delisle, J., Lee-Jahnke, H., & Cormier, M. C. (Eds.). (1999). *Terminologie de la Traduction: Translation Terminology. Terminología de la Traducción. Terminologie der Übersetzung* (Vol. 1). John Benjamins Publishing.
- Dong, Y. R. (1997). Supervising international students requires cultural sensitivity. *The scientist* 11, 9, 10. September 29.
- Dörnyei, Z. (2005). *The psychology of the language learner: Individual differences in second language acquisition*. Mahwah, NJ: Lawrence Erlbaum.
- Dörnyei, Z. (2007). *Research methods in applied linguistics: Quantitative, qualitative, and mixed methodologies*: Oxford University Press.
- Dörnyei, Z. (2020). *Innovations and Challenges in Language Learning Motivation*. Routledge.
- Dörnyei, Z. & Ryan, S. (2015). *The psychology of the language learner revisited*. Routledge.
- Dumlao, R. P., & Wilang, J. D. (2019). Variations in the use of discourse markers by L1 and L2 English users. *Indonesian Journal of Applied Linguistics*, 9(1), 202-209.
- Eggins, S. (2004). *Introduction to systemic functional linguistics*. A&C Black.
- Emilia, E., Habibi, N., & Bangga, L. A. (2018). An analysis of cohesion of exposition texts: An Indonesian context. *Indonesian Journal of Applied Linguistics*, 7(3), 515-523.
- Faigley, L., & Meyer, P. (1983). Rhetorical theory and readers' classifications of text types. *Text-Interdisciplinary Journal for the Study of Discourse*, 3(4), 305-326.
- Faradhibah, R. N. (2017). *Analyzing Students Difficulties in Maintaining their Coherence and Cohesion in Writing Process* (Doctoral dissertation, Universitas Islam Negeri Alauddin Makassar).
- Farzi, R. (2016). *Taming translation technology for L2 writing: Documenting the use of free online translation tools by ESL students in a writing course* (Doctoral dissertation, Université d'Ottawa/University of Ottawa).

- Freeman, R. (2009). What is "translation"? *Evidence & policy: a journal of research, debate and practice*, 5(4), 429-447.
- Foltz, P. W., Kintsch, W., & Landauer, T. K. (1998). The measurement of textual coherence with latent semantic analysis. *Discourse processes*, 25(2-3), 285-307.
- Fomicheva, M., Sun, S., Yankovskaya, L., Blain, F., Guzmán, F., Fishel, M., Aletras, N., Chaudhary, V., & Specia, L. (2020). Unsupervised quality estimation for neural machine translation. *Transactions of the Association for Computational Linguistics*, 8, 539-555.
- Gánem-Gutiérrez, G. A., & Gilmore, A. (2021). A mixed methods case study on the use and impact of web-based lexicographic tools on L2 writing. *Computer Assisted Language Learning*, 1-27.
- Garcia, I., (2011). Translating by post-editing: is it the way forward? *Machine Translation*, 25(3), 217.
- Garcia, I., & Pena, M. I. (2011). Machine translation-assisted language learning: writing for beginners. *Computer Assisted Language Learning*, 24(5), 471-487.
- Garcia, O. (2011). *Bilingual education in the 21st century: A global perspective*: John Wiley & Sons.
- Garcia, O., Johnson, S. I., Seltzer, K., & Valdés, G. (2017). *The translanguaging classroom: Leveraging student bilingualism for learning*: Caslon Philadelphia, PA.
- Garcia, O., & Wei, L. (2014). Translanguaging and education *Translanguaging: Language, bilingualism and education* (pp. 63-77): Springer.
- Gentil, G. (2005). Commitments to academic biliteracy: Case studies of francophone university writers. *Written Communication*, 22(4), 421-471.
- Gentil, G. (2006). EAP and Technical Writing without borders: The impact of departmentalization on the teaching and learning of academic writing in a first and second language. *The politics of second language writing: In search of the promised land*, 147-167.
- Gentil, G. (2018). Multilingualism as a Writing Resource. *The TESOL Encyclopedia of English Language Teaching*, 1-7.
- Gkonou, C. (2013). A diary study on the causes of English language classroom anxiety. *International Journal of English Studies*, 13(1), 51-68.
- Gkonou, C. (2015). Agency, anxiety and activity: Understanding the classroom behaviour of EFL learners. P. Deters, X.(A.) Gao, ER Miller, & G. Vitanova (Eds.), *Theorizing and analyzing agency in second language learning: Interdisciplinary approaches*, 195-212.
- Golparvar, S. E., & Khafi, A. (2021). The role of L2 writing self-efficacy in integrated writing strategy use and performance. *Assessing Writing*, 47, 100504.
- Göpferich, S. (2017). Cognitive functions of translation in L2 writing. In J. W. Schwieter & A. Ferreira (Eds.), *The Handbook of Translation and Cognition* (pp. 402-422). Wiley Blackwell. <https://doi.org/10.1002/9781119241485.ch22>
- Gosden, H. (1996). Verbal reports of Japanese novices' research writing practices in English. *Journal of second language writing*, 5(2), 109-128.
- Granger, S., & Tyson, S. (1996). Connector usage in the English essay writing of native and non-native EFL speakers of English. *World Englishes*, 15(1), 17-27.
- Guzmán, F., Joty, S., Márquez, L., & Nakov, P. (2014, June). Using discourse structure improves machine translation evaluation. In *Proceedings of the 52nd Annual Meeting of the Association for Computational Linguistics (Volume 1: Long Papers)* (pp. 687-698).
- Hackshaw, A. (2008). Small studies: strengths and limitations: Eur Respiratory Soc.

- Hall, G., & Cook, G. (2012). Own-language use in language teaching and learning. *Language teaching*, 45(3), 271-308.
- Hall, G., & Cook, G. (2014). Own language use in ELT: exploring global practices and attitudes. *Language Issues: The ESOL Journal*, 25(1), 35-43.
- Halliday, M. A. (1970). Functional diversity in language as seen from a consideration of modality and mood in English. *Foundations of language*, 322-361.
- Halliday, M., & Hasan, R. (1976). Cohesion in. *English*, Longman, London.
- Halliday, M., & Matthiessen, C. (2004). An Introduction to Functional Grammar. London: Routledge
- Hassan, M. M., Mirza, T., & Hussain, M. W. (2020). A critical review by teachers on the online teaching-learning during the COVID-19. *International Journal of Education and Management Engineering*, 10(8), 17-27.
- Hashemi, A. (2021). Online teaching experiences in higher education institutions of Afghanistan during the COVID-19 outbreak: Challenges and opportunities. *Cogent Arts & Humanities*, 8(1), 1947008.
- Hatim, B. A. (2014). *Teaching and researching translation*: Routledge.
- Hatim, B., & Mason, I. (2005). *The translator as communicator*: Routledge.
- Hatim, B., & Mason, I. (2013). *Discourse and the Translator*: Routledge.
- Hermet, M., & Désilets, A. (2009). *Using first and second language models to correct preposition errors in second language authoring*. Paper presented at the Proceedings of the Fourth Workshop on Innovative Use of NLP for Building Educational Applications.
- Higgins, C., & Walker, R. (2012, September). Ethos, logos, pathos: Strategies of persuasion in social/environmental reports. In *Accounting Forum* (Vol. 36, No. 3, pp. 194-208). Elsevier.
- Hinkel, E. (2001). Matters of cohesion in L2 academic texts. *Applied language learning*, 12(2), 111-132.
- House, J. (1986). Acquiring translational competence in interaction. *Interlingual and Intercultural Communication: Discourse and Cognition in Translation and Second Language Acquisition Studies*, Tübingen: Narr, 179-191.
- House, J. (2015). Translation quality assessment: Past and present *Translation: A multidisciplinary approach* (pp. 241-264): Springer.
- Hu, K., & Cadwell, P. (2016). A comparative study of post-editing guidelines. In *Proceedings of the 19th Annual Conference of the European Association for Machine Translation* (pp. 34206-353).
- Hubbard, R. S., & Power, B. M. (1993). *The art of classroom inquiry*: Portsmouth, NH: Heinemann.
- Hunston, S. (2002). *Corpora in applied linguistics*. Ernst Klett Sprachen.
- Hutchins, J. (2003). The development and use of machine translation systems and computer-based translation tools. *International journal of translation*, 15(1), 5-26.
- Hutchins, J. (2005). Current commercial machine translation systems and computer-based translation tools: system types and their uses. *International Journal of Translation*, 17(1-2), 5-38.
- Hutchins, J. (2007). Machine translation: A concise history. *Computer aided translation: Theory and practice*, 13, 29-70.
- Hyland, K. (1998). Exploring corporate rhetoric: Metadiscourse in the CEO's letter. *The Journal of Business Communication* (1973), 35(2), 224-244.

- Hyland, K. (2003). *Second language writing*: Ernst Klett Sprachen.
- Hyland, K. (2004). *Disciplinary discourses, Michigan classics ed.: Social interactions in academic writing*: University of Michigan Press.
- Hyland, K. (2007a). English for specific purposes *International handbook of English language teaching* (pp. 391-402): Springer.
- Hyland, K. (2007b). Genre pedagogy: Language, literacy and L2 writing instruction. *Journal of second language writing*, 16(3), 148-164.
- Hyland, K. (2011). Academic discourse. In Hyland, K. & Paltridge, B. (eds.) *Continuum Companion to Discourse Analysis*. London: Continuum. pp 171-184.
- Ismail Omar, L. (2021). The use and abuse of machine translation in vocabulary acquisition among L2 Arabic-Speaking Learners. *AWEJ for Translation & Literary Studies*, 5(1).
- Jafarpur, A. (1991). Cohesiveness as a basis for evaluating compositions. *System*, 19(4), 459-465.
- Jakobson, R. (1959). On linguistic aspects of translation. *On translation*, 3, 30-39.
- Jeong, H. J. T. i. h. o. c. l. (2013). Verbal data analysis for understanding interactions. 168-183.
- Jin, L., & Deifell, E. (2013). Foreign language learners' use and perception of online dictionaries: A survey study. *Journal of Online Learning and Teaching*, 9(4), 515.
- Jing, M. (2001). The Relationships Among Theme and Rheme, Cohesion, and Coherence of English Writing [J]. *Foreign Language Education*, 5, 009.
- Johns, A. M. (1986). Coherence and academic writing: Some definitions and suggestions for teaching. *TESOL quarterly*, 20(2), 247-265.
- Johns, A., & Paz, D. (2004). Text analysis and pedagogical summaries: Revisiting Johns and Davies. *Functional Approaches to Written Text. TESOL France Journals*.
- Jolley, J. R., & Maimone, L. (2015). Free online machine translation: use and perceptions by Spanish students and instructors. *Learn Language, Explore Cultures, TransformLives*, 2017.
- Jolley, J. R., & Maimone, L. (2022). Thirty Years of Machine Translation in Language Teaching and Learning: A Review of the Literature. *L2 Journal*, 14(1).
- Joty, S., Guzmán, F., Márquez, L., & Nakov, P. (2017). Discourse structure in machine translation evaluation. *Computational Linguistics*, 43(4), 683-722.
- Kaplan, R. B. (1966). Cultural thought patterns in inter-cultural education. *Language learning*, 16(1-2), 1-20.
- Kaplan, R. B. (2005). Contrastive rhetoric. *Handbook of research in second language teaching and learning*, 375-391.
- Karaca, M., & Inan, S. (2020). A measure of possible sources of demotivation in L2 writing: A scale development and validation study. *Assessing Writing*, 43, 100438.
- Karamanis, N. (2004). Entity coherence for descriptive text structuring.
- Károly, A. (2014). Translation in foreign language teaching: A case study from a functional perspective. *Linguistics and Education*, 25, 90-107.
- Károly, K. (2017). *Aspects of cohesion and coherence in translation: The case of Hungarian-English news translation* (Vol. 134). John Benjamins Publishing Company.
- Kelly, N., & Bruen, J. (2015). Translation as a pedagogical tool in the foreign language classroom: A qualitative study of attitudes and behaviours. *Language Teaching Research*, 19(2), 150-168.
- Kennedy, G. (2014). *An introduction to corpus linguistics*. Routledge.

- Kenny, D., & Doherty, S. (2014). Statistical machine translation in the translation curriculum: overcoming obstacles and empowering translators. *The Interpreter and translator trainer*, 8(2), 276-294.
- Kerr, P. (2014). *Translation and own-language activities*. Cambridge University Press.
- Khuder, B., & Harwood, N. (2019). L2 writing task representation in test-like and non-test-like situations. *Written Communication*, 36(4), 578-632.
- Kliffer, M. (2005). *An experiment in MT post-editing by a class of intermediate/advanced French majors*. Paper presented at the Proceedings EAMT 10th Annual Conference.
- Kobayashi, H., & Rinnert, C. (1992). Effects of first language on second language writing: Translation versus direct composition. *Language learning*, 42(2), 183-209.
- Koehn, P. (2009). *Statistical machine translation*. Cambridge University Press.
- Koehn, P. (2017). Neural machine translation. *arXiv preprint arXiv:1709.07809*.
- Koehn, P., & Knowles, R. (2017). Six challenges for neural machine translation. *arXiv preprint arXiv:1706.03872*.
- Koo, T. K., & Li, M. Y. (2016). A guideline of selecting and reporting intraclass correlation coefficients for reliability research. *Journal of chiropractic medicine*, 15(2), 155-163.
- Korošec, M. K. (2011). Applicability and challenges of using machine translation in translator training. *ELOPE: English Language Overseas Perspectives and Enquiries*, 8(2), 7-18.
- Krein-Kühle, M. (2002). Cohesion and coherence in technical translation: The Case of demonstrative reference. *Linguistica Antverpiensia, New Series—Themes in Translation Studies*(1).
- Kubota, R., & Lehner, A. (2004). Toward critical contrastive rhetoric. *Journal of second language writing*, 13(1), 7-27.
- Laird Eriksson, N. (2021). Google Translate in English Language Learning: A Study of Teachers' Beliefs and Practices (Master's thesis, Dalarna University, Sweden).
- Lapata, M. (2003). *Probabilistic text structuring: Experiments with sentence ordering*. Paper presented at the Proceedings of the 41st Annual Meeting on Association for Computational Linguistics-Volume 1.
- Lautamatti, L. (1982). Coherence in spoken and written discourse. *Nordic Journal of Linguistics*, 5(2), 117-127.
- Lee, I. (2002). Teaching coherence to ESL students: A classroom inquiry. *Journal of second language writing*, 11(2), 135-159.
- Lee, S.M. (2019). The impact of using machine translation on EFL students' writing. *Computer Assisted Language Learning*, 1-19. DOI: 10.1080/09588221.2018.1553186.
- Lee, S. M. (2020). The impact of using machine translation on EFL students' writing. *Computer Assisted Language Learning*, 33(3), 157-175.
- Lee, S. M. (2021). The effectiveness of machine translation in foreign language education: a systematic review and meta-analysis. *Computer Assisted Language Learning*, 1-23.
- Lee, S. M., & Briggs, N. (2021). Effects of using machine translation to mediate the revision process of Korean university students' academic writing. *ReCALL*, 33(1), 18-33.
- Lew, R. (2010). Online dictionaries of English.
- Lewis, D. (1997). Machine translation in a modern languages curriculum. *Computer Assisted Language Learning*, 10(3), 255-271.
- Lewis, G., Jones, B., & Baker, C. (2012). Translanguaging: Origins and development from school to street and beyond. *Educational Research and Evaluation*, 18(7), 641-654.

- Llach, M. d. P. A. (2011). *Lexical errors and accuracy in foreign language writing: Multilingual Matters*.
- Liu, M., & Braine, G. (2005). Cohesive features in argumentative writing produced by Chinese undergraduates. *System*, 33(4), 623-636.
- Lo, S. W. (2016). L1-L2 translation versus L2 writing tasks: An empirical study on non-language major students' improvement in writing proficiency. *Writing & Pedagogy*, 8(3).
- Lukas, B. A., & Yunus, M. M. (2021). ESL Teachers' Challenges in Implementing E-learning during COVID-19. *International Journal of Learning, Teaching and Educational Research*, 20(2), 330-348.
- Lyons, D. A. (n.d). Improving Police Incident Reporting: Raw Data Quality Characteristics and the Review Process.
- Many, J. E. (2001). *Handbook of instructional practices for literacy teacher-educators: Examples and reflections from the teaching lives of literacy scholars*: Routledge.
- Marcu, D. (2000). *The theory and practice of discourse parsing and summarization*: MIT press.
- Marian, V. (2020, December). Language-dependent memory. In *Proceedings of the Twenty First Annual Conference of the Cognitive Science Society* (pp. 355-360). Psychology Press.
- Marian, V., & Fausey, C. M. (2006). Language-dependent memory in bilingual learning. *Applied Cognitive Psychology: The Official Journal of the Society for Applied Research in Memory and Cognition*, 20(8), 1025-1047.
- Marian, V., & Kaushanskaya, M. (2011). Language-dependent memory: Insights from bilingualism: Sabest Saarbrucker Beitrage zur Sprach-und Transl. In *Relations Between Language and Memory: Sabest Saarbrucker Beitrage zur Sprach-und Transl* (pp. 95-120). Peter Lang.
- Marshman, E. (2014). Taking Control: Language Professionals and Their Perception of Control when Using Language Technologies. *Meta: Journal des traducteurs/Meta: Translators' Journal*, 59(2), 380-405.
- Marty, F. (1981). Reflections on the use of computers in second-language acquisition—I. *System*, 9(2), 85-98.
- Maruf, M., & Karpatne, A. (2021). Maximizing cohesion and separation in graph representation learning: A distance-aware negative sampling approach. In *Proceedings of the 2021 SIAM International Conference on Data Mining (SDM)* (pp. 271-279). Society for Industrial and Applied Mathematics.
- Massey, G., & Ehrensberger-Dow, M. (2017). Machine learning: Implications for translator education. *Lebende Sprachen*, 62(2), 300-312.
- Matamoros-González, J. A., Rojas, M. A., Romero, J. P., Vera-Quinonez, S., & Soto, S. T. (2017). English language teaching approaches: A comparison of the grammar-translation, audiolingual, communicative, and natural approaches. *Theory and Practice in Language Studies*, 7(11), 965-973.
- Matthews, P. (2014). *The concise Oxford dictionary of linguistics* (3rd ed.).
- Matsuda, P. K. (1997). Contrastive rhetoric in context: A dynamic model of L2 writing. *Journal of second language writing*, 6(1), 45-60.
- Matsuda, P. K. (1998). Situating ESL writing in a cross-disciplinary context. *Written Communication*, 15(1), 99-121.
- Matsuda, P. K. (2013). A Dynamic Model of L2 Writing. *Landmark Essays on ESL Writing*, 17, 241.

- Maučec, M. S., & Donaj, G. (2019). Machine Translation and the Evaluation of its Quality. *Recent Trends in Computational Intelligence*, 143.
- McCarthy, B. (2004). Does online machine translation spell the end of take-home translation assignments. *CALL-EJ Online*, 6(1), 6-1.
- McNiff, J. (2009). *You and your action research project*: Routledge.
- Medvedev, G. (2016). Google translate in teaching English. *Journal of teaching English for specific and academic purposes*, 4(1), 181-193.
- Meisuo, Z. (2000). Cohesive features in the expository writing of undergraduates in two Chinese universities. *RELC journal*, 31(1), 61-95.
- Mellinger, C. D. (2017). Translators and machine translation: knowledge and skills gaps in translator pedagogy. *The Interpreter and Translator Trainer*, 11(4), 280-293.
- Moorkens, J. (2018). What to expect from Neural Machine Translation: a practical in-class translation evaluation exercise. *The Interpreter and Translator Trainer*, 12(4), 375-387.
- Munday, J. (2013). *Introducing translation studies: Theories and applications*: Routledge.
- Murphy, A. C. (2005). Markers of attribution in English and Italian opinion articles: A comparative corpus-based study. *ICAME journal*, 29(1), 131-150.
- Newmark, P. (1988). *A textbook of translation* (Vol. 66): Prentice hall New York.
- Nida, E. A. (1964). *Toward a science of translating: with special reference to principles and procedures involved in Bible translating*. Brill Archive.
- Niño, A. (2008). Evaluating the use of machine translation post-editing in the foreign language class. *Computer Assisted Language Learning*, 21(1), 29-49.
- Niño, A. (2009). Machine translation in foreign language learning: Language learners' and tutors' perceptions of its advantages and disadvantages. *ReCALL*, 21(2), 241-258.
- Niño, A. (2020). Exploring the use of online machine translation for independent language learning. *Research in Learning Technology*, 28.
- Nord, C. (1997). *Translating as a purposeful activity*. Manchester: St.
- Nord, C. (2014). *Translating as a purposeful activity: Functionalist approaches explained*. Routledge.
- O'Brien, R. (1998). An overview of the methodological approach of action research.
- O'Brien, S. (2012). Translation as human-computer interaction. *Translation Spaces*, 1(1), 101-122.
- O'Brien, S., & Saldanha, G. (2014). *Research methodologies in translation studies*: Routledge.
- Olivares, R. A. (2002). Communication, constructivism and transfer of knowledge in the education of bilingual learners. *International Journal of Bilingual Education and Bilingualism*, 5(1), 4-19.
- Ortiz-Martínez, D., & Casacuberta, F. (2014, April). The new thot toolkit for fully-automatic and interactive statistical machine translation. In *Proceedings of the Demonstrations at the 14th Conference of the European Chapter of the Association for Computational Linguistics* (pp. 45-48).
- Paltridge, B. (1992). EAP placement testing: An integrated approach. *English for Specific Purposes*, 11(3), 243-268.
- Park, C., & Lim, H. (2020). A study on the performance improvement of machine translation using public Korean-English parallel corpus. *Journal of Digital Convergence*, 18(6), 271-277.

- Park, C., Park, K., Moon, H., Eo, S., & Lim, H. (2021). A study on performance improvement considering the balance between corpus in Neural Machine Translation. *Journal of the Korea Convergence Society*, 12(5), 23-29.
- Pearson, J. (1996). Electronic texts and concordances in the translation classroom. *TEANGA: The Irish Yearbook of Applied Linguistics*, 16, 85-95.
- Pinker, S. (2015). *The sense of style: The thinking person's guide to writing in the 21st century*: Penguin Books.
- Plateforme numérique du Profil du diplômé. (2019). Retrieved April 30, 2019, from <https://portail.collegelacite.ca/group/portail-employe/intro-plateforme-numerique>
- Polio, C. (1995). Thinking in a Foreign Language: An Investigation into Essay Writing and Translation by L2 Learners (Vol. 17, pp. 534-535).
- Popescu-Belis, A. (2019). Context in Neural Machine Translation: A Review of Models and Evaluations. *arXiv preprint arXiv:1901.09115*.
- Priya, T. A., & Jayasridevi, B. (2018). Integrating Translation in Classroom: Facilitating Language Skills. *Rupkatha Journal on Interdisciplinary Studies in Humanities*, 10(1), 118-127.
- Pym, A., & Ayvazyan, N. (2016). Linguistics, translation and interpreting in foreign-language teaching contexts.
- Rahimi, M. (2011). Discourse markers in argumentative and expository writing of Iranian EFL learners. *World Journal of English Language*, 1(2), 68.
- Reeves, D. B. (2008). *Reframing teacher leadership to improve your school*: ASCD.
- Reiss, K. (1981). Type, kind and individuality of text: Decision making in translation. *Poetics Today*, 2(4), 121-131.
- Reiss, K. (1983). Adequacy and equivalence in translation. *The Bible Translator*, 34(3), 301-308.
- Reiss, K., & Vermeer, H. J. (2014). *Towards a general theory of translational action: Skopos theory explained*. Routledge.
- Rezaei, A. R., & Lovorn, M. (2010). Reliability and validity of rubrics for assessment through writing. *Assessing writing*, 15(1), 18-39.
- Richards, J. C., & Renandya, W. A. (2002). *Methodology in language teaching: An anthology of current practice*: Cambridge university press.
- Richards, J. C., & Rodgers, T. S. (2014). *Approaches and methods in language teaching*: Cambridge university press.
- Rico, C., & Gonzalez Pastor, D. (2022). The role of machine translation in translation education: A thematic analysis of translator educators' beliefs. *Translation & Interpreting*, 14(1), 177-197.
- Robinson, D. (2012). *Becoming a translator: An introduction to the theory and practice of translation*. Routledge.
- Rodgers, O., Chambers, A., & Le Baron-Earle, F. (2011). Corpora in the LSP classroom: A learner-centred corpus of French for biotechnologists. *International Journal of Corpus Linguistics*, 16(3), 391-411.
- Roscoe, R. D., & McNamara, D. S. (2013). Writing Pal: Feasibility of an intelligent writing strategy tutor in the high school classroom. *Journal of Educational Psychology*, 105(4), 1010.
- Saalbach, H., Eckstein, D., Andri, N., Hobi, R., & Grabner, R. H. (2013). When language of instruction and language of application differ: Cognitive costs of bilingual mathematics learning. *Learning and Instruction*, 26, 36-44.

- Scarton, C., & Specia, L. (2015). A quantitative analysis of discourse phenomena in machine translation. *Discours. Revue de linguistique, psycholinguistique et informatique. A journal of linguistics, psycholinguistics and computational linguistics*, (16).
- Schleiermacher, F. (1813). On the different methods of translating. *The translation studies reader*, 2, 43-63.
- Scott, V. M., & Fuente, M. J. D. L. (2008). What's the problem? L2 learners' use of the L1 during consciousness-raising, form-focused tasks. *The Modern language journal*, 92(1), 100-113.
- Sennrich, R., Haddow, B., & Birch, A. (2015). Neural machine translation of rare words with subword units. *arXiv preprint arXiv:1508.07909*.
- Sepulveda-Escobar, P., & Morrison, A. (2020). Online teaching placement during the COVID-19 pandemic in Chile: challenges and opportunities. *European Journal of Teacher Education*, 43(4), 587-607.
- Shei, C. C. (2002). Teaching MT through pre-editing: Three case studies. In *6th EAMT Workshop Teaching Machine Translation* (pp. 89-98).
- Siddiquei, M. I., & Kathpal, S. (2021). Challenges of online teaching during Covid-19: An exploratory factor analysis. *Human behaviour and emerging technologies*, 3(5), 811-822.
- Silva, T., & Matsuda, P. K. (2013). *Landmark Essays on ESL Writing: Volume 17*: Routledge.
- Smith, K. S., Aziz, W., & Specia, L. (2016). The trouble with machine translation coherence. In *Proceedings of the 19th Annual Conference of the European Association for Machine Translation* (pp. 178-189).
- Šnajder, J., Sladoljev-Agejev, T., & Vehovec, S. K. (2019, August). Analysing rhetorical structure as a key feature of summary coherence. In *Proceedings of the Fourteenth Workshop on Innovative Use of NLP for Building Educational Applications* (pp. 46-51).
- Snell-Hornby, M. (2006). *The Turns of Translation Studies: New paradigms or shifting viewpoints?* (Vol. 66). John Benjamins Publishing.
- Somers, H., Gaspari, F., & Niño, A. (2006). *Detecting inappropriate use of free online machine translation by language students—A special case of plagiarism detection*. Paper presented at the Proceedings of the Eleventh Annual Conference of the European Association for Machine Translation.
- Stecconi, U. (2012). Rhetoric and translation. *Handbook of Translation Studies*, 3, 151.
- Stolp, S. J. (2002). *A validation study of a writing skills test for police recruit applicants*. University of North Texas.
- Storch, N., & Wigglesworth, G. (2003). Is there a role for the use of the L1 in an L2 setting? *TESOL quarterly*, 37(4), 760-769.
- Strobl, C. (2017). The potential of automated corrective feedback to remediate cohesion problems in advanced students' writing. *CALL in a climate of change: adapting to turbulent global conditions-Short papers from EUROCALL*, 294-299.
- Sun, Z., Zhang, J. M., Harman, M., Papadakis, M., & Zhang, L. (2020, June). Automatic testing and improvement of machine translation. In *Proceedings of the ACM/IEEE 42nd International Conference on Software Engineering* (pp. 974-985).
- Swales, J. M. (2011). Coda: Reflections on the future of genre and L2 writing. *Journal of second language writing*, 1(20), 83-85.
- Swales, J. M., & Feak, C. B. (1994). *Academic writing for graduate students* (pp. 155-6). Ann Arbor: University of Michigan Press.

- Swales, J. M., & Feak, C. B. (2004). *Academic writing for graduate students: Essential tasks and skills* (Vol. 1): University of Michigan Press Ann Arbor, MI.
- Taboada, M. T. (2004). *Building coherence and cohesion: Task-oriented dialogue in English and Spanish* (Vol. 129): John Benjamins Publishing.
- Taboada, M., & Mann, W. C. (2006a). Applications of rhetorical structure theory. *Discourse studies*, 8(4), 567-588.
- Taboada, M., & Mann, W. C. (2006b). Rhetorical structure theory: Looking back and moving ahead. *Discourse studies*, 8(3), 423-459.
- Tardy, C. M. (2010). Writing for the World: Wikipedia as an Introduction to Academic Writing. In *English teaching forum* (Vol. 48, No. 1, p. 12). US Department of State. Bureau of Educational and Cultural Affairs, Office of English Language Programs, SA-5, 2200 C Street NW 4th Floor, Washington, DC 20037.
- Tardy, C. M. (2011). ESP and multi-method approaches to genre analysis. *New directions in English for specific purposes research*, 145-173.
- Tardy, C. M. (2017). The challenge of genre in the academic writing classroom: Implications for L2 writing teacher education *Teaching Writing for Academic Purposes to Multilingual Students* (pp. 83-97): Routledge.
- TAUS. (2016). TAUS Post-Editing Guidelines, available at <https://www.taus.net/think-tank/articles/postedit-articles/taus-post-editing-guidelines>
- Toulmin, S. (2003). *The Uses of Argument*. Cambridge: Cambridge University Press.
- Tywoniw, R., & Crossley, S. (2019). The Effect of Cohesive Features in Integrated and Independent L2 Writing Quality and Text Classification. *Language Education & Assessment*, 2(3), 110-134.
- Udina, N. (2019). Using posteditig in translation and LSP courses. *Proceedings of INTCESS 2019- 6th International Conference on Education and Social Sciences*, 4-6 February 2019- Dubai, U.A.E.
- Unanue, I. J., Esmaili, N., Haffari, G., & Piccardi, M. (2020). Leveraging discourse rewards for document-level neural machine translation. *arXiv preprint arXiv:2010.03732*.
- Uzawa, K. (1996). Second language learners' processes of L1 writing, L2 writing, and translation from L1 into L2. *Journal of second language writing*, 5(3), 271-294.
- Van Dijk, T. A., Kintsch, W., & Van Dijk, T. A. (1983). Strategies of discourse comprehension.
- Van Waes, L., Leijten, M., & Van Weijen, D. (2009). Keystroke logging in writing research: Observing writing processes with Inputlog. *German as a foreign language*, (2), 41-64.
- Van Weijen, D., Van den Bergh, H., Rijlaarsdam, G., & Sanders, T. (2009). L1 use during L2 writing: An empirical study of a complex phenomenon. *Journal of second language writing*, 18(4), 235-250.
- Vasconcellos, M. (1992). What do we want from MT?. *Machine Translation*, 7(4), 293-301.
- Velasco, P., & Garcia, O. (2014). Translanguaging and the writing of bilingual learners. *Bilingual Research Journal*, 37(1), 6-23.
- Venkatesan, H. (2018). "Teaching Translation in the Age of Neural Machine Translation" in *Selected Papers from the APLX2017*. Taipei: Crane Publications, 2018. 39-54. ISBN: 978-986-147-810-4
- Venuti, L. (2012). *The translation studies reader*: Routledge.
- Vermes, A. (2010). Translation in foreign language teaching: a brief overview of pros and cons. *Eger Journal of English Studies*, 10(1), 83-93.

- Voita, E., Sennrich, R., & Titov, I. (2019). When a good translation is wrong in context: Context-aware machine translation improves on deixis, ellipsis, and lexical cohesion. *arXiv preprint arXiv:1905.05979*.
- Wai, S. (2016). L1-L2 translation versus L2 writing tasks: An empirical study on non-language major students' improvement in writing proficiency. *Writing & Pedagogy*, 8(3), 483-520. doi:10.1558/wap.28241
- Wallace, M. J. (2006). *Action research for language teachers*: Ernst Klett Sprachen.
- Waller, S. (2015). Cohesion Is Still Not Coherence, So What Is?. *Editorial Board*, 31.
- Wang, Y., Harrington, M., & White, P. (2012). Detecting breakdowns in local coherence in the writing of Chinese English learners. *Journal of Computer Assisted Learning*, 28(4), 396-410.
- Wang, W., & Wen, Q. (2002). L1 use in the L2 composing process: An exploratory study of 16 Chinese EFL writers. *Journal of Second Language Writing*, 11(3), 225-246. doi:10.1016/S1060-3743(02)00084-X
- Wei, L. (2017). Translanguaging as a practical theory of language. *Applied linguistics*, 39(1), 9-30.
- Wei, X. (2020). Assessing the metacognitive awareness relevant to L1-to-L2 rhetorical transfer in L2 writing: The cases of Chinese EFL writers across proficiency levels. *Assessing Writing*, 44, 100452.
- Wei, X., Zhang, L. J., & Zhang, W. (2020). Associations of L1-to-L2 rhetorical transfer with L2 writers' perception of L2 writing difficulty and L2 writing proficiency. *Journal of English for academic purposes*, 47, 100907.
- Widdowson, H. G. (1979). *Explorations in applied linguistics* (Vol. 1): Oxford University Press, USA.
- Williams, C. (1996). Secondary education: teaching in the bilingual situation. *The language policy: Taking stock*, 12(2), 193-211.
- Williams, M. (2001). The application of argumentation theory to translation quality assessment. *Meta: journal des traducteurs/Meta: Translators' Journal*, 46(2), 326-344.
- Williams, M. (2004). *Translation quality assessment: An argumentation-centred approach*: University of Ottawa Press.
- Williams, M. (2009). Translation quality assessment. *Mutatis mutandis*, 2(1), 3-23.
- Williams, M. (2010). Translating Metadiscourse: An Explanatory Analysis of Problems in Students' Work. *Mutatis Mutandis: Revista Latinoamericana de Traducción*, 3(1), 73-90.
- Williams, M. (2013). A holistic-componential model for assessing translation student performance and competency. *Mutatis Mutandis: Revista Latinoamericana de Traducción*, 6(2), 419-443.
- Williams, J. M., & Bizup, J. (2010). *Style: Lessons in clarity and grace*. Boston: Longman.
- Williams, J. M., & Colomb, G. G. (1990). Coherence. *JM Williams, Style: Toward clarity and grace*, 97-112.
- Wong, B., & Kit, C. (2012, July). Extending machine translation evaluation metrics with lexical cohesion to document level. In *Proceedings of the 2012 Joint Conference on Empirical Methods in Natural Language Processing and Computational Natural Language Learning* (pp. 1060-1068). Association for Computational Linguistics.
- Xiong, D., Ding, Y., Zhang, M., & Tan, C. L. (2013). Lexical chain based cohesion models for document-level statistical machine translation. In *Proceedings of the 2013 conference on empirical methods in Natural Language Processing* (pp. 1563-1573).

- Xiong, H., He, Z., Wu, H., & Wang, H. (2019, July). Modeling coherence for discourse neural machine translation. In *Proceedings of the AAAI conference on artificial intelligence* (Vol. 33, No. 01, pp. 7338-7345).
- Xu, H., Xiong, D., Van Genabith, J., & Liu, Q. (2021, January). Efficient context-aware neural machine translation with layer-wise weighting and input-aware gating. In *Proceedings of the Twenty-Ninth International Conference on International Joint Conferences on Artificial Intelligence* (pp. 3933-3940).
- Xu, M., & Wang, C. (2011). Translation students' use and evaluation of online resources for Chinese-English translation at the word level. *Translation and Interpreting Studies. The Journal of the American Translation and Interpreting Studies Association*, 6(1), 62-86.
- Yang, Y., Wang, X., & Yuan, Q. (2021). Measuring the usability of machine translation in the classroom context. *Translation and Interpreting Studies. The Journal of the American Translation and Interpreting Studies Association*, 16(1), 101-123.
- Yu, H., & Monas, N. (2020). Recreating the scene: An investigation of police report writing. *Journal of Technical Writing and Communication*, 50(1), 35-55.
- Yuan Ke, L., & Hoey, M. (2014). Strategies of writing summaries for hard news texts: A text analysis approach. *Discourse Studies*, 16(1), 89-105.
- Zarepour, F. (2016). Cohesion Analysis of Iranian Advanced EFL Learners' Writing. *Journal of Language Teaching & Research*, 7(2).
- Zhang, A. (2010). Use of cohesive ties in relation to the quality of compositions by Chinese college students.
- Zhu, W. (2004). Faculty views on the importance of writing, the nature of academic writing, and teaching and responding to writing in the disciplines. *Journal of second language writing*, 13(1), 29-48.
- Zhu, W. (2006). Understanding context for writing in university content classrooms. *The politics of second language writing: In search of the promised land*, 129-146.
- Zulfiqar, A. (2019). Teacher beliefs about students' use of cohesion in writing: what does the textual evidence reveal?. *Journal of Language and Education*, 5(4 (20)), 9-24.

Appendix A

22/06/2021

Université d'Ottawa

Bureau d'éthique et d'intégrité de la recherche

University of Ottawa

Office of Research Ethics and Integrity

Le Comité d'éthique de la recherche (CÉR) de l'Université d'Ottawa, opérant conformément à l'*Énoncé de politique des Trois conseils* (2014) et toutes autres lois et tous règlements applicables, a examiné et approuvé la demande d'éthique du projet de recherche ci-nommé.

L'approbation est valide pour la durée indiquée plus haut et est sujette aux conditions énumérées dans la section intitulée "Conditions Spéciales ou Commentaires". Le formulaire « Renouvellement ou Fermeture de Projet » doit être complété quatre semaines avant la date d'échéance indiquée ci-haut afin de demander un renouvellement de cette approbation éthique ou afin de fermer le dossier.

Toutes modifications apportées au projet doivent être approuvées par le CÉR avant leur mise en place, sauf si le participant doit être retiré en raison d'un danger immédiat ou s'il s'agit d'un changement ayant trait à des éléments administratifs ou logistiques du projet. Les chercheurs doivent aviser le CÉR dans les plus brefs délais de tout changement pouvant augmenter le niveau de risque aux participants ou pouvant affecter considérablement le déroulement du projet, rapporter tout événement imprévu ou indésirable et soumettre toute nouvelle information pouvant nuire à la conduite du projet ou à la sécurité des participants.

The University of Ottawa Research Ethics Board, which operates in accordance with the *Tri-Council Policy Statement* (2014) and other applicable laws and regulations, has examined and approved the ethics application for the above-named research project.

Ethics approval is valid for the period indicated above and is subject to the conditions listed in the section entitled "Special Conditions or Comments". The "Renewal/Project Closure" form must be completed four weeks before the above-referenced expiry date to request a renewal of this ethics approval or closure of the file.

Any changes made to the project must be approved by the REB before being implemented, except when necessary to remove participants from immediate endangerment or when the modification(s) only pertain to administrative or logistical components of the project. Investigators must also promptly alert the REB of any changes that increase the risk to participant(s), any changes that considerably affect the conduct of the project, all unanticipated and harmful events that occur, and new information that may negatively affect the conduct of the project or the safety of the participant(s).

Ethics COORDINATOR

Coordonnateur de l'éthique / Ethics Coordinator

Pour/For Barbara GRAVES Président(e) du/ Chair of the Comité d'éthique de la recherche en sciences sociales et humanités / Social Sciences and Humanities Research Ethics Board

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Monday, November 29, 2021

Re: Ethics approval of the project: *Coherence and Cohesion in a free Online Machine Translation Environment (CÉR 1920-01)*

The research Ethics Board (REB) has proceeded to the evaluation of your report for the project mentioned above based on the requirements of the *Tri-Council Policy Statement. Ethical Conduct for Research Involving Humans* (2018) (TCPS2). The renewal of the ethics approval of your project is approved under the following conditions:

- The REB must be informed of any possible modifications to the research protocol and the documentation of the project before it is implemented;
- Any unforeseen event that increases the risk of participants in this research project must be immediately reported to the REB;
- This ethics approval is valid from **September 8, 2021 until November 29, 2022** inclusively.
- For research projects lasting more than one year, a request for renewal of the ethics approval must be filed at least one month prior to the expiry date of this approval;
- For research projects lasting less than one year and for those who are terminated, a report must be filed with the REB at the end of the project.

REB wishes you the best with this research project

Appendix B

Writing samples

Jean (pre-instruction report)

This video is about Virginie, she has 25 years old, she is a police chief who has 500 men under her order, the main responsibility maintains and intervenes when there is a gathering in the public places, she gives the order to the polices agents to ensure the security and to control people who want to disturb the peace.

Virginie works outside and gives the agent of police new order regarding the security around the town hall, she met with the mayor to know the number of agents who have to secure the area. Later the France team player will come to show the trophy. Virginie's day ending at 3 o'clock in the morning.

When Virginie goes back to work, she has dressed in her uniform to celebrate the 20 years of services of some polices officer, she likes to show them they are a valuable police officer.

Virginie takes very seriously her work, she did not have time to buy food or to do shopping, her mum sends her clothes.

Jean (post-instruction report)

Frist of all, in this video was about Valerie who is a police officer.

She woks at the night squad. At 22 pm, she goes on patrol with her colleague.

Following a phone call of people who live in a building, they go to see what is going in this aera. In fact, when they arrived, a woman is complaining about the gathering of youth who were smoking some king of drug.

Thereafter, they search in the hallway for any illegal substance, they did not find anything.

As a result, they ask the youth de leave the building.

Through they way out, the youth starting to insult them.

Valerie and her colleague left, she said, they do not understand there are people who getting up early to go to work.

While they were driving back, they saw a car who drive without light, then they follow it.

Therefore, they control the drive, he did not has the car paper and he is illegal in France.

The end

Taylor (pre-instruction report)

A group of young men were smoking drugs inside a building. Due to this incident, a bad odour spread inside the building, and caused the inhabitants to become angry. This isn't the first time it happens. The small group of men are disrespectful, as they are actively insulting the inhabitants of the building and the police officers. Relationships between them are hostile. It is necessary to retain authoritative composure with these young men and make them understand that police officers are not their friends. No arrest had been made due to the police officers not being able to find the drugs. Later that night, a police stop had been carried out because a vehicle had no headlights. While the police stop is being carried out, young men from the surrounding area insult and provoke the police officers performing their duties. This causes unnecessary stress for the police officers. A man was arrested and did not have his driver's license nor identification, so he was brought to the police station to successfully identify him.

Taylor (post-instruction report)

Student manifestations in Sorbonne district, France, have forced large police forces to intervene in order to control ensued chaos. Virginie, a high-ranked police officer, is in command of one squadron composed of 4 platoons, with a total of 80 police officers. At 16:00, the Prime Minister has to leave, and Virginie moves one platoon to secure the Prime Minister's leave. Suddenly, a call from police headquarters informs Virginie that a group of manifestants have entered from an adjacent route which poses a threat for the Prime Minister. Virginie has to place a platoon consequently to secure the area. At 18:00, the prefecture takes out every police force from the Sorbonne district, except for Virginie's squadron. The force has moved its police officers to create a barrage, blocking manifestants from coming in or out. A few manifestants snuck past and climbed a construction building with scaffolding. Virginie decided not to use physical force to take them out, and instead asked them to come down without any judicial repercussion. To summarize, Virginie has to use similar tactics to battleships, effectively moving her platoons around in order to control the student manifestation in Sorbonne district while simultaneously keeping her squadron and citizens safe.

Riley (pre-instruction report)

The virginie mission of day was of maintain order in Sorbonne the policeman has went maintain order in Sorbonne because the minister must surrender in struggles anti CRS. Virgine has worries because the Sorbonne was been fire and blood while un month. The district was security for the minister arrived. The prefecture previews a big device she disposes a four platoon squadron is eighty policeman through radio. After first minister departure virginie has security the district. One call of commandment room calls the disruptor group has been repulsed virginie and team has been use forced and aggressivity for to win. But this victory has been during court for this purpose the room commandments has send the crs in reinforcement for succour team to face a violence manipulation student. The commandment has ask a men to go out the scaffolding and has convince the students to go down and has convince and reassure their they will not be questioned. The students accept the deal.

Riley (post-instruction report)

This report is about to a female policy who mission to maintain order in building of drugged because the neighbour was worry. Valerie's evening was start bad because the younger sellted down in building staircase and the neighbour don't have to support because they were pass their time to smoke drug in staircase. As soon as Valerie arrived, she is note odour due to youngers was smoked while evening. Unfortunately, the odour was not enough for youngers arrestation. as a result, the youngers were insult Valerie and police team. Furthermore, the arrival of Valerie and his team has created voltage. However, the police have decided to go out to avoid the worst. When they were going out, they have seen a driver and decided to check him it follows that the driver don t have the paper and the driver's licence. Finally, the driver was taken to police post.

Alex (pre-instruction report)

The Prime Minister is visiting an area for an event in France, this event is usually controversial and has triggered protests from students in the past month. Virginia is a policewoman in charge of organizing her team to surround the area to make it safe for the prime minister to get to the destination with his escorts, she mentions being a bit anxious beforehand. Her team creates a barricade around the public area where the event is being held under the orders of the center of communications so students do not intercept any officials. She does it successfully and the escorts drive by without a problem around 4 pm. She sends her report to the Center of Communications after. Two hours later two students climb up a building under construction. Virginia rushes to the site and asks them to come down. They climb down safely. Virginia mentions loving her job in the 10 months she's been a policewoman despite the risks.

Alex (post-instruction report)

Report:

We are introduced to the policewoman, Valerie, as she starts her night checking a disturbance call at an apartment. As Valerie and her coworkers make their way inside the building they see 10 adults collected around the staircase, there is also a heavy drug smell, causing the tenants of the building to complain. The police conduct an unfruitful search around the area for marijuana, they then escort the adults out of the building despite their protests. Once dispersed onto the street, they begin yelling and grouping up with more adults. Valerie and her coworker ignore the yelling and make their way back to the station, but notice a driver driving irrationally. After following the driver and pulling him over to do a check, they learn he does not have any identification, nor any registration papers for the car. During this search the inebriated adults from earlier begin approaching the police team, yelling and damaging.

Casey (pre-instruction report)

The Prime minister of France is coming to visit and there is des students that want to protest. Virginie must make sure that the prime minister is safe and that the visit is safe. She has to make sure that the students that protest do not hurt the prime minister. Virginie and her team go to the place where the prime minister is visiting and they create barricades so they can safely go to the visit point . Virginie sees that there are students protesting in the top of a building. Virginie tells these students to come down with peace and if they do she will not arrest them. Before Virginie made it to the prime ministers visiting point she was nervous, but after that she was happy that everything went well. she thought the protest was going to be dangerous , but after she did her job well and no one was hurt, she was really happy and that was the opposite of what she thought.

Casey (post-instruction report)

This report is about Valerie, à police officer, who is working her night shift when she receives a call that there are dozens of disruptors in a building. Afterwards, when Valerie arrives she notices a strange smell, and that people in the building have been smoking herbs. Besides, she also notices that the residents of the building are mad because it happens all the time. However, Valerie cannot call people without drug evidence so she and her teammates search the building but they find nothing. People start to say bad words and insults Valerie and her coequippers when they are leaving the building. Finally, on the way back, Valerie and her teammates see that there is a car driving without lights.They get suspicious and they trace the car. when they are questioning the man who was the driver of the car, people in the neighborhood start insulting Valerie again. After checking the driver's documents, Valerie and her teammates realize that the man does not have a driver's license so Valerie takes him to the police station for an ID check.

Robin (pre-instruction report)

To begin with, in this Video Virginie has the task of making sure the prime minister is safe during his visit. Virginie has to protect the prime minister from many protesters that will be there during his visit. In other years there was many bad protests therefore she has to make sure the prime minister doesn't get hurt. In this video Virginie and her team have to go to where the prime minister is visiting to set up a barricade and protect the area from protesters so the prime minister can arrive safe. Virginie and her team of police officers realize that there is a group of people in a building hiding and protesting. One of Virginie's co-officers tells the people inside that if they come down and exit the building they will not be arrested. She feels good that they found a solution to this problem because if not it would have been very complicated for Virginie and her team and the protesters in the building.

Robin (post-instruction report)

Based on this video, Valerie who is a female police officer receives a call about some disruptions in a residential area caused by a group of young people. Then, she and her colleague go to respond to this call and search the area. When they entered the building, they noticed a weird smell and also confronted a group of youngsters and neighbours. One of the neighbors, a lady, started complaining about the youngsters explaining that they smoke drugs and cause inconveniences for them. As a result of this complaint, Valerie and her colleague searched the building to find some evidence of drugs, but they were not able to find any drugs causing the bad smell. So, they had to leave because of finding nothing. While being in the building and also on the way back, the youngsters insulted them and acted very disrespectfully; however Valerie and her colleague did not respond to their disrespectful behavior. While leaving the building and on the way to the station, they saw a car whose lights were off. This made them follow the car and ask the driver to stop the car for answering some questions. When the driver stopped, Valerie asked for the car's documents, but they realized that the driver did not possess a driver's license. Consequently, they took the driver with them to the police station to check his status. This video ends with placing the driver of the car inside Valerie's car.

Appendix C

Students' initial survey

1. Please include your participant code in the following space.

2. Which option best describes your gender?

- a) Male
- b) Female
- c) Neither of the above, I identify as: _____
- d) Prefer not to answer

3. What is your age?

- a) Under 20 years old
- b) 20-29 years old
- c) 30-39 years old
- d) 40 or over
- e) Prefer not to answer

4. What is your first language?

5. How would you rate the overall usefulness of FOMT tools in ESL writing?

- a) Very useful
- b) Fairly useful
- c) Somewhat useful
- d) Not very useful
- e) Not useful at all
- f) Not sure

6. Do you know if there is any policy regarding the use of FOMT tools in ESL classrooms?

- a) Yes
- b) No
- c) Not sure

Please explain your answer briefly-----

7. How frequently do you use FOMT tools for completing the writing tasks in your ESL classes?

- a) Always
- b) Usually
- c) Often
- d) Sometimes
- e) Never

8. For which of the following do you use FOMT tools for ESL purposes? (Check all that apply)

- ☐ Identifying/double checking the meaning of words or expressions in my first language (L1)
- ☐ Translating words from my L1 into English and vice versa
- ☐ Translating phrases or expressions from my L1 into English and vice versa
- ☐ Translating sentences from my L1 into English and vice versa
- ☐ Translating paragraphs from my L1 into English and vice versa
- ☐ Other uses

For example, I use FOMT for -----

9. Which language pair(s) do you use the FOMT tools for? (Check all that apply)

- ☐ English and French
- ☐ Other language pairs (please specify)

10. Which language direction do you use when using FOMT tools for writing?

- a) Only from my L1 to English
- b) Only from English to my L1
- c) Both
- d) Neither

11. Do you agree or disagree with this statement?

It can be **easier** for me to write in my L1 and then use FOMT to translate to English than to write directly in English.

- a) Strongly agree
- b) Agree
- c) Disagree
- d) Strongly disagree
- e) Neither agree nor disagree

12. Do you agree or disagree with this statement?

It can be **faster** for me to write in my L1 and then use FOMT to translate to English than to write directly in English.

- a) Strongly agree
- b) Agree
- c) Disagree
- d) Strongly disagree
- e) Neither agree nor disagree

13. Do you agree or disagree with this statement?

I **prefer** to write in my L1, and then use FOMT to translate to English than to write directly in English.

- a) Strongly agree
- b) Agree
- c) Disagree
- d) Strongly disagree
- e) Neither agree nor disagree

14. Do you agree or disagree with this statement?

I can **organize** my ideas better, if I write in my L1 and then use FOMT to translate to English than if I write directly in English.

- a) Strongly agree
- b) Agree
- c) Disagree
- d) Strongly disagree
- e) Neither agree nor disagree

15. Do you agree or disagree with this statement?

Problems with FOMT make it **harder** for me to communicate my ideas in an understandable form in **ESL writing**.

- a) Strongly agree
- b) Agree
- c) Disagree
- d) Strongly disagree
- e) Neither agree nor disagree

16. Do you agree or disagree with this statement?

I **don't trust** FOMT to help me with my ESL work.

- a) Strongly agree
- b) Agree
- c) Disagree
- d) Strongly agree
- e) Neither agree nor disagree

- f) **17. Please briefly describe the benefits (if you have observed any) of FOMT tools for ESL writing (in general).**
- g) **18. Please briefly describe the disadvantages (if you have observed any) of FOMT tools for ESL writing (in general).**
- h) **19. Please briefly describe the advantages (if you have observed any) of FOMT tools for ESL summary writing, specifically.**
- i) **20. Please briefly describe the disadvantages (if you have observed any) of FOMT tools for ESL summary writing, specifically.**
- j) **21. Any other comments?**

Instructors' survey

1. Which option best describes your gender?

- a) Male
- b) Female
- c) Neither of the above, I identify as: _____
- d) Prefer not to answer

2. What is your age?

- a) Under 30 years old
- b) 30-39 years old
- c) 40-49 years old
- d) 50-59 years old
- e) 60 or over
- f) Prefer not to answer

3. What is your first language?

4. How would you rate the overall usefulness of FOMT tools in ESL writing?

- a) Very useful
- b) Fairly useful
- c) Somewhat useful
- d) Not very useful
- e) Not useful at all
- f) Not sure

5. Based on your classroom observations, how frequently do your students use FOMT tools for completing writing tasks?

- a) Always
- b) Usually
- c) Often
- d) Sometimes
- e) Never
- f) Not sure

6. Based on your observations, for which of the following do your ESL students use FOMT tools for ESL purposes? (Check all that apply)

- ☐ Don't know
- ☐ Identifying/double checking the meaning of words or expressions in their first language (L1)
- ☐ Translating words from their L1 into English and vice versa
- ☐ Translating phrases or expressions from their L1 into English and vice versa
- ☐ Translating sentences from their L1 into English and vice versa
- ☐ Translating paragraphs from their L1 into English and vice versa
- ☐ Other uses

For example, I have observed my ESL students use FOMT for-----

7. Are you aware of any policy at this college regarding the use of FOMT tools in ESL classrooms?

- a) No
- b) Not sure

- c) Yes, I have some guidelines, but I don't share them with my ESL students
- d) Yes, I have some guidelines and I share them with my ESL students

Please explain your answer briefly-----

8. If you notice that a student has used FOMT for ESL writing, how will you address this?

- a) It does not happen in my class
- b) I don't mind if my students use FOMT tools for ESL writing
- c) I explain the advantages and disadvantages of FOMT use in ESL writing and guide the student how to use FOMT strategically in ESL writing
- d) I discuss the case with the student to avoid future use of FOMT in ESL writing
- e) I report it to the program coordinator as a plagiarism case

9. Based on your classroom observations, which language pair(s) do ESL students use the FOMT tools for? (Check all that apply)

- ☐ Don't know
- ☐ Does not apply
- ☐ English and French
- ☐ Other language pairs (please specify)

10. Based on your classroom observations, which language direction do ESL students use when using FOMT tools for writing?

- a) Only from their L1 to English
- b) Only from English to their L1
- c) Both
- d) Neither
- e) Don't know

11. Do you agree or disagree with this statement?

It **can be easier** for the ESL students to write in their L1 and then use FOMT to translate to English than to write directly in English.

- a) Strongly agree
- b) Agree
- c) Disagree
- d) Strongly disagree
- e) Neither agree nor disagree

12. Do you agree or disagree with this statement?

It **can be faster** for the ESL students to write in their L1 and then use FOMT to translate to English than to write directly in English.

- a) Strongly agree
- b) Agree
- c) Disagree
- d) Strongly disagree
- e) Neither agree nor disagree

13. Do you agree or disagree with this statement?

ESL students **prefer** to write in their L1, and then use FOMT to translate to English than to write directly in English.

- a) Strongly agree
- b) Agree
- c) Disagree
- d) Strongly disagree
- e) Neither agree nor disagree

14. Do you agree or disagree with this statement?

ESL students **can organize** their ideas better if they write in their L1 and then use FOMT to translate to English than if they write directly in English.

- a) Strongly agree
- b) Agree
- c) Disagree
- d) Strongly disagree
- e) Neither agree nor disagree

15. Please briefly describe the benefits (if you have observed any) of FOMT tools for ESL writing (in general).

16. Please briefly describe the disadvantages (if you have observed any) of FOMT tools for ESL writing (in general).

17. Please briefly describe the advantages (if you have observed any) of FOMT tools for ESL summary writing, specifically.

18. Please briefly describe the disadvantages (if you have observed any) of FOMT tools for ESL summary writing, specifically.

19. Any other comments?

Students' post-surveys

1. Please include your participant code in the following space.
 2. Which option best describes your gender?
 - e) Male
 - f) Female
 - g) Neither of the above, I identify as: _____
 - h) Prefer not to answer
 3. What is your age?
 - g) Under 20 years old
 - h) 20-29 years old
 - i) 30-39 years old
 - j) 40 or over
 - k) Prefer not to answer
 4. What is your first language?
 5. How would you rate the overall usefulness of FOMT tools in ESL writing after receiving your feedback on the 2 writing samples you produced in this project?
 - g) Very useful
 - h) Fairly useful
 - i) Somewhat useful
 - j) Not very useful
 - k) Not useful at all
 - l) Not sure
 6. In the process of writing your summaries for this project, how frequently did you use FOMT tools for completing your writing tasks?
 - ☐ Never
 - ☐ For both summaries
 - ☐ For the first summary
 - ☐ For the second summary
 7. For which of the following did you use FOMT tools? (Check all that apply)
 - ☐ Identifying/double checking the meaning of words or expressions in my first language (L1)
 - ☐ Translating words from my L1 into English and vice versa
 - ☐ Translating phrases or expressions from my L1 into English and vice versa
 - ☐ Translating sentences from my L1 into English and vice versa
 - ☐ Translating paragraphs from my L1 into English and vice versa
 - ☐ Other uses
- For example, I used FOMT for-----

8. Which language direction did you use when using FOMT tools for writing in this project?
 - f) Only from my L1 to English
 - g) Only from English to my L1
 - h) Both
 - i) Neither

9. **Do you agree or disagree with this statement?**

When writing for this project, it was **easier** for me to write in my L1, and then use FOMT to translate to English than if I wrote directly in English.

- f) Strongly agree
- g) Agree
- h) Disagree
- i) Strongly disagree
- j) Neither agree nor disagree

10. **Do you agree or disagree with this statement?**

When writing for this project, it was faster for me to write in my L1, and then use FOMT to translate to English than if I wrote directly in English.

- f) Strongly agree
- g) Agree
- h) Disagree
- i) Strongly disagree
- j) Neither agree nor disagree

11. **Do you agree or disagree with this statement?**

When writing for this project, I **preferred to** write in my L1, and then use FOMT to translate to English than if I wrote directly in English.

- f) Strongly agree
- g) Agree
- h) Disagree
- i) Strongly disagree
- j) Neither agree nor disagree

12. **Do you agree or disagree with this statement?**

When writing for this project, I found I could **organize** my ideas better when writing in my L1 and then using FOMT to translate to English than if I wrote directly in English.

- f) Strongly agree
- g) Agree
- h) Disagree
- i) Strongly disagree
- j) Neither agree nor disagree

13. **Do you agree or disagree with this statement?**

When writing for this project, **problems** with FOMT made it **harder** for me to communicate my ideas in an understandable form in my ESL writing.

- a) Strongly agree
- b) Agree
- c) Disagree
- d) Strongly disagree
- e) Neither agree nor disagree

14. **Do you agree or disagree with this statement?**

I **don't trust** FOMT to help me with my ESL work.

- a) Strongly agree
- b) Agree
- c) Disagree
- d) Strongly disagree

e) Neither agree nor disagree

15. Please briefly describe the benefits (if you have observed any) of FOMT tools for ESL summary writing after completing the writing activities of this project.

16. Please briefly describe the disadvantages (if you have observed any) of FOMT tools for ESL summary writing after completing the writing activities of this project.

17. Any other comments?

Appendix D

Evaluation Grid

Course name: Online writing tutorial workshop

Course assignment: summary paragraph

ILOs: ESL coherence and cohesion

Sentence coherence grading rubric

Category		F 0-49	D 50-59	C-, C, C+ 60-69	B-, B, B+ 70-79	A-, A, A+ 80-100
Written expression and communicative success: Sentence coherence (Logical sequence of propositions)	Resemblance	Competency is not demonstrated	Minimal attempt in connecting sentence components logically	Adequate/satisfactory attempt in connecting sentence components logically	Sequences of propositions are somewhat developed	Sequences of propositions are successfully/ to a great extent developed
	Contiguity	Competency is not demonstrated	Minimal attempt in connecting sentence components logically	Adequate/satisfactory attempt in connecting sentence components logically	Sequences of propositions are somewhat developed	Sequences of propositions are successfully/ to a great extent developed
	Cause-effect	Competency is not demonstrated	Minimal attempt in connecting sentence components logically	Adequate/satisfactory attempt in connecting sentence components logically	Sequences of propositions are somewhat developed	Sequences of propositions are successfully/ to a great extent developed
	Attribution	Competency is not demonstrated	Minimal attempt in connecting sentence components logically	Adequate/satisfactory attempt in connecting sentence components logically	Sequences of propositions are somewhat developed	Sequences of propositions are successfully/ to a great extent developed
	Anticipation of a problem	Competency is not demonstrated	Minimal attempt in connecting sentence components logically	Adequate/satisfactory attempt in connecting sentence components logically	Sequences of propositions are somewhat developed	Sequences of propositions are successfully/ to a great extent developed

Paragraph coherence grading rubric

Category		F 0-49	D 50-59	C-, C, C+ 60-69	B-, B, B+ 70-79	A-, A, A+ 80-100
Paragraph coherence	Topic sentence	Competency is not demonstrated	Minimal attempt in developing a topic sentence	Adequate/satisfactory attempt in developing a topic sentence (the topic sentence is communicating the main idea partially)	Good/very good attempt in writing a topic sentence	Topic sentence is successfully/ to a great extent developed (the topic strikes a balance between the broad and the narrow)
	Development (discussion of the main points)	Competency is not demonstrated	Minimal attempt in supporting the topic and developing the ideas	Satisfactory attempt in supporting the topic and developing the ideas (Some supporting details are provided and ideas are developed somewhat)	Good/very good attempt in supporting the topic and developing the ideas	Excellent attempt in supporting the topic and developing the ideas (All/to a great extent statements (propositions) are logically related.
	Concluding sentence	Competency is not demonstrated	Minimal attempt in writing a concluding sentence	Satisfactory attempt in writing a concluding sentence (Concluding sentence is appropriate but is partially developed)	Good/very good attempt in writing a concluding sentence	Excellent attempt in writing the concluding sentence (Concluding sentence is very well-developed and effective)

Cohesion grading rubric

Written expression and communicative success: Cohesion:	Cohesion markers		F 0-49	D 50-59	C-, C, C+ 60-69	B-, B, B+ 70-79	A, A-, A+ 80-100
	Conjunction: Additive, adversative, causal, temporal	Appropriate use	Competency is not demonstrated	Minimal attempt in connecting ideas throughout the text	Adequate/Satisfactory attempt in connecting ideas throughout the text	Good/very good attempt in connecting ideas throughout the text	Excellent attempt in connecting ideas throughout the text
		Variety of use	Competency is not demonstrated	Minimal attempt in connecting ideas throughout the text	Adequate/Satisfactory attempt in connecting ideas throughout the text	Good/very good attempt in connecting ideas throughout the text	Excellent attempt in connecting ideas throughout the text
	Pronoun reference: personal, demonstrative	Appropriate use	Competency is not demonstrated	Minimal attempt in connecting ideas throughout the text	Adequate/Satisfactory attempt in connecting ideas throughout the text	Good/very good attempt in connecting ideas throughout the text	Excellent attempt in connecting ideas throughout the text
		Variety of use	Competency is not demonstrated	Minimal attempt in connecting ideas throughout the text	Adequate/Satisfactory attempt in connecting ideas throughout the text	Good/very good attempt in connecting ideas throughout the text	Excellent attempt in connecting ideas throughout the text
	Lexical: synonymy, Repetition	Appropriate use	Competency is not demonstrated	Minimal attempt in connecting ideas throughout the text	Adequate/Satisfactory attempt in connecting ideas throughout the text	Good/very good attempt in connecting ideas throughout the text	Excellent attempt in connecting ideas throughout the text
		Variety of use	Competency is not demonstrated	Minimal attempt in connecting ideas throughout the text	Adequate/Satisfactory attempt in connecting ideas throughout the text	Good/very good attempt in connecting ideas throughout the text	Excellent attempt in connecting ideas throughout the text

Appendix E

Interview Questions (Judges)

- 1- Do you have any opinions about free online machine translation (FOMT) tools? Please share.
- 2- Do you think your students should use FOMT tools in their ESL writing? Why or why not?
- 3- Do you think students can rely on FOMT tools to help them with English as a second language (ESL) writing?
- 4- Do you think that students can build important skills using FOMT tools? If so, which skill(s)? If not, why not?
- 5- After evaluating the students' first writing task in this project, how did you perceive the level of ESL coherence and cohesion in their task?
- 6- After evaluating the students' second writing task in this project, how did you perceive the level of ESL coherence and cohesion in the task? Have you observed any changes in the levels of ESL coherence and cohesion over time from the first task to the second task?
- 7- After evaluating the students' writing, could you tell if/when FOMT had been used or not? If yes, can you please explain?
- 8- Do you use FOMT tools in your teaching? If yes, can you please explain when, how and for what purposes?
- 9- What policy do you have/know about concerning the use of FOMT tools in your classrooms?

Interview Questions (Students)

- 1- Have you ever used free online machine translation (FOMT) tools, and if so for what purposes?
- 2- [If the answer to the above is yes] Did you use one or more FOMT tools during the tutorial session activities? Can you explain for what purposes you used it/them?
- 3- Do you think you can rely on FOMT tools to help you with English as a second language (ESL) writing?
- 4- Did the tutorial instruction in using FOMT tools in ESL writing in this project, particularly in terms of coherence and cohesion in your texts, have an effect on you? If so, what kind of effect?
- 5- After the tutorial instruction, did you find that you used FOMT tools more, less, or about the same as before? Why was this?
- 6- After the tutorial instruction, did you find that you used FOMT tools differently from before (e.g. more effectively, less effectively, in different ways) Why?
- 7- Do you think that you will continue to use FOMT tools for ESL writing in future? Why or why not?
- 8- What was the best part of the instruction provided throughout the process?
- 9- Do you have any suggestions to improve the instruction?

Appendix F

Table 1: Types of reference: Personal

Semantic category	Existential	Possessive	
Grammatical function	Head	Modifier	
Class	Noun (pronoun)	Determiner	
Person:			
Speaker only	I, me	Mine	My
Addressee(s) with/without other person	You	Yours	Your
Speaker and other persons	We, us	Ours	Our
(other person, male)	He, him	His	His
(other person, female)	She, her	Hers	Her
(other persons, objects)	They, them	Theirs	Their
(object, passage of text)	It	Its	Its
(generalized person)	One		One's

Halliday and Hasan (1967, p. 38)

Table 2: Types of reference: Demonstrative

Semantic category	Selective		Non-selective
Grammatical function	Modifier/Head	Adjunct	Modifier
Class	Determiner	Adverb	Determiner
Proximity			
Near	This, these	Here [now]	
Far	That, those	There, then	
Neutral			The

Halliday and Hasan (1967, p. 38)

Table 3: Types of references: Comparative

Grammatical function	Modifier	Submodifier/Adjunct
Class	Adjective	Adverb
General comparison		
Identity	Same, identical, equal	Identically
General similarity	Similar, additional	Similarly, likewise, so, such
Difference (non-identity or similarity)	Other, different, else	Differently, otherwise
Particular comparison	Better, more, etc. [comparative adjectives and quantifiers]	So, more, less, equally

Halliday and Hasan (1967, p. 38)

Table 4: Propositional function; Resemblance

Coherence Relation: Resemblance	Example	Typical Connectives
A) Similarity	Hérons live in the northern United States. Herons live in Canada.	<i>And, similarly, likewise, too</i>
B) Contrast	Hérons are opportunistic hunters. Herons defend a fishing hole even when it is frozen.	<i>But, in contrast, on the other hand, alternatively</i>
C) Elaboration	Hérons have one thing in their favor: they are total opportunists.	<i>: (colon), that is, in other words, which is to say, also, furthermore, in addition, notice that, which</i>
Exemplification	Hérons are total opportunists. When the fish are frozen out, they'll eat other things, including crustaceans, mice, voles, and small birds	<i>For example, for instance, such as, including</i>
Generalization	When the fish are frozen out, herons will eat other things, including crustaceans, mice, voles, and small birds. In general, they are total opportunists.	<i>In general, more generally</i>
Exception Generalization first	Cape Cod winters are often mild and pleasant. Then there is this winter, the winter that never ends.	<i>However, on the other hand, then there is</i>
Exception first	This winter seems like it will never end. Nonetheless, Cape Cod winters are often mild and pleasant.	<i>Nonetheless, nevertheless, still</i>

(Pinker, 2015, p. 161–164)

Table 5: Propositional function; Contiguity

Coherence relation: Contiguity	Example	Typical connectives
A) Sequence: before and after	The cold weather arrives and then the herons head south	<i>And, before, then</i>
B) Sequence: after and before	The herons head south when the cold weather arrives.	<i>After, once, while, when</i>

(Pinker, 2015, p. 164)

Table 6: Propositional function; Cause and effect

Coherence Relation: Cause-effect	Example	Typical connectives
Result (cause-effect)	Young herons are inexperienced, so some of them migrate to Cape Cod.	<i>And, as a result, therefore, so</i>
Explanation (effect-cause)	Some herons migrate to Cape Cod, because they are young and inexperienced.	<i>Because, since, owing to</i>
Violated expectation (preventer-effect)	Herons have a tough time when the ponds freeze over. However, they will hunt and eat many other things.	<i>But, while, however, nonetheless, yet</i>
Failed prevention (effect-preventer)	Herons will hunt and eat many things in winter, even though the ponds are frozen over.	<i>Despite, even though</i>

(Pinker, 2015, p. 165–166)

Table 7: Propositional function: Attribution

Coherence relation: Attribution	Example	Typical connectives
	According to the sources, this plan has been successful.	<i>According to, stated that</i>

(Pinker, 2015, p. 166)

Table 8: Propositional function: Anticipation of a reaction

Coherence relation: Anticipation of a reaction by the reader	Example	Typical connectives
	It's late now, we can't make it.	<i>Yes I know, I know</i>

(Pinker, 2015, p. 166)

Table 9: Summary table of conjunctive relations

	External/Internal	Internal (unless otherwise specified)		
Additive	Additive, simple: a) Additive: <i>And, and also</i> b) Negative: <i>Nor, and not</i> c) Alternative: <i>Or, or else</i>	Complex, empathetic: a) Additive: <i>Furthermore, in addition, besides</i> b) Alternative: <i>Alternatively</i>	Apposition expository: <i>That is, I mean, in other words.</i>	Comparison similar: <i>Likewise, similarly, in the same way</i>
		Complex-de-empathetic: a) After thought: <i>Incidentally, by the way</i>	Exemplificatory: <i>For instance, thus</i>	Dissimilar: <i>On the other hand, by contrast</i>
Adversative	Adversative “proper”: a) Simple: <i>Yet, though, only, but</i> b) Containing and emphatic: <i>However, nevertheless, despite this</i>	Contrastive Avowal: <i>In fact, actually, as a matter of fact</i>	Correction: a) Of meaning: <i>Instead, rather, on the contrary</i> b) Of wording: <i>At least, rather, I mean</i>	Dismissal: a) Closed: <i>In any case, in either case, whichever case it is</i> b) Open-ended: <i>In any case, at any rate, however it is</i>
		Contrastive external: a) Simple: <i>But, and</i> b) Emphatic: <i>However, on the other hand, at the same time</i>		

(Halliday & Hasan, 1976, p. 242)

Table 10: Summary table of conjunctive relations

	External/Internal	Internal (unless otherwise specified)		
Casual	Casual, general: a) Simple: <i>so, then, hence, therefore</i> b) Empathetic: <i>Consequently, because of this</i>	Reversed casual: a) Simple: <i>for, because</i>	Conditional (also external): a) Simple: <i>then</i> b) Empathetic: <i>in that case, in such an event, that being so</i>	Respective: a) Direct: <i>in this respect, in this regard, with reference to this</i> b) Reversed polarity: <i>Otherwise, in other respect, aside from this</i>
	Casual, specific: a) Reason: <i>for this reason, on account of this</i> b) Result: <i>as a result, in consequence</i> c) Purpose: <i>for this purpose, with this in mind</i>	Casual specific: a) Reason: <i>it follows, on this basis</i> b) Result: <i>arising out of this</i> c) Purpose: <i>to this end</i>	Generalized: <i>under the circumstances</i>	Dissimilar: <i>On the other hand, by contrast</i>
			Reversed polarity: <i>otherwise, under other circumstances</i>	

(Halliday & Hasan, 1976, p. 243)

Table 11: Summary table of conjunctive relations

	External/Internal	Internal (unless otherwise specified)		
Temporal	Temporal simple (external only): a) Sequential: <i>then, next, after that</i> b) Simultaneous: <i>just then, at the same time</i> c) Preceding: <i>previously, before that</i>	Complex (external only) a) Immediate: <i>at once, thereupon</i> b) Interrupted: <i>soon, after a time</i> c) Repetitive: <i>next time, on another occasion</i> d) Specific: <i>next day, an hour later</i> e) Durative: <i>meanwhile</i> f) Terminal: <i>until then</i> g) Punctiliar: <i>At this moment</i>	Internal temporal: a) Sequential: <i>then, next, secondly</i> b) Conclusive: <i>finally, in conclusion</i>	Here and now: a) Past: <i>up to now, hitherto</i> b) Present: <i>at this point, here</i> c) Future: <i>from now on, hence-forward</i>
	Conclusive: a) Simple: <i>finally, at last</i>		Correlative forms: a) Sequential: <i>first.....next</i> b) Conclusive: <i>finally</i>	Summary: a) Summarizing: <i>to sum up, in short, briefly</i> b) Resumptive: <i>to resume, to return to the point</i>
	Correlative forms: a) Sequential: <i>first, then</i> b) Conclusive: <i>at first, in the end</i>			

(Halliday & Hasan, 1976, p. 243)

Table 12: Lexical cohesion: Collocation

Lexical cohesion: Collocation	
<i>Boy/girl; love/hate; order/obey.</i>	Oppositeness of meaning
<i>Tuesday/Thursday; August/December; dollar/cent.</i>	Associations between pairs of words from the same ordered series
part-whole relations: <i>car/brake; body/arm; bicycle/wheel</i>	Associations between pairs of words from unordered lexical sets
part-part relations: <i>mouth/chin; verse/chorus</i>	
Co-hyponymy: <i>red/green (colour); chair/table (furniture)</i>	
<i>rain, pouring, torrential, wet</i> <i>hair, comb, curl, wave</i>	Associations based on a history of co-occurrence (collocation proper)

(Baker, 2018, p. 216)

Table 13: Lexical cohesion: Reiteration

Lexical cohesion: Reiteration	
Context: There's a boy climbing that tree.	
<i>The boy</i> is going to fall if he doesn't take care.	Repetition
<i>The lad's</i> going to fall if he doesn't take care.	Synonym
<i>The child's</i> going to fall if he doesn't take care.	Subordinate
<i>The idiot's</i> going to fall if he doesn't take care.	General words

(Baker, 2018, p. 215)

Appendix G

Table 1: Sample ESL writing grid

	Weak 1	Needs Improvement 2	Satisfactory 3	Very Good 4	Outstanding 5
Communicative Success Overall effectiveness and clarity: the reader's overall comprehension. Does the entry show unity and cohesion?	A great deal of reader effort is required.	A fair amount of reader effort is required.	Generally satisfactory, but occasionally unclear.	Ideas are communicated clearly.	Ideas are very clear, coherent, and well-communicated.
Language Use / Grammar Subject verb agreement, verb tenses, word forms, singular/plural forms, run-on sentences, comma splices, fragments, word order, parallelism, articles, prepositions	Grammatical and syntactic errors in every, or almost every sentence. Much rephrasing is needed.	Many grammatical/syntactic errors in almost every paragraph. A fair amount of rephrasing is needed to correct mistakes.	Generally satisfactory, but inconsistent. Only a small amount of rephrasing may be needed to correct syntactic errors.	Very few grammatical or syntactic errors. Very little grammatical correction or rephrasing is necessary.	No grammatical or syntactic errors. No grammatical corrections or rephrasing is necessary.
Introduction sentences A clear, interesting introduction	Very little attempt was made to introduce the idea of the journal entry.	Attempt to introduce, but needs improvement.	Satisfactory introduction.	Very Good introduction.	Very compelling and interesting introduction.
Support A clear explanation, details and examples to support introduction. Ideas have been developed fully	Insufficient. Not enough supporting detail.	May simply repeat the main idea in different words or contain irrelevant material.	Satisfactory, but would be improved by adding more detail/examples.	The main idea has been supported with examples.	The introduction has been supported in depth. Good examples have been given.
Conclusion Confirms the introduction and wraps up the entry nicely/leaves the reader with a final thought	Almost no attempt to conclude.	Conclusion may be too short or some elements may be missing.	Confirmation of introduction and final thought are present, but may be very simple, or need improvement.	Appropriate conclusion: confirmation of introduction and final thought are present.	Very appropriate and compelling conclusion.

/25

Table 2: Sample ESL writing grid

CATEGORY	1	2	Score
FORMAT Title, margins, line spacing, paragraph length, indentation, handwriting is readable, outline included	Many problems in the format. Length is insufficient. Handwriting is not readable.	All format elements are present and contain no errors. Length is appropriate. Handwriting is readable.	
MECHANICS Spelling, punctuation, capitalization	Mechanical errors in almost every sentence	Almost no mechanical errors	
FOCUS ON TOPIC Ideas related to the proposed topic	Ideas are not related to the proposed topic	All ideas are related to the topic	

Table 3: Sample ESL writing grid

CRITERION/RATING	Needs Improvement (0-69%)	Good (70-79%)	Excellent (80-100%)	Score
Organization of ideas (including clear topic sentences, logically ordered support, transitions to paragraphs 2, 3)	Long answer is not organized in any coherent manner and is extremely difficult to follow 0–10.4	Long answer is mostly well organized and easy to follow, though there may be small inconsistencies in structure 10.5 – 11.9	Long answer is clearly organized and easy to follow, with a clear topic sentence for each paragraph 12 – 15	/ 15
Use of opinion language (modals, “In my view/ opinion,” etc.) and noun clauses	Few or no opinion markers used or used incorrectly 0 – 10.4	Some (3-4) opinion markers used correctly 10.5 – 11.9	Many (6+) discourse markers used effectively and correctly 12 – 15	/ 15
Support, details, examples from in-class materials	Includes few or no details, facts or ideas from EAP 2 sources; little support for ideas provided 0 – 17.25	Integrates a number of details, facts or ideas from EAP 2 sources; ability to paraphrase and quote is developing 17.5 – 19.75	Effectively paraphrases and quotes details, facts and/or ideas from EAP 2 sources to support ideas 20 – 25	/ 25
Grammar; effect on readability	Grammatical errors in most sentences make the entry extremely difficult to read 0 – 20.7	Grammatical errors are present in every paragraph but do not regularly impede reading 21 – 23.7	Very few grammatical errors in total; virtually no difficulty in reading 24 – 30	/ 30
Vocabulary	Little or no vocabulary from EAP 2 sources used and/or frequent error in use 0 – 10.4	Regular use of vocabulary from EAP 2 sources with minimal error 10.5 – 11.9	Vocabulary from EAP 2 sources consistently and appropriately used 12 – 15	/ 15
			TOTAL:	/100

Table 4: Sample ESL writing grid

PART A: CONTENT AND ORGANIZATION			Suggestions for improvement
Each paragraph contained a clear topic sentence	Yes	No	
In each paragraph, you provided enough facts, information, examples and/or statistics to support your main idea (topic sentence).	Yes	No	

Table 5: Sample ESL writing grid

<i>EVALUATION FACTOR</i>	<i>POINTS EARNED</i>
Introductory sentence Paragraph begins with introducing the main point	/10
Development of the main point The main point is supported and developed by the relevant information	/30
Concluding sentence Paragraph ends with a closing sentence and lets the reader know the paragraph is finished	/10

Appendix H

Table 1: Translation quality assessment sample grid

Course XXXX Rubric					
<i>ILO(s)</i>	By the end of the course, students will be able to: 1.				
<i>Construct</i>					
<i>Content/Domain</i>					
<i>Primary cognitive process(es) and knowledge categories</i>					
<i>Task</i>					
<i>Performance level</i>					
<i>Grade</i>	E	D→D+	C→C+	B→B+	A→A+
<i>Grade % range</i>	0–49%	50–59	60–69	70–79	80–100
<i>Criterion (wgt)</i>					
<i>C1 (%)</i> <i>Cohesion markers :</i> 1. <i>Conjunction</i> 2. <i>Pronoun reference</i> 3. <i>Lexical</i>					
<i>C2 (%)</i> <i>Propositional function (Widdowson)</i>					
<i>C3 (%)</i> <i>Paragraph coherence</i> <i>(issue-discussion-point)</i>					
<i>C4 (%)</i> <i>Text coherence (superstructure : IMRD, problem-solution, etc.)</i>					

Table 2: Translation quality assessment sample grid

A-, A & A+ Very high level of competency Very high degree of declarative, conceptual, procedural, and metacognitive knowledge	Indicators: Virtually no TL errors. The text reads as if it was originated in TL and meets target readership's expectations regarding text function and genre. very few, if any, typographical, grammatical and usage errors. Demonstration of very high degree of knowledge of TL and TL textual/rhetorical features and conventions and of monitoring for error.	32-40
B & B+ High level of competency High degree of declarative, conceptual, procedural, and metacognitive knowledge	Indicators: A few minor TL errors. The text generally reads as if it was originated in TL and generally meets target readership's expectations regarding text function and genre, but there are some awkward expressions and calques and occasional typographical, grammatical and usage errors. Demonstration of high degree of knowledge of TL and TL textual/rhetorical features and conventions and monitoring for error.	28-31
C & C+ Emerging competency Moderate degree of declarative, conceptual, procedural, and metacognitive knowledge	Indicators: A number of typographical, grammatical and/or usage errors, some of them significant. SL typography, grammar, lexicon and usage shows up in the translation and adversely affects readability. Cohesion between propositions is sometimes defective. Several typographical, grammatical and usage errors. Demonstration of moderate degree of knowledge of TL and TL textual/rhetorical features and conventions and monitoring for error.	24-27
D & D+ Marginal competency Limited degree of declarative, conceptual, procedural, and metacognitive knowledge	Indicators: Many typographical, grammatical and/or usage errors, some of them major. SL and rudimentary typography, grammar, lexicon and usage show up in the translation in several instances and affects readability significantly. Cohesion between propositions is often defective. Demonstration of limited knowledge of TL and TL textual/rhetorical features and conventions and of monitoring for error.	20-23
F Competency not demonstrated Very low degree of declarative, conceptual, procedural, and metacognitive knowledge	Indicators: Too many typographical, grammatical and/or usage errors, a number of them major. SL typography, grammar, lexicon and usage dominate and adversely affect readability through the translation. In no way is it an example of an acceptable TL text Cohesion between propositions is highly defective. Demonstration of very low degree of knowledge of TL and TL textual/rhetorical features and conventions and monitoring for error.	0-19

Appendix I

Instructional materials

Lesson 1: Summary writing

Tips for good summarizing
To summarize is to explain the <i>main idea(s)</i> of something you have read or listened to – using <i>your own words</i> . <i>Good summarizing</i> involves careful analysis of the source text, careful identification of the main points, and your careful expression and organization of these points in one paragraph
Tip 1
Before reading/watching, think about the title.
Tip 2
While reading/watching, think about the organization/structure and purpose, and READERSHIP (audience).
Tip 3
While reviewing, think about how the organization/structure, purpose, and READERSHIP (audience) relate to the title.
Tip 4
Begin your summary with a topic sentence. It should mention (1) the basic source information (<i>title + author</i>) and (2) the overall main idea.
Tip 5
Follow your topic sentence with several supporting sentences. They should identify and briefly explain – in <i>your own words</i> – the main points of the text.
Tip 6
End your summary with a concluding sentence that relates to the overall main idea (not your point of view).
Tip 7
Do not include your own opinion or reactions to the text.

Tip 8

Do not include *unnecessary* details or examples (*some* details or examples may be important to mention).

Tip 9

Ask WHETHER your summary would be clear to readers who are *not* familiar with the text.

Practice time:

Summarizing activities:

https://owl.purdue.edu/owl_exercises/esl_exercises/paraphrase_and_summary_exercises/basic_level_paraphrase_and_summary_writing.html

Lesson 2: Coherence

Coherence
What is coherence? • Coherence shows conceptual interrelatedness within a text. This means that the text is semantically meaningful AND flows well and THAT the reader can understand the ideas clearly.

Coherence
We can refer to 3 major types of coherence: ▪ Text coherence ▪ Paragraph coherence ▪ Sentence coherence

Coherence
Text coherence ▪ In this type, the text shows that all its components are semantically connected and the meaning of the text can be communicated clearly at a global level. ▪ At a global level, a text comprises macropropositions, or statements representing events, actions and ideas, which should hang together logically in order to establish its content macrostructure (i.e. paragraphs). When macropropositions are placed together at the highest level of a text, they form the text superstructure (e.g. persuasive writing). This in turn creates a global meaning that communicates the gist and essential points to the reader in a coherent and step-by-step manner.

Coherence
Paragraph coherence ▪ To achieve coherence within a paragraph, all its sections and subsections should show connectivity of ideas and progression of meaning. ▪ A coherent paragraph leads its readers very smoothly from the very beginning (topic sentence) to the end (concluding sentence). ▪ In a paragraph, one sentence should lead the reader to another and demonstrate connected thoughts.

Coherence
To achieve paragraph coherence, we need the following components: ▪ Topic sentence: introduce the topic/issue of discussion and make a point at the end of the paragraph. This sentence should clearly articulate the main point of the paragraph. ▪ Development of topic: name the key things in support of the articulated point in the topic sentence and develop the main point throughout the paragraph ▪ Concluding sentence: state the main points preceded by a conjunctive such as “in short, to sum up” at the end of the paragraph

Coherence
SENTENCE coherence happens when there is a logical relationship between all the components of a sentence. The types of relationship between the sentence components include the following: ▪ Resemblance ▪ Contiguity ▪ Cause and effect ▪ Attribution ▪ Anticipation of a reaction

Coherence
▪ Types of coherence relations ▪ Appendix F⁴⁵, Tables4-8

⁴⁵ The tables corresponding to coherence relations were presented to the students. Here, in the interest of space, they are omitted.

Lesson 3: Cohesion

Cohesion
What is cohesion? • Cohesion is “a sense of connection and flow as one sentence leads into the next” • It ties the old information and new information within a sentence and between sentences in a text. • Cohesion markers are as "signposts" guiding the reader through the writer's argument or reasoning - particularly conjunctives.

Five major types of cohesion
1- Reference: Linguistic forms which identify or refer TO something 2- Substitution: Replacement of a word or a phrase by another word to avoid repetition. 3- Ellipsis: The omission of one or more word from a sentence. 4- Lexical cohesion: The selection of vocabulary in a text that occurs in a systemic way so as to create a cohesive effect. 5- Conjunction: A word or group of words used to connect words, phrases, or clauses.

Reference
General example: Yesterday I bought a <i>book</i>. I will give <i>it</i> to my sister Reference elements can be categorized into 3 major types: ❖ Personal reference: <i>I, me, mine, it, he, she, her</i>, etc. ▪ I talked to <i>Mary</i>. <i>She</i> is very friendly. ❖ Demonstrative reference: <i>This, that, those</i>, etc. ▪ How do you like <i>that</i> car? ❖ Comparative reference: refers by means of identity or similarity through using words such as <i>same, equal</i>, etc. ▪ It is the <i>same</i> flower as we saw at your place.

Substitution

General example:

- I stopped using *Facebook*, as *it* was time-consuming

Substitution elements can be categorized into 3 major types:

- ❖ **Nominal substitution:** consisting of *one*, *ones* and *some*.
 - My *pen* is too blunt, I must get a sharper *one*.
- ❖ **Verbal substitution:** replacement of a verbal element by a verbal substitute.
 - She can *swim* well, but I *cannot*.
- ❖ **Clausal substitution:** replacement of a clause by a clausal substitute.
 - Do you *think swimming is hard*? No, I *don't think so*.

Ellipsis

General example:

- She started *her study* in 2019, but I started in 2018.

Ellipsis elements can be categorized into 3 major types:

- ❖ **Nominal ellipsis:** ellipsis within nominal group meaning that noun and potentially accompanying modifiers are omitted from a noun phrase.
 - I submitted my *assignments* and my classmates completed *hers*.
- ❖ **Verbal ellipsis:** ellipsis within a verbal group
 - I *can't eat much now*, but my friend *can*.
- ❖ **Clausal ellipsis:** omission of a modal or preposition element in a sentence.
 - Have you *submitted your assignment*? *Yes*.

Lexical cohesion

Lexical cohesion can be categorized into 3 major types:

- ❖ **Reiteration:** when lexical items are repeated in the text through repetition, synonyms, and subordinate or general words.
- ❖ **Collocation:** association of lexical items.

Lexical cohesion: Reiteration Context: There's a boy climbing that tree.	
The boy is going to fall if he doesn't take care.	Repetition
The lad's going to fall if he doesn't take care.	Synonym
The child's going to fall if he doesn't take care.	Superordinate
The idiot's going to fall if he doesn't take care.	Evaluative term

Lexical cohesion: Collocation	
Boy/girl; love/hate; order/obey.	Oppositeness of meaning
Tuesday/Thursday; August/December; dollar/cent.	Associations between pairs of words from the same ordered series:
part-whole relations: car/brake; body/arm; bicycle/wheel;	Associations between pairs of words from unordered lexical sets:
part-part relations: mouth/chin; verse/chorus	
Co-hyponymy: red/green (colour); chair/table (furniture).	
rain, pouring, torrential, wet. hair, comb, curl, wave	Associations based on a history of co-occurrence (collocation proper)

Conjunction
Appendix F, Tables 9-11 ⁴⁶

Practice: Coherence and cohesion activities: <https://aeo.sllf.qmul.ac.uk/writing/cohesion-and-coherence/>

⁴⁶ Once again, while the corresponding information was shared with the students, in the interest of space, only the Appendix corresponding to that is mentioned here.

Appendix J

Lesson plans

Workshop 1

Topic	Key learning area
Workshop 1	Summary writing

Lesson outcomes
• Upon completing the first workshop, students will be able to understand the principles of summary writing • Upon completing the first workshop, students will be able to understand what is meant by coherence in writing • Upon completing the first workshop, students will be able to understand what is meant by cohesion in writing • Upon completing the first workshop, students will learn about writing a coherent and cohesive summary report

Time (minutes)	Content
10	• Introduction about the workshop and provision of materials
50	• Watch a video (roughly 6 minutes) • Write a summary on the video (45 minutes)
20	• Introduction to basics of summary writing
30	• Introduction to coherence and cohesion
10	• Explaining the follow up activities corresponding to summary writing (https://owl.purdue.edu/owl_exercises/esl_exercises/paraphrase_and_summary_exercises/basic_level_paraphrase_and_summary_writing.html) and, coherence, and cohesion (https://aeo.sllf.qmul.ac.uk/writing/cohesion-and-coherence/) that must be done independently

Workshop 2

Topic	Key learning area
Workshop 2	Summary writing

Lesson outcomes
• Upon completing the second workshop, students will enhance their understanding about summary writing • Upon completing the second workshop, students will enhance their understanding about coherence in writing • Upon completing the second workshop, students will enhance their understanding about cohesion in writing • Upon completing the second workshop, students will enhance their understanding about writing a coherent and cohesive summary report

Time (minutes)	Content
45	• Review of summary writing • Review of coherence and cohesion • Explore and address students' questions based on the follow up activities
20	• Address students' question about the feedback on their first draft
50	• Watch a video (roughly 6 minutes) • Write a summary on the video (45 minutes)
5-10	• Explain the next workshop

Workshop 3

Topic	Key learning area
Workshop 3	Summary writing

Lesson outcomes
• Upon completing the third workshop, students will enhance their understanding about summary writing • Upon completing the third workshop, students will enhance their understanding about coherence in writing • Upon completing the third workshop, students will enhance their understanding about cohesion in writing • Upon completing the third workshop, students will enhance their understanding about writing a coherent and cohesive summary report

Time (minutes)	Content
20-30	• Address students' questions about the feedback on their second draft
20-30	• Give overall feedback on the students' performance • Address students' questions about summary writing, coherence and cohesion.

Instructions for writing a summary report based on the video content (Summary 1)

Steps

As discussed earlier, please follow the steps below:

- Click the video link⁴⁷ that has been shared with you.
- Watch the event (video #1) [Madame le commissaire - Reportage - YouTube](#) (minutes 10:40 to 15:59) and listen to the story presented on the video. If you wish, you may watch it two times and may stop and start the video while watching.
- Select the essential points (evidential elements) only from all the information presented on the video and describe them in English in about 170 words, as you might in a police report or witness statement.
 - You MAY use any resources or tools as you normally would while writing in English. However, please make sure that we can see what you are using on screen.
 - Your text SHOULD flow logically, and its parts should connect appropriately.
- Your text SHOULD NOT contain minor details, explanations, or your own opinions.

Objectives

- Understand the structure of a summary report
- Become familiar with as well as use the connecting words to link the sequences of events when writing a summary report
- Write a coherent and cohesive report based on the given scenario

⁴⁷ These two videos were used as the sources for writing the videos in each stage.

Instructions for writing a summary report based on the video content (Summary 2)

Steps

As discussed earlier, please follow the steps below:

- Click the video link⁴⁸ that has been shared with you.
- Watch the event (video #2) <https://www.youtube.com/watch?v=PxDvdUYtp1A> (minutes 23:44-29:07 video#2) and listen to the story presented on the video. If you wish, you may watch it two times and may stop and start the video while watching.
- Select the essential points (evidential elements) only from all the information presented on the video and describe them in English in about 170 words, as you might in a police report or witness statement.
 - You MAY use any resources or tools as you normally would while writing in English. However, please make sure that we can see what you are using on screen.
 - Your text SHOULD flow logically, and its parts should connect appropriately.
- Your text SHOULD NOT contain minor details, explanations, or your own opinions.

Objectives

- Understand the structure of a summary report
 - Become familiar with as well as use the connecting words to link the sequences of events when writing a summary report
- Write a coherent and cohesive report based on the given scenario

⁴⁸ These two videos were used as the sources for writing the videos in each stage.

Appendix K

Sample texts produced by the judges

Video 1: [Madame le commissaire - Reportage - YouTube](#) (minutes 10:40 to 15:59)

Based on the recording, Virginie, a senior police officer, is informed that she must maintain security of the Sorbonne district due to the Prime minister's visit and prevent any potential student protest in the area. Firstly, Virginie alongside her team visit the area, create security barricade, and ensure the neighbourhood is protected against any potential student protest. Meanwhile, they recognize some students are acting disruptive, yelling and criticizing the Police in one of the buildings in the area. Immediately after observing this incident, Virginie negotiates with the protestors in order to calm them down and avoid the case to get escalated. She promises they will not get arrested, if they stop interrupting the police work and leave the area peacefully. Ultimately, the results of negotiation between the Police team and the protestors turn out to be positive and the students leave the place with no further disruptions. At the end of the video, Virginie shares relief that the situation is handled successfully, despite what she initially thought of it to be causing chaos and danger.

Video 2: <https://www.youtube.com/watch?v=PxDvdUYtp1A> (minutes 23:44-29:07)

The video starts with, Valerie, a female police officer, receiving a call about some disruptions in a residential area. Next, they go to the reported location and as soon as they enter the building, they notice a weird smell and face some neighbors as well as a group of young people, acting rude. One of the neighbors, who is a female individual, complains to Valerie about these young individuals smoking drugs and causing inconveniences. This makes Valerie and her colleague search the building for some evidence, but they could not find anything, and had to leave. While leaving the building, the troublesome group insulted them; however, Valerie and her colleague disregarded the incident. On the way back, they saw a car whose lights were off. Therefore, they followed the car and asked the driver to stop. After stopping the car, Valerie asked for the car's documents, but realized that the driver did not possess a driver's license. Consequently, they took the driver to the station for follow up, which ended their evening mission.

Appendix L

Pre-cohesion scores

Participants	Judge 1	Judge 2	Judge 3	Total cohesion- pre/1800
Taylor	385/600	397	399	1181
Robin	343	340	397	1080
Jean	356	338	382	1076
Casey	286	343	361	990
Alex	257	309	342	908
Riley	198	180	238	616

Post-cohesion scores

Participants	Judge 1	Judge 2	Judge 3	Total cohesion- post/1800
Taylor	400/600	404	437	1241
Robin	478	495	500	1473
Jean	363	356	408	1127
Casey	387	424	416	1227
Alex	387	392	407	1186
Riley	276	262	300	838

Pre-coherence scores

Participants	Judge 1	Judge 2	Judge 3	Total coherence- pre/2100
Robin	503/700	483	546	1532
Taylor	457	452	478	1387
Jean	438	435	485	1358
Casey	409	430	442	1281
Alex	406	406	401	1213
Riley	314	189	291	794

Post-coherence scores

Participants	Judge 1	Judge 2	Judge 3	Total coherence- post/2100
Robin	582/700	540	601	1723
Taylor	511	503	534	1548
Jean	461	452	504	1417
Casey	504	526	527	1557
Alex	477	506	476	1459
Riley	409	401	392	1202