

Student Engagement: Examining Flow Theory in Online and In-person Spanish Language
Learning Environments

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Abstract

The COVID-19 pandemic forced learning institutions to adopt a mix of online, hybrid and in-person classes. Within this context, there is a pressing need to interrogate the role of student engagement and learning outcomes under the lens of these emerging learning environments (Acosta-Gonzaga & Ruiz-Ledesma, 2022). Research on student engagement in the classroom is not new – it has been widely investigated in in-person classes; by contrast, there is currently thin literature on engagement in online classes leading to some practical but critical policy questions emerging within the scholarly discourse.

In line with this need, the study aimed to investigate the impact of the Learning Environment (In-person vs. Online) on Spanish students' Oral Task and Class Engagement through Flow Theory (Csikszentmihalyi, 1990). By synthesizing existing knowledge and mapping out new pathways within the engagement discourse, it also explored whether learner proficiency levels influenced engagement (i.e. flow) in the two learning settings. Through this comprehensive investigation, the study utilized the think-aloud technique (Willis, 2005; Ericsson & Simon, 1993) to validate the student engagement questionnaire.

The current study addressed key research questions, including whether Spanish students experience flow in Oral Tasks. If so, to what extent do online and in-person students differ in their oral task flow? Are there differences in the proportion of class time spent in flow state between online and in-person students? Is there a relationship between the level of proficiency and student engagement level? If so, is the relationship similar for both conditions (in-person vs. online)? What are teachers' perceptions concerning the degree of student engagement and learning in the two instructional environments?

Participants involved 87 Spanish undergraduate students, 10 Spanish course instructors and seven think-aloud informants. The results suggest that in-person and online learners did not differ in their flow on the Oral task. It also revealed that in-person learners experienced a significantly longer flow state during Spanish class time than online learners. However, there is a caveat to this finding since the results also suggested that online and in-person learning environments have different flow-inducing and inhibiting factors that need to be mediated to enhance engagement in each setting. On the other hand, though initial results showed no direct impact of proficiency on flow, further analysis indicated that low proficiency learners in online classes are at a slight disadvantage in flow experiences compared to low and high proficiency students in in-person classes. Finally, instructors perceived that the in-person environment engendered more avenues for engaged learning than the online environment. The results have immediate pedagogical policy imperatives within the axis of tasks and course content design. This may benefit classroom stakeholders in designing tasks that induce optimal learning experiences for in-person and online students.

Résumé

La pandémie de la COVID-19 a contraint les établissements d'enseignement à adopter une combinaison de cours en ligne, et en présentiel. Dans ce contexte, il est urgent d'examiner le rôle de l'engagement des étudiants et des résultats d'apprentissage du point de vue de ces environnements d'apprentissage émergents (Acosta-Gonzaga & Ruiz-Ledesma; 2022). La recherche sur l'engagement des étudiants assistant les cours en présentiel n'est pas nouvelle car elle a été largement étudiée. En revanche, la littérature sur l'engagement dans les salles de classe en ligne est actuellement peu abondante, ce qui a conduit à l'émergence de questions politiques pratiques mais critiques dans le discours académique.

Conformément à ce besoin, l'étude visait à examiner l'impact de l'environnement d'apprentissage (en présentiel ou en ligne) sur la tâche orale des étudiants espagnols et l'engagement en classe par le biais de la théorie du flux (Csikszentmihalyi; 1990). Synthétisant les connaissances existantes et traçant de nouvelles voies dans le discours sur l'engagement, l'étude a également examiné si les niveaux de compétence de l'apprenant influençaient l'engagement (c'est-à-dire le flux) dans les deux environnements d'apprentissage. Grâce à cette enquête exhaustive, l'étude a utilisé des techniques de la Réflexion à Haute Voix (Willis; 2005; Ericsson & Simon, 1993) pour valider le questionnaire sur l'engagement des étudiants.

L'étude actuelle aborde des questions clés de la recherche, notamment celle de savoir si les étudiants espagnols font l'expérience de la fluidité dans les tâches orales. Si c'est le cas, dans quelle mesure les étudiants assistant les cours en ligne et en personne diffèrent-ils dans leur flux de tâches orales? Existe-t-il des différences dans la proportion du temps de classe passé en état de fluidité entre les étudiants assistant les cours en ligne et en personne? Existe-t-il une relation entre le niveau de compétence et le niveau d'engagement des étudiants? Dans l'affirmative, cette

relation est-elle similaire pour les deux conditions (en personne ou en ligne)? Quelles sont les perceptions des enseignants concernant le degré d'engagement et d'apprentissage des élèves dans les deux environnements pédagogiques?

Les participants étaient au nombre de 87 étudiants espagnols de premier cycle, de 10 enseignants de cours d'espagnol et de sept informateurs de l'exercice de Réflexion à Haute Voix. Les résultats suggèrent que les apprenants en personne et en ligne ne diffèrent pas dans leur flux sur la tâche orale. Ils révèlent également que les apprenants en personne ont connu un état de fluidité significativement plus long que les apprenants en ligne pendant les cours d'espagnol. Toutefois, cette constatation doit être nuancée car les résultats suggèrent également que les environnements d'apprentissage en ligne et en personne présentent des facteurs d'induction et d'inhibition du flux différents qui doivent être pris en compte pour améliorer l'engagement dans chaque contexte. D'autre part, bien que les premiers résultats n'aient pas montré d'impact direct de la compétence sur le flux, une analyse plus poussée a indiqué que les apprenants moins compétents dans les classes en ligne sont légèrement désavantagés dans les expériences de flux par rapport aux étudiants peu ou très compétents dans les classes en présentiel. Enfin, les instructeurs estiment que l'environnement en présentiel offre plus de possibilités d'apprentissage engagé que l'environnement en ligne. Les résultats ont des impératifs pédagogiques immédiats dans l'axe des tâches et de la conception du contenu des cours. Ils peuvent aider les acteurs de la classe à concevoir des tâches qui induisent des expériences d'apprentissage optimales pour les étudiants assistant les cours en personne et en ligne.

Resumen

La pandemia del COVID-19 obligó a las instituciones de enseñanza a adoptar una combinación de clases en línea, híbridas y presenciales. En este contexto, existe una necesidad apremiante de cuestionar el papel del compromiso de los estudiantes y los resultados del aprendizaje bajo el prisma de estos entornos de aprendizaje emergentes (Acosta-Gonzaga & Ruiz-Ledesma, 2022). La investigación sobre el compromiso de los estudiantes en el aula no es nueva - se ha investigado ampliamente en las clases presenciales; por el contrario, actualmente hay poca literatura sobre el compromiso en las clases en línea, lo que lleva a que surjan algunas cuestiones políticas prácticas pero críticas dentro del discurso académico.

A la luz de esta necesidad, el estudio se propuso investigar el impacto del Entorno de Aprendizaje (Presencial vs. En línea) sobre la Tarea Oral y el Compromiso en Clase de los estudiantes españoles a través de la Teoría del Flujo (Csikszentmihalyi, 1990). Al sintetizar el conocimiento existente y trazar nuevas vías dentro del discurso del compromiso, también se exploró si los niveles de competencia de los alumnos influían en el compromiso (es decir, el flujo) en los dos entornos de aprendizaje. A través de esta investigación exhaustiva, el estudio utilizó técnicas de la Reflexión en Voz Alta (Willis, 2005; Ericsson & Simon, 1993) para validar el cuestionario de compromiso del estudiante.

El presente estudio aborda cuestiones clave de la investigación, como si los estudiantes españoles experimentan fluidez en las tareas orales. En caso afirmativo, ¿hasta qué punto difieren los estudiantes en línea y presenciales en su flujo en las tareas orales? ¿Existen diferencias en la proporción de tiempo de clase que los estudiantes en línea y presenciales pasan en estado de flujo? ¿Existe una relación entre el nivel de competencia y el nivel de compromiso de los estudiantes? ¿es la relación similar para ambas condiciones (presencial vs. en línea)?

¿Cuáles son las percepciones de los instructores sobre el grado de compromiso y aprendizaje de los estudiantes en los dos entornos de enseñanza?

Participaron 87 estudiantes universitarios españoles, 10 instructores de español y siete informantes de la Reflexión en Voz Alta. Los resultados sugirieron que los estudiantes presenciales y en línea no difirieron en su flujo en la Tarea Oral. También revelaron que los alumnos presenciales experimentaron un estado de flujo significativamente más prolongado durante la clase de español que los alumnos en línea. Sin embargo, hay una advertencia a este hallazgo, ya que los resultados también sugirieron que los entornos de aprendizaje en línea y en persona tienen diferentes factores inductores e inhibidores de flujo que necesitan ser mediados para mejorar el compromiso en cada entorno. Por otra parte, aunque los resultados iniciales no mostraron ningún impacto directo de la competencia en el flujo, un análisis más detallado indicó que los estudiantes con poca competencia en las clases en línea se encuentran en una ligera desventaja en las experiencias de flujo en comparación con los estudiantes de competencia baja y alta en las clases presenciales. Por último, los profesores consideran que el entorno presencial ofrece más posibilidades de alto compromiso que el entorno en línea. Los resultados tienen imperativos inmediatos de política pedagógica dentro del eje del diseño de tareas y contenidos del curso. Esto puede beneficiar a las partes interesadas en el aula a la hora de diseñar tareas que induzcan experiencias de aprendizaje óptimas para los estudiantes presenciales y en línea.

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List of Abbreviations

AERA	American Educational Research Association
APA	American Psychological Association
COC	Concentration
CON	Control
CSB	Challenge-Skill Balance
EFL	English as a Foreign Language
ESM	Experience Sampling Method
FL	Foreign Languages
FTEQ	Flow-based task engagement questionnaire
FSS	Flow State Scale
GPA	Grade-point average
HP	High Proficiency
INT	Interest
IP	instructor participants
IPA	Integrated Performance Assessment
LP	Low Proficiency
NCME	National Council on Measurement in Education
PP	Positive Psychology
SLA	Second Language Acquisition
SP	student participants
TA	Think-Aloud
TAI	Think-Aloud Informant
TL	Target Language
VP	Verbal Probing
NSSE	National Survey of Student Engagement
PP	Positive Psychology

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Chapter 1: Introduction

1.1 Overview

The learner and their environment are two important themes within the general debate on learning and learning outcomes. The confluence of these two subjects from the point of view of student (dis)engagement and learners' academic success is a significant concern in the 21st-century classroom. As the COVID-19 pandemic forced learning institutions to adopt a mix of online, blended, and in-person classes, educators have a deep interest in understanding the factors that affect engagement in different types of learning environments, to wit: Do online learning modes dull learners' emotions and subsequently affect their level of engagement? Are in-person learners as engaged as their online counterparts? Could there be a nexus between the mode of instruction and engagement? Can Flow Theory inform us about this relationship? Research on student engagement in the classroom is not new – it has been widely researched in in-person classes; by contrast, it has received comparatively little attention in online courses.

Student engagement is the degree of active participation, mental efforts and positive attitudes students contribute to their learning and academic success. Disengaged learners can be “passive, do not try hard, and give up easily in the face of challenges” (Skinner & Belmont, 1993, p. 572). Theories on engagement aim to explain how learners perform and persevere in learning tasks and provide insights to those who have a responsibility to provide engaging learning environments for learners. In short, educators are eager to understand engagement and how to promote quality engagement in different learning settings since active learner participation makes learning a language more effective and leads to a more enjoyable classroom experience for all stakeholders. Promoting engaged learning in the higher education foreign

language context is challenging but particularly important due to the presence of inherent reasons that can affect engagement - (i) the study of foreign languages (FL) in higher education is often a required subject, (ii) learning a language in an FL context is more difficult as exposure to and communication in the language is mainly limited to the classroom (iii) the mode of instruction can present unique benefits and setbacks for covering course materials efficiently.

Owing to the challenges identified, theories and studies on engagement will help educators design optimal learning experiences that meet the needs of students in different language learning settings. Research on Flow Theory in the language classroom has shown its value in broadening the understanding of aspects of engagement. Flow is defined as an experiential state characterized by intense involvement and focus on a purposeful, challenging, and doable activity, leading to improved self-confidence and performance (Csikszentmihalyi, 2008, 1990). The current study aims to explore student engagement in online and in-person Spanish classes through the lens of Flow Theory. This study was inspired by the shift to different learning formats during COVID-19 and Egbert's study of flow in language learning. Online and in-person formats were explored because they are the components of many emerging formats during the pandemic, such as blended and hybrid formats. The goal is to understand what is working, what is not working in terms of engagement and how we can improve and maximize the benefits of each format.

1.2 The Current Study: Rationale and Objectives

Despite the extensive research on student engagement, much remains unknown about the aspects of engagement (Egbert et al., 2019). There are gaps in the literature relating to how the instructional format and learners' level of proficiency impact flow in online and in-person settings. Existing research argues that there is an increase in student disengagement (Wigfield et

al., 2006) due to increased use of social media (Junco R, 2012), screen fatigue and boredom (Skinner, 2008; Dewaele et al., 2022), and a rise in attention and learning deficit disorders (National Research Council, 2004). However, there is a silver lining, as some research shows that there are certain conditions that, when present, will promote active and sustained student engagement (Shernoff et al., 2003; Egbert, 2003; Dewaele & McIntyre, 2021). The current study has been conducted to fill three (3) gaps in student engagement research:

Previous investigations on flow in the language classroom have focused on examining the conditions that induce flow – type of tasks (Egbert, 2003; Shernoff et al., 2003); collaborative activities (Almusharaf & Bailey, 2021); and learners' skills (Cox, 2014; Cox & Montgomery, 2019) among others. However, it should be noted that the studies on flow and student engagement have been carried out in the traditional classroom, and it appears that the direct comparison of the level of engagement between online and in-person students studying the same course has not been examined from the perspective of Flow Theory. Therefore, the increased adoption of various virtual learning environment technologies provides a context to explore the instructional modality's effect on students' engagement levels.

Furthermore, compared to High Proficiency (HP) learners, the extent to which online and in-person classroom experiences of Low Proficiency (LP) students induce flow – is unclear. Many scholars investigating flow in the L2 classroom tend to prefer intermediate or advanced-level learners. The probable explanation might be that beginner learners have low proficiency, which can hinder flow (Egbert, 2003; Whalen, 1997). Conversely, Egbert (2003) opined that it is still possible for learners with low competence to experience flow if they find the activity interesting, within their control and meet other flow elements (Egbert, 2003). As a result, it is of

value to find out if the level of proficiency impacts the level of engagement in the two learning modes.

Finally, a thorough validity evaluation of the flow-based student engagement questionnaire (FTEQ) is necessary to build confidence in the measurements of the questionnaire, advance future studies on flow and bolster the task engagement construct. Egbert (2003) conducted a concurrent validity analysis of the flow questionnaire adapted in this study. What remains is to understand whether the items tap into a similar construct and if learners interpret the items as intended. The FTEQ could serve as an observational tool to track and improve engagement in virtual and in-person language classrooms. Based on this knowledge, this study expands on Egbert (2003) by searching for validity evidence for the flow questionnaire.

Considering these limitations in the literature on Flow Theory and engagement in the language learning environment, the objectives of the study are to:

1. Assess what differential effect speaking tasks (oral) have on in-person and online Spanish students' level of engagement.
2. Compare the level of Class Engagement of in-person and online Spanish students.
3. Determine whether proficiency level impacts flow experiences in the two learning environments.

1.3 Potential contributions

By exploring the impact of the learning environment (in-person vs. Online) and proficiency on flow and engagement, this study sought to contribute to the research on Flow Theory in the language classroom setting. The findings from this study provide information that may deepen our understanding of the level and nature of student engagement in in-person and online courses. From a practical standpoint, the knowledge provided will benefit instructors and

scholars in creating classroom learning activities that induce optimal learning experiences for the two groups of students. Csikszentmihalyi and Schneider (2000) emphasized that “our ideas about educating young people are still shaped by tradition, whereas the realities they have to confront are changing rapidly” (p. 4). The goal of L2 teaching-learning is to “ultimately provide the most effective language instruction in our classrooms” (Egbert, 2003, p. 514). Therefore, studies on engagement and flow “can help us to understand different learning environments and their effects on language learning and learners” (Egbert, 2003, p. 514) thus bridging the gap between theory and practice.

Furthermore, considering that the analysis is based on data collected from students' and teachers' subjective experiences, the findings can only be used to draw concrete conclusions and generalizations to a limited extent. However, they can be a starting point for future flow and learner engagement studies. Although the study focused on engagement in Spanish language courses, the results can be applied to any foreign or second language context.

1.4 Organization of the Thesis

This dissertation consists of six chapters which were included for the following purposes: i) present research needs that warrant this study (Chapter 1: Introduction), ii) address pertinent literature on elements covered (Chapter 2: Literature Review), iii) explain the study design (Chapter 3: Methodology), iv) describe the research findings (Results: Chapter 4), v) discuss the key findings in relation to previous literature (Discussion: Chapter 5), and vi) provide the implications, limitation and suggestions for future research (Conclusion: Chapter 6).

Chapter 2: Literature Review

2.1 Overview

In line with the aim of this research to gain a deeper understanding of student engagement and its facilitative conditions in two different learning settings through the lens of Flow Theory, this chapter will touch on research that has been done on learner emotions and engagement, Flow Theory and its application in the language classroom, measurement of engagement and validation of the student engagement questionnaire will be presented as they apply to the current study. Additionally, this chapter will explore topics such as motivation, flow experiences and how engagement has been operationalized and measured over time; data sources for engagement research and the types of instructional and learning modes used in the language classroom context will be reviewed. Terminologies such as flow, engagement, challenge-skill balance and learning delivery modes will be explained.

2.2 Student Engagement

It is necessary to clarify what the word ‘engagement’ means. It can be defined by looking up the meaning of its parts in dictionary entries. The Oxford Learner’s Dictionary defines ‘engaging’ as “interesting or pleasant in a way that attracts your attention.” Likewise, the Cambridge Dictionary defines ‘engaged’ as “involved in something.” Similarly, in Merriam-Webster Dictionary ‘to engage’ is “to hold the attention of” and “to induce to participate.” In research, student engagement has been defined in terms of time spent on task (Spanjers et al, 2008), students’ involvement in their academics (Coates, 2007; Morris, Finnegan, et al., 2005), motivation (Skinner & Belmont, 1993), and learning efforts and willingness to problem solve (Kuh, 2009). From these definitions, the meaning of ‘engagement’ can be loosely described as attentive participation or involvement in one’s own learning and academic achievements.

There is agreement among researchers that student engagement is a multidimensional construct (Fredricks et al., 2004; Reschly & Christenson, 2012; Skinner & Belmont, 1993). However, the consensus ends here as several models of the student engagement construct have been proposed (Reschly & Christenson, 2012). Some researchers have conceptualized engagement as a composite of behavioural engagement (e.g. Rimm-Kaufman et al., 2015). Others have explored it as a two-dimensional model – behavioural and emotional (e.g. Mark, 2000); three-dimensional model – behavioural, cognitive, and emotional (e.g. Anderson, 2017; Appleton et al., 2006; Christenson & Anderson, 2002; Fredrick et al., 2004; Frederick, 2022); and four-dimensional model – social/academic, behavioural, emotional and cognitive (e.g. Philp & Duchesne Christenson et al., 2008; Reschly et al., 2007).

Friedrick and McColskey (2012) argue that engagement constructs with three or fewer components showed minimal to no overlap in component items and, thus, were more accurate. This research study will adhere to the definition of student engagement as a three-component model. The components of engagement include behavioural, cognitive and emotional engagement. All three elements must be considered to fully understand the student engagement construct (Harbaugh & Cavanagh, 2012) and how they function together to encompass engagement (Anderson, 2017).

Behavioural engagement has been described as time on task or participation (Philp & Duchesne, 2016); attendance and efforts dedicated to academic work (Appleton et al., 2006; Gonzalez et al., 2016); persistence and participation in extracurricular activities (Reschly & Christenson, 2012; Skinner et al., 2008) and students' preparation for classes including assignment completion (Fredricks & McColskey, 2012).

With regards to emotional engagement, Fredericks et al. (2004) commented that it “encompasses positive and negative reactions to teachers, classmates, academics, and school and is presumed to influence willingness to do the work” (p. 63). In other words, emotional engagement is students’ affective response to the academic processes. It shows how students feel about their learning, hence “expressing interest and enjoyment; reporting fun and excitement; reacting to failure and challenge; feeling safe; perceiving school as valuable; and expressing feelings of belonging” (Fredricks & McColskey, 2012, p. 772) should be considered in measuring emotional engagement. When learners are emotionally engaged, they show positive states like interest, fun, enthusiasm, satisfaction and enjoyment toward learning (Ainley & Ainley, 2010; Pekrun & Perry, 2014; Pons et al., 2011; Reschly & Huebner, 2008). Students who are not emotionally engaged might manifest negative experiences such as boredom, disinterest, anxiety, depression, frustration, anger and inattentiveness (Alvárez, 2020; Cao et al., 2020; del Arco et al., 2021; Skinner et al., 2008)

Finally, cognitive engagement involves the deliberate psychological investment to understand complex ideas and master course content (Fredericks et al., 2004) as well as the neurological process of learning (Chi & Wylie, 2014). Cognitive engagement also encompasses attentional resources and skills required to study and demonstrate learning. It includes the use of metacognitive strategies to maximize one's learning-related cognitive resources (Reeve & Jang, 2022) and the ability to problem-solve (Sinatra & Broughton, 2014; Ramirez-Arellano et al., 2018; Greene, 2015).

The next section will present a description of the various data collection tools used in the measurement of the student engagement construct.

2.2.1 Data Collection Sources in Student Engagement Research

Different data collection methods have been used in studies to analyze student engagement in education and language learning settings. How the engagement construct is operationalized determines the type of method employed. As methods can affect the outcome of investigations (Egbert, 2003), there is considerable scholarly debate as to what data collection sources are most appropriate and psychometrically sound to measure student engagement (Finn & Zimmer, 2012). The methods used include the Experience Sampling Method (ESM), self-report surveys and questionnaires, teacher ratings and observations, engagement interviews, and real-time devices. Each instrument used in measuring student engagement presents some limitations and strengths. The methods will be examined in turn and summarized in Table 1.

2.2.1.1 Self-Report Survey or Perception Questionnaires

Self-report surveys and questionnaires are the most used to gather data from students and teachers in engagement research (Fredrick, 2022; Harbaugh & Cavanagh, 2012). With this method, participants are provided with items and asked to select the option that best describes their experience after completing a task. Survey ratings can include the degree of satisfaction (very satisfied/very dissatisfied), the extent of agreement (i.e., strongly disagree/ strongly agree) or the level of importance (i.e. not at all important/very important).

The strength of self-reported surveys and questionnaires include – (i) practicality to administer in classroom contexts; (ii) cost effectiveness; (iii) and collection of data on students' subjective perspectives rather than collecting only objective data. From a practical viewpoint, they can be easily distributed to a large and diverse group of students with less resource requirement, primarily online hosted surveys. Furthermore, data from surveys are often fit for psychometric and validation analysis (such as item and factor analysis) due to their quantitative

nature (Anderson, 2017). Another point is that surveys help track engagement over time, compare schools, and evaluate the link between engagement and contextual factors (Fredrick, 2022). Lastly, instead of limiting student engagement to grade-point average (GPA), course grades, and rankings, this measuring tool reports on students' experiences that may not be easy to observe. Hence, it might be a better valid indicator of the affective and cognitive aspects of engagement (Appleton, Christenson & Furlong, 2008).

Despite the benefits of surveys, they are not without some limitations. If used as the only data-gathering source, the results may or may not accurately represent students' experiences or capacities (Egbert, 2003) – due to the problem of participant bias (i.e., over-reporting or under-reporting of experiences). In addition, the items on this measure are mostly worded to capture engagement in a general domain rather than to assess engagement in a specific context or subject area (Fredrick, 2022; Fredricks & McColskey, 2012; Zhou et al., 2021). Finally, self-report instruments requiring reading and writing skills may not be suitable for collecting engagement data from younger learners with low reading comprehension skills (Fredrick, 2022).

2.2.1.2 Experience Sampling Method (ESM)

ESM is another data collection technique used to assess student engagement. ESM is a 35-item questionnaire which originated from research on 'flow.' In this instrument, students carry an alarm or other intelligent devices that beep randomly to signal participants to complete the questionnaire. Items include questions about the participant's location, activities, and psychological state. Unlike retrospective recall surveys, it collects data in real time. Another advantage is that it can be used to observe and track the engagement of multiple learners simultaneously and over time in the classroom setting without an observer physically present (Shernoff et al., 2003).

As with many measurement instruments, ESM has its drawbacks. Perhaps the biggest challenge with its application in the language learning context is that, considering its random nature, the collected data may not reflect specific language learning tasks or situations (Egbert, 2003; Knehta et al., 2019). Moreover, it is time and resource-consuming and can over-burden participants due to the high level of commitment required. This can result in participant fatigue, low completion rate, and poor data quality (Zhou et al., 2021; Shernoff et al., 2003). In addition, the repeated signals can disrupt deep concentration and influence students' engagement in a given moment (Shiffman et al., 2008).

2.2.1.3 Observations and Teacher Ratings

Another helpful technique to measure student engagement is through teacher observations and ratings. The data can be collected on individual students or a whole class and can be qualitative, quantitative or combined. According to Fredricks et al. (2022), most researchers that have employed this method have predetermined items that are indicators of behavioural engagement (e.g. Rimm-Kaufman et al., 2015), emotional and behavioural engagement (e.g. Skinner et al., 2009) or a multidimensional engagement construct (e.g. Wang et al., 2016; Wigfield et al., 2008). Observations and teacher ratings are principal sources for assessing engagement in language-specific content and contexts. They focus on the presence or absence of observable indicators such as task performance, inattentive behaviours, participation in class discussions, and asking/answering questions. Others turn to qualitative forms such as narrative and descriptive analysis in measuring student engagement (Anderson, 2017).

The main advantage of this method is that it is easy to administer and less resource-intensive. One instructor can observe and report on the engagement of multiple students on-task, during or outside of class instruction. Overall, this technique has the benefit of linking contextual

and specific instructional factors with engagement (Fredricks & McColskey, 2012). For example, when measuring classroom engagement, it may be crucial to understand whether students are more engaged during specific tasks or at what points during instruction students demonstrate peak interaction, participation, and distraction levels. Moreover, observational and rating data can complement data from student self-reports, thereby allowing the triangulation of information from various sources to draw a complete picture of engagement (Zhou et al., 2021). This method may be more suitable for measuring engagement in younger learners than ESM and self-report measures.

Teacher reports and observations also present some weaknesses in student engagement. When used as the sole determinant of student engagement, assessing behavioural engagement may be more accurate since behaviours can be observed directly. However, it cannot capture cognitive and emotional engagement aspects accurately since teachers can only make inferences about students' level of emotions and thinking (Skinner et al., 2009). Another concern is that as an observer, teachers may be biased due to diversity and differences in student characteristics (e.g., age, gender, economic status, participant bias-conscious of being observed) and instructor characteristics (e.g. previous experience and training, disability awareness) (Fredricks & McColskey, 2012; Mason et al., 2014). This method has also been questioned regarding its ability to simultaneously capture the engagement of more than one individual student or classroom (Fredricks & McColskey, 2012). Given this limitation, data collected in this manner does not lend to straightforward generalization and can be time-consuming.

2.2.1.4 Engagement Interviews

Many scholars use interviews to collect data that tap into students' engagement levels. The format of the interviews varies from highly structured to open-ended items or questions. The

overall advantage of interview data is that it can provide detailed and fine-grained information regarding students' emotional and cognitive experiences (Zhou et al., 2021). Interview data in the form of stimulated recalls can gather data on learners' cognitive processing to understand the cognitive aspects of engagement (Reschly & Christenson, 2012). Such data have been used to explore which and in what ways contextual factors influence student engagement (Meece et al., 1988) as it elicits significant examples or narratives of students' experiences that establish the interaction between engagement and the L2 learning environment (Hiver et al., Zhou, 2019).

Interviews as a data collection technique for assessing student engagement possess some disadvantages that should be considered. The interviewing technique tends to elicit socially desirable responses depending on the expertise and status of the interviewer. For example, suppose student participants see the interviewer as an authority figure. In that case, they may respond to interview questions in a fashion that is not reflective of their accurate and honest experiences. In addition, analyzing data from interviews can be tedious for researchers when dealing with many participants. The arduous systematic process involved in accurately transcribing data into a textual format and drawing valid conclusions on engagement makes it preferable for a small number of respondents, thereby reducing the generalizability of findings (Fredricks & McColskey, 2012; Zhou et al., 2021).

2.2.1.5 Log Files and Eye-Tracking Methods

Recently, there have been advancements in the data elicitation methods for assessing student engagement. These state-of-the-art methods elicit engagement data in real-time via automated detectors that infer learners' level of engagement based on specific quantifiable behaviours (Gobert et al., 2015). The techniques include eye tracking, log files, body language,

electroencephalogram (EEG) and physiological features to gather grain-size objective data at a second-by-second range (Fredricks, 2022).

Regarding Log files, some authors base their analysis of engagement levels on learners' interactions generated in computer-based learning environments. One such study is Gobert et al. (2015), who employed the log file technique to examine engagement in science learning by tracking students' behaviours indicative of disengagement in an online learning model. The study involved the development of a detector of disengagement and how it can be used to support the learning of science. Examples of the behaviours that are indicators of disengagement gathered via the log files include off-task goal behaviours (i.e., repeatedly pausing the software, lengthy periods between actions during experimental trial, etc.) and behaviours indicating that learners rush through the task to complete it quickly rather than performing well.

Other investigations have used eye-tracking tools to assess engagement. In this method, an eye-tracking device is used, which detects eye position and movements indicative of deep cognitive engagement. The behaviours recorded include the number of times students look at a written text, reaction time to a listening text and how much time they spend looking at words or images presented (Miller, 2015).

These modern real-time measures present many benefits. First, they precisely tap into engagement and provide detailed information that helps explore more complex and conditional aspects of engagement that do not lend to direct observation and reporting. In addition, they allow tracking of transitions in engagement across tasks and learning models using the large data set collected in short periods. Moreover, student engagement and concentration are not disrupted since they do not need to pause the task to complete survey questions (Miller, 2015), and the information gathered is objective and, hence, uninfluenced by socially desirable responses.

These measures present methodological disadvantages as well. They are cost intensive as they rely heavily on devices that can be costly and require expert training to use. Therefore, research based on such automatic devices will work best in a structured laboratory setting with small sample sizes rather than in a classroom or school setting (Miller, 2015). Additionally, given the relative newness of these measures, there are several unanswered questions regarding how to collect data accurately, store the extensive data gathered, and analyze and interpret results concerning engagement in schools (Henrie et al., 2015).

Although these new measurement techniques have promising benefits in advancing the concrete operationalization of the engagement construct, there are concerns about their ability to collect psychometrically sound data in less structured settings and with a larger participant pool. A summary of the strengths and weaknesses of the data collection instruments utilized in engagement research is given in Table 1.

Table 1

Limitations and Strengths of Student Engagement Data Collection Methods.

Method	Strengths	Limitations
<i>Self-report surveys and questionnaires</i>	• Easy administration • Cost effective. • Lends to easy psychometric and validation analysis. • Links engagement and contextual factors • Track engagement over time. • Captures necessary subjective data. • Detailed learner experience	• Self-report bias • Subjective data • Not suitable for younger learners • Assess engagement in the domain general context. • Retrospective data collection.
<i>Experience Sampling Method (ESM)</i>	• Real-time data collection • No observer is required. • Involves multiple participants at once.	• Random data - not suitable for L2 context. • Resource intensive • High participant commitment • Signals disrupt engagement.

	• Tracks length, level and transitions of engagement over time.	• Items not representative of the multi-faceted nature of engagement.
<i>Observations and teacher ratings</i>	• Practical administration and cost. • Links contextual and instructional factors with engagement. • Suitable for language-specific situations • Aides data triangulation and verification • Qualitative and quantitative approach • Appropriate for younger learners. • Elicits concurrent data	• Does not accurately assess cognitive and emotional engagement. • Observer bias • Small participant size at a time • Low generalizability
<i>Engagement interviews</i>	• Gather detailed information on engagement. • Taps into learners' cognitive processes. • Links engagement and L2 learning experiences	• Socially desirable answers • Suitable for small samples. • Time-consuming • Tedious analysis procedures • Influenced by Interviewer training and status. • Reduced generalizability
<i>Log files and eye-tracking methods.</i>	• Real-time data • Precise measure of complex and conditional factors • Not disruptive of engagement • Objective perspective	• Requires technical know-how and costly devices. • Not appropriate for less structured settings

2.2.2 Summary of Review on Student Engagement

The literature identified different definitions and models of the student engagement construct. Several studies indicated that engagement is a multi-faceted construct and a manifestation of three types including behavioural, emotional and cognitive engagement. The data used in engagement research is solicited through many measurement methods including perception questionnaires, interviews and observations. All the available techniques have methodological advantages and disadvantages that must be considered.

2.3 Flow Theory

Imagine reading a book, you become so engrossed in it that you forget your sore shoulders, you forget you did not eat lunch. Or you give a presentation in class. It goes better than expected and catches everyone's attention, 40 minutes go by without you realizing it, it feels like you have only spent 10 minutes. Looking back at these experiences, you wonder what happened.

Whenever individuals find themselves in a state where they are intensely absorbed in an intrinsically rewarding activity that every other thing around them seems not to matter, they are said to be in a state coined in the literature as flow. Csikszentmihalyi (1990) defines flow as:

“Concentration is so intense that there is no attention left over to think about anything irrelevant or to worry about problems. Self-consciousness disappears, and the sense of time becomes distorted. An activity that produces such experiences is so gratifying that people are willing to do it for its own sake, with little concern for what they will get out of it, even when it is difficult or dangerous.” (p. 71)

People in “flow” report feeling enjoyment and success in carrying out an activity (Nakamura & Csikszentmihalyi, 2002). Some describe it as “having the touch,” “blinking out,” or “optimal experience” (Abbot, 2000, p. 75; Csikszentmihalyi, 1990). In other words, flow state is characterized by deep absorption in the task at hand, and the individual in flow can work at their optimum capacity and give off their best (Csikszentmihalyi, 1996).

In recent years, positive psychology (PP) has gained attention as a way of examining and analyzing foreign language learning with an emphasis on the important stakeholders—that is, students, instructors, and institutions—in second language acquisition (SLA) (MacIntyre & Mercer, 2014). Flow is one such positive phenomenon that seems applicable in formal educational settings (Shernoff & Csikszentmihalyi, 2009).

This study employs the concept of flow as a means of investigating student engagement in two language learning settings. Studies on flow have depended on one of two main sources of data collection – retrospective perception questionnaires or ESM (Egbert, 2003). A flow experience on a task has been described as having an above-average score on all components combined (see examples Cox 2014; Cox & Montgomery, 2019; Egbert, 2003). This means obtaining an average of five or higher (i.e. the starting point of the agreement scale) on the flow scale. In this study, flow on the Oral Task will be determined by comparing participants' reported experiences on the questionnaire with the above definition of flow. Although this is a very liberal definition of flow experiences (Csikszentmihalyi, 1997), it taps into a range of intensity that is valuable in understanding how students experience flow during classroom activities (Egbert, 2003).

2.3.1 Conditions of flow

Flow is an experience of pleasure and joy individuals create when they align adequately with an activity. It manifests as an intense intrinsic motivation to perform and learn.

Csikszentmihalyi (1990, 2014) summarizes the key elements of flow as follows:

1. Clearly defined goals – The individual knows what to do at every moment.
2. Match between challenges and skills – The individual's abilities match the opportunity or task.
3. Possible control – the individual feels in control of their actions and success
4. Deep concentration or attention – The individual is completely absorbed in the activity.
5. Immediate feedback provided – The individual receives feedback on how well they are doing.
6. Transformation of time – Time seems to move by quickly.

7. Disappearance of self-consciousness – There is no time left to think about the self or problems.
8. The experience is Autotelic – The task is intrinsically motivating or rewarding and worthy of doing for its own sake.

The eight (8) flow conditions above can be roughly categorized into preconditions and post-conditions (outcomes) of flow. The first five (5) are the preconditions of flow because they must be present for an activity to induce flow. The last three (3) are the in-flow effect or outcome of the flow experience. They are the subjective experiences of individuals in a flow state.

2.3.1.1 Description - The four (4) dimensions of flow in language learning

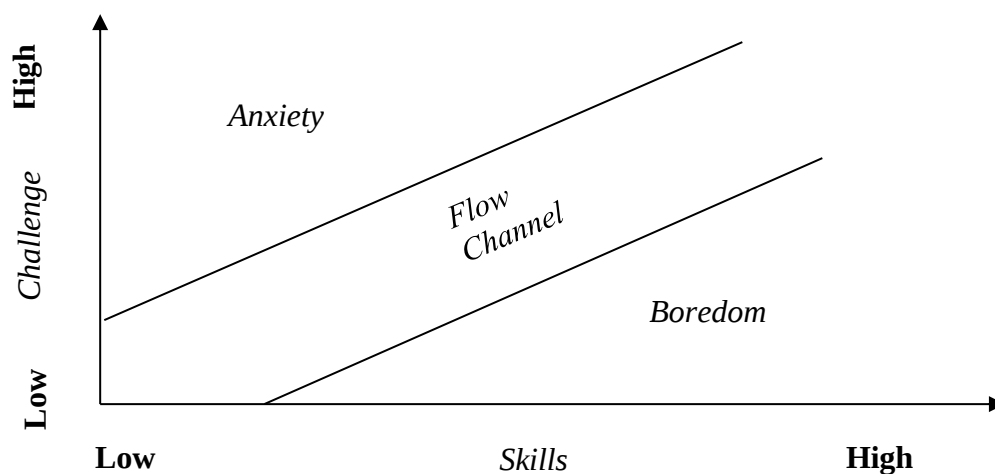
The current study will explore learner flow experience and engagement through the four (4) dimensions of flow studied in the language classroom context by Egbert (2003). The four conditions are challenge-skill balance, interest or authenticity, concentration or focused attention, and a sense of control or autonomy (Egbert, 2003). These elements must co-occur for learners to experience flow on a target language (TL) task (Csikszentmihalyi, 1997). Note that clear goals and immediate feedback are not directly included in the engagement questionnaire used in this study. They are embedded and part of most classroom language tasks (Egbert, 2003), including those used in this study. Each of the four (4) conditions of flow is described in detail below:

Challenge vs. skills balance: The first component is the fit between the challenge of a task and the skills a learner requires to accomplish it. Flow theory thrives on a harmonious interplay between challenge and skills – for an individual to experience flow, the challenge should be exactly right, not too easy nor too difficult. When there is a mismatch between challenge vs. skills balance for a given task, it leads to anti-flow experiences (Csikszentmihalyi et al, 2005) which include apathy, anxiety, and boredom (Csikszentmihalyi, 2014; Wallen, 1997). Giving

appropriate challenges that match a learner's skills can help them enter flow, and this state of being actively engaged can be sustained by progressively increasing the complexity of the task and using previously learned skills to accomplish the higher demanding task. Flow experiences encourage growth – since being in a state of flow is intrinsically rewarding, it makes a task pleasurable and worthy of doing for its own sake. This autotelic desire encourages individuals to repeatedly engage in challenging tasks and aim at “higher levels of performance” (Csikszentmihalyi, 1990, p. 74). In this manner, flow experiences induce improved performance and learning (Nakamura & Csikszentmihalyi, 2002). This continuous match between challenge and skills is illustrated in Figure 1 – the flow state is represented by a diagonal where challenge equals skills. A mismatch results in anxiety or boredom.

Figure 1

The Flow Channel

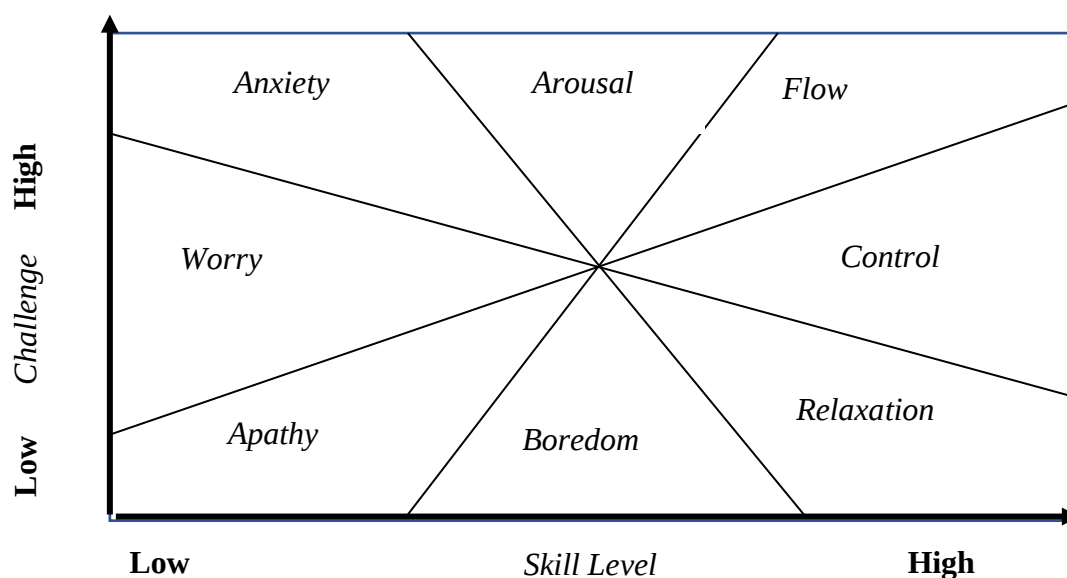


Note. Adapted from Csikszentmihalyi, 1975.

Figure 2 represents a revised flow model proposed by Csikszentmihalyi (1988). In this flow model, apathy appears at the beginning of the diagonal, implying low challenge and low skills yield apathy and that high challenge-high skill is the balance required to induce flow. However, Csikszentmihalyi (2014) explains that apathy below the diagonal suggests that “once you develop skills in an activity and you moved up, you have developed a high level of skills, and you have a high challenge, to have to return down to what you were doing before is almost impossible” (p. 138). Although the two models differ, they both suggest that the challenge-skill balance is fundamental to the flow experience. In the language classroom, challenges represent the Target Language (TL) tasks (may include creating a video to educate the public, collaborating to plan a trip to a Spanish-speaking country, deciding which cuisines represent Hispanic culture or reading and writing activity) that students must do. Skills are the knowledge and resources students have to fulfil the TL task (Egbert, 2003).

Figure 2

Ratio of Challenge vs. Skills



Note. Adapted from Flow and Education, Csikszentmihalyi, 2014, p. 139

Concentration: Challenge-skills balance is not the sole predictor of flow experiences. Another critical dimension is concentration which in Flow theory is “characterized by intense concentration and automaticity” (Egbert, 2003, p. 504). Concerning concentration or attention, when in a state of flow, an individual is intensely focused or fully absorbed in the task (Csikszentmihalyi, 1990). In the classroom context, studies found that being absorbed in a class task contributes to optimal learning outcomes (Shernoff et al., 2003).

Interest: Interest in a task is also crucial to experiencing flow. Interest in an activity goes hand in hand with motivation and learning. Intrinsic interest helps one to take advantage of new learning opportunities, gain feedback and venture into complex tasks that foster growth. In the language classroom, students will experience higher engagement when fulfilling tasks of personal interest; hence, basing tasks on student-generated topics and ideas can excite higher interest and commitment (Egbert, 2003).

Sense of control: Control is another contributing component of flow experiences. When learners perceive that they have a sense of control over a task, their deeds, and their environment, it can induce motivation, flow and learning. Some studies have noted that the home and the school setting provide more flow-inducing opportunities because they establish policies and responsibilities and allow members to exercise independence and express their abilities (Abbot, 2000; Whalen, 1997).

2.3.2 Effect of Learner and Contextual Factors on Flow

Learner factors are inherent characteristics of individual students that shape flow experiences and engagement. Students who enrol in a course may differ from one another in terms of personality, learning style and intelligence, among others. The inherent learner

characteristics have been termed as “individual differences” in educational literature. Dörnyei (2005) defines individual learner differences as “enduring personal characteristics that are assumed to apply to everybody and on which people differ by degree (p. 4). Agreement regarding what is included in the list of individual differences is far from absolute. In general, the factors that determine learner individuality include but are not limited to age, sex, gender, race, aptitude, intelligence, personality, attitude, learning style, motivation, language learning strategies, extroversion/introversion, risk-taking, self-efficacy, emotions and proficiency (Arabski & Wojtaszek, 2011; Dörnyei, 2005; Griffiths & Soruç, 2020; Pawlak, 2012; Skehan, 1989).

On the other hand, contextual factors are the external non-learner factors that affect the teaching and learning process as well as student engagement and flow - they are attributed to social, community, home/family, and classroom/school environment factors (Yang & Pu, 2015).

Several studies using perception questionnaire data have confirmed that certain learner and contextual variables contributed to flow experiences and engagement. These include: perceived control over an activity – learners perform well in tasks when they feel they have control over their actions and the learning environment (Cox & Montgomery, 2019; Deci, 1981; Egbert, 2003; Grant, 2017); the authenticity of a task – an authentic task that is personally interesting to learners induces higher flow (Egbert, 2003; Grant, 2017; Ringel, 2014; Newmann, 1992); classroom and demographic factors – For example, females reported being more behaviourally and emotionally engaged than males. However, Marks (2000) noted that the effect size of demographic factors is often smaller than that of classroom factors (Stodolsky, 1988; Finn & Cox, 1992; Marks, 2000); “challenge-skill balance” – language tasks that are challenging but manageable offer more flow opportunities than easy tasks (Cox & Montgomery; Egbert,

2003; Cox, 2014; Ringel, 2014); and task types (Egbert, 2003; Philp & Duchesne, 2016) – For instance, Egbert (2003) found that tasks such as collaborative work, electronic chats, email conversations, and interaction with native speakers correlated positively with flow (Egbert, 2003). The impact of collaborative tasks on flow was also reported by Shernoff et al. (2003) who used ESM data and found that learners experienced higher flow during individual and group activities than when they listened to lectures or watched videos. Other factors that induced flow included tasks and topics of high interest to learners (Azizi & Ghonsooly, 2015; Egbert, 2003; McQuillan & Conde, 1996), and using texts and topics selected by students (Hamed et al., 2017; McQuillan & Conde, 1996).

The findings of the studies above reveal that when instructors and educators take into consideration factors that affect the teaching-learning process, learners can have flow-promoting and engaging experiences in the language classroom, which can contribute to effective language learning (Egbert, 2003; Cox, 2014; Shernoff et al., 2003; Cox & Montgomery, 2019; Kirchhoff, 2013).

2.2.4 Effect of the Learning Environment on Emotions and Flow

Research has shown that the peculiarities associated with different instructional formats (i.e., in-person, online, hybrid, etc.) can stimulate various emotions in students, subsequently affecting emotional engagement and learning outcomes. Some scholars have reported that the mode of instruction can dull and, at the same time, heighten certain emotions, which can consequently determine learners' involvement in their learning. This is notable in a cross-sectional study by Dewaele et al. (2022) who investigated the impact of emergency remote learning on student flow experiences through a perception questionnaire. The study revealed that learners felt that online classes during the pandemic numbed their emotions and made them feel

mentally isolated. In other university-level studies using similar measurement techniques to investigate foreign language anxiety and enjoyment, learners were asked to compare their emotions during their pre-pandemic classes with their emergency remote classes. Resnik and Dewaele (2021) and later Resnik et al. (2022) both noted a decline in the level of enjoyment and anxiety in online classes. These findings are substantiated by El-Dakhs et al. (2022), who surveyed 147 undergraduate students to analyze achievement emotions between online and in-person lectures. They concluded that positive emotions were much higher among students in in-person classes (e.g., enjoyment – $M=3.34$, hope – $M= 3.36$) than in online classes (e.g., enjoyment – $M= 2.73$, hope – $M= 2.96$). The authors cited having direct contact with teachers and peers and being comfortable at home as factors influencing positive emotions and in in-person and online classes. Not feeling comfortable engaging in in-person classes predicted negative emotions, while online students mentioned technical problems and lack of direct interaction.

As the authors of the studies mentioned above indicated, the suddenness and newness of the emergency online classes may have influenced learners' emotions and the research outcomes. It has been over three years since the pandemic started, and learners are no longer forced to study online – they can choose online or in-person classes. It seems that adopting mixed learning models is here to stay. It is, therefore, crucial to delve deeper into and compare learners' psychological states in different learning environments through a well-grounded framework.

2.3.5 Impact of Language Proficiency on Flow Experience

Language proficiency is considered an essential variable in the development of L2 competence – it is “the linguistic knowledge and skills that underlie L2 learners' successful comprehension and production of the target language” (Gaillard & Tremblay, 2016, p. 420). In

other words, proficiency influences many facets of language learning and attainment. As students enrol in language courses with different proficiency levels, it is crucial to understand the interrelationship between learner proficiency in the non-native language, the learning environment and flow experiences. It is unclear whether low proficiency (LP) learners in online and in-person learning settings experience flow like high-proficiency (HP) learners.

Despite the importance of proficiency in task performance and oral development, there remains a paucity of evidence on its connection with flow experiences. The scarce existing research conducted in the traditional classroom seems to suggest that there are differences in flow between proficiency groups. For example, using a perception questionnaire, Botes et al. (2020) investigated the effect of enjoyment and anxiety on the development of flow in foreign language classes among 1044 respondents. Regarding proficiency, it was found that beginner learners' flow experiences were sporadic and short-lived. In contrast, advanced learners attained increasing flow experiences that were robust and sustained over time. They concluded that higher language skills positively influenced flow. In addition, teachers' narratives on flow in Synder and Tardy (2001) and Tardy and Synder (2004) indicate that flow is more probable when learners get to a level where they can apply knowledge gained to an intellectually challenging task. However, Egbert (2003) commented that flow may be possible even for language students with low abilities if they meet the conditions of flow in an enabling environment.

2.3.6 Task Flow: Student Engagement during TL Oral Tasks

A task is a stand-alone, goal-oriented, meaningful activity focusing on meaning rather than language (Egbert, 2003). Task engagement is the extent to which students manifest intense involvement in a learning task. Studies using flow perception questionnaires have shown that Flow Theory can facilitate the study of task engagement to understand the degree to which

learners engage in TL tasks such as speaking activities (Aubrey, 2016; Czimmermann & Piniel, 2016). It is crucial to investigate task flow because different classroom language tasks induce different flow experiences (Zuniga & Payant, 2021).

Speaking is a complex aspect of L2 learning, which “requires the learner to construct meaning by producing information while employing effective linguistic, non-linguistic, and contextual parameters such as language control, body language, and interlocutor-receptor relationships” (Castañeda & Rodriguez-Gonzalez, 2011, p. 483). Thus, transferring meaning through verbal utterances is a productive oral and aural skill. Oral assessment tasks are verbal language activities where learners are asked questions, engaged in conversation or discussions, etc., to assess their ability to comprehend and speak the language they are learning. They are commonplace in language courses and are often conducted midterm or towards the end of the semester. The purpose of oral exams is to evaluate a profound understanding of the language, provide immediate feedback, and develop learners’ verbal communication skills (Hazen, 2020).

Until recently, there has been little interest in flow in speaking tasks. Some evidence from studies using flow perception surveys showed that such tasks are flow-promoting for students (Ak Senturk, 2012; Aubrey, 2017; Czimmermann & Piniel, 2016; Piniel & Ritecz, 2022). For example, Czimmermann and Piniel (2016) examined flow and anti-flow factors among 85 advanced English as a Foreign Language (EFL) learners. Participants completed a narrative task in individual (story dice), pair (role-play), and group work (debate) modes. The finding showed that flow occurred during the narrative task, and there were no differences in flow experiences across the three modes, indicating that individual tasks can facilitate learner engagement as much as group tasks. In another study conducted by Ak Senturk (2012), the quality of flow experiences was mediated by task type. The study included eight different speaking tasks: interview, picture

narration, storytelling, class discussion, information gap, role-play, communication games, and problem-solving activities. The analysis indicated that all the speaking activities induced flow. Congruent with the results in Egbert (2003), the finding also revealed that different tasks promoted varying degrees of flow. On that note, the author advised that instructors are crucial in providing a facilitative ground for student flow experiences by designing tasks that might lead to flow.

2.3.7 State of Flow: Proportion of Class Time in Flow

The literature on flow distinguishes between flow on single tasks (i.e. task engagement) and flow experienced for an extended period (i.e. Sustained Flow). Sustained flow is a state of engaging intensely in a goal-driven task for a prolonged duration (Dörnyei et al., 2014; Ibrahim & Al-Hoorie, 2019). In general, both task flow and Sustained Flow are characterized by elevated interest, goal-directedness, and high engagement. While task engagement involves short-term tasks, Sustained flow typically persists for an extended period, perhaps a few weeks, months, or more (Ibrahim, 2020).

Dewaele and MacIntyre (2021), who investigated flow and anti-flow of Spanish language students through a perception questionnaire, found that respondents reported more flow experiences than anti-flow. Based on Fredrickson's (2001) broaden-and-build theory of positive emotions, they made an important prediction that beyond task engagement, flow experiences may have an impact for longer durations because repeated exposure to favourable emotions of flow, strengthens people's enduring resources, including the social, psychological, personal and physical aspects. MacIntyre and Gregersen (2012) also argue that L2 learning requires long-lived motivated behaviour, which results from enjoyment of learning activities.

In the recent past, Ibrahim and Al-Hoorie (2019) described “Sustained Flow” as "the occurrence of flow in a series of tasks aimed at achieving a certain outcome (for example improving proficiency in a second language)" (Ibrahim & Al-l-Hoorie, 2019, p. 51). After analyzing the sustained flow experiences of nine students through perception data, Ibrahim (2020) confirmed that learners' flow state was maintained by positive emotionality during single learning activities (positive emotions) as well as over longer periods (positive mood). This finding indicates that the duration of learners’ experiences in the learning environment and how they relate to flow should be considered.

Instruction of the Spanish language course through the modalities under investigation takes up to a semester and involves more than one task. While examining flow in a single task (such as the Oral Task) is necessary to understand how specific task characteristics influence learner flow experiences, the analysis of the role of the learning environment on flow experiences must consider students’ experiences during the entire course to understand its full impact on learner flow state. For this reason, in addition to exploring oral task engagement, this study also aimed to examine the “prolonged process of engagement” during Spanish classes (Dörnyei et al., 2015, p. 5).

2.3.8 Characteristics of Flow and Second Language Acquisition (SLA) Research

Research on flow in second language learning has concluded that well-planned TL tasks can induce flow in the language classroom, leading to more extraordinary perseverance and language learning success. Hence, research on flow “could add valuable information to our knowledge of contexts and processes that support SLA” (Egbert, 2003, p. 500). Flow theory and SLA research have commonalities that call for investigating flow experiences in language learning contexts. Below is a list of aspects of flow that overlap with SLA theories and research:

Krashen's (1985) Comprehensible Input Theory: Both SLA theories and flow agree that a fair match between a language learner's skills and the challenge of the TL task is necessary. As stated earlier, the challenge-skill balance is a fundamental prerequisite for flow occurrence in Flow Theory. In SLA research, this notion aligns with the *Comprehensible Input Theory* postulated by Krashen in 1985. The theory posits that for learners to acquire language successfully, the given input should be appropriate – i.e., they need “comprehensible input” (referred to as $i + 1$), which is input slightly above the current language competence that is understandable but challenges learners to think critically and progress.

Krashen's (1982) Forgetting Principle: Interest, attentional focus, and loss of self-consciousness are three elements that underpin flow experiences in the language classroom. Egbert (2003) affirms that learners will be engaged and experience flow when carrying out tasks that spark their interest. Such tasks are interesting because they capture learners' attention, and they can easily focus on them. An outcome of Flow Theory is that flow experiences cause the disappearance of self-consciousness such that learners forget the self, problems, fatigue etc. In SLA research, the *Forgetting Principle* parallels these three elements in Flow Theory. Egbert (2003) believes that “Krashen's (1982) Forgetting Principle identifies the experience most similar to flow in the language acquisition literature” (p. 500). The theory posits that learners acquire language when they are exposed to “interesting” and “relevant” input that seizes their attention such that they “forget” that “the message is encoded in another language” (Krashen, 1982, p. 72).

Motivation: This is the drive that directs a learner's behaviour to take up action, persevere, and invest efforts to pursue it (Dörnyei & Ushioda, 2021). Gardner (1985) describes motivation to learn a foreign language as a construct comprising three characteristics: desire to

learn the language, motivational intensity (effort), and attitude toward learning. Thus, highly motivated learners are goal-directed; they want to learn the language, exert efforts, and persist to achieve their goal. They also demonstrate self-efficacy and confidence in attaining their objectives (Gardner, 2005). Thus, motivation is crucial for academic success and is a primary determinant of students' level of involvement and sense of responsibility for their studies (Martin et al., 2015). According to Reschly and Christenson (2012), studies on the relationship between motivation and engagement in the literature present three (3) positions. First, some researchers view engagement and motivation as two interconnected yet distinct notions – engagement representing action and motivation as the intention. The second group of scholars (Fredricks et al., 2004, among others) ascribe to the idea that engagement is a meta-construct that encompasses motivation. The last group views engagement and motivation as the same construct and uses the terminologies interchangeably (see, for example, Martin, 2007; National Research Council & Institute of Medicine, 2004)

Studies that espouse the view that engagement and motivation are different but related constructs have corroborated that motivation has a direct positive correlation with all three types of engagement (see examples Acosta-Gonzaga & Ruiz-Ledesma, 2022; Saeed & Zyngier, 2012, 2018; Wang & Eccles, 2013). This is exemplified in a longitudinal study by Wang and Eccles (2013), who surveyed 1157 students to analyze the relationship between learner perception, motivation and engagement. The finding showed that motivation mediated all three types of engagement. Furthermore, via interview data, Saeed and Zyngier (2012) found that intrinsically motivated students were more behaviourally and cognitively engaged in learning. Valerio (2012) opined that intrinsic motivation can be maximized by providing learners with engaging learning experiences.

It seems that experiencing flow leads to exhibiting motivated behaviours. Accordingly, Csikszentmihalyi (2008) describes flow as an intrinsic motivational state because being in flow “gives you the incentive, the motivation, the reward to transcend limits (Csikszentmihalyi, 2014, p. 274). There are two reasons why flow experience is an essential source of intrinsic motivation: first, flow activities yield positive and enjoyable outcomes, and second, flow state stimulates growth, in that the individual progressively seeks and develops more complex abilities.

Role of Feedback: Hattie and Timperley (2007) define feedback as “information provided by an agent concerning one’s performance or understanding” (p. 81). In other words, it is information that learners receive about how well they are performing in the learning process and what they can do for further improvement. Feedback is a vital component of SLA learning theories – Dörnyei (1994) advises that positive informational feedback, which “attributes success to effort and ability” and not overreactive to errors, can lead to learner increased intrinsic motivation, engaged and faster learning (p. 278). Furthermore, Oxford and Shearin (1994) state that “feedback is necessary for high performance.” In addition to learning objectives, “feedback from the L2 teacher and any other relevant sources help determine the expenditure of energy [...] that students will put forth” (p. 19). The role of positive feedback in language learning is also evidenced in Flow Theory as Csikszentmihalyi and Nakamura (2014) highlight that activities that facilitate flow are those in which individuals can “seek feedback and focus on its informational aspects” (p. 193). In flow experiences, unambiguous feedback aims to “inform the individual how well he or she is progressing in the activity and dictates whether to adjust or maintain the present course of action. It leaves the individual with little doubt about what to do next” (Csikszentmihalyi, Abuhamdeh & Nakamura, 2014, p. 232). Although implicit feedback is vital in language learning and flow experiences, it can be a barrier. Both flow and SLA research

have reported that implicit feedback can interrupt the intense focus necessary for flow and the meaningfulness and authenticity of productive language tasks (Egbert, 2003; Robinson, 1997).

Play and enjoyment: In SLA research, emotion theorists have widely studied classroom enjoyment and its relation to school success. Play is often considered a childhood phenomenon, but it is also an adult experience connected to enjoyment (Cook, 1997, 2000). Enjoyment incites the need to play, be creative and push boundaries (Fredrickson, 2001). In the language classroom research, Tarone (2002) emphasized that language play may facilitate language acquisition because it is fun, awakens exciting emotions, and helps “learners notice and intentionally manipulate variables in their interlanguages to assert different social identities or for entertainment” (p. 295). Enjoyment and the playfulness associated with it foster intellectual and social development, which might facilitate foreign language learning (Fredrickson, 2001; Dewaele & McIntyre, 2014). Like SLA research, enjoyment is a defining characteristic of the flow model (Csikszentmihalyi, 1990). Shernoff et al. (2003) affirm that “flow activities, including intellectually demanding tasks, can also be enjoyable and satisfying. They may provide a feeling of creative accomplishment and satisfaction” (p. 478). According to Csikszentmihalyi (1990), children and adults play (be it cooking, biking, or reading) because such activities are fun, enjoyable and autotelic (i.e. worthy of doing for its sake). Play tasks with manageable challenges that are a little above the players’ current skill level will lead to the emergence of enjoyment and flow experiences (Csikszentmihalyi, 1975, 1990).

Setting clear goals: An essential characteristic of flow-promoting activities is their unambiguous goals. Csikszentmihalyi (1990) emphasizes that flow experiences are more likely in the presence of clear goal structures.

“A goal is necessary so that we may get feedback on our actions so that at any given moment, we know how well we are doing in terms of the goal. Without a goal, there cannot be meaningful feedback, and without knowing whether we are doing well, it is challenging to maintain involvement” (p. 129).

He further states that, in the educational setting, students’ flow and commitment to their studies can be maintained by giving them goals with increasing difficulty that match learners’ developing skills. The idea of setting learning goals is widespread practice in the language classroom (Fisher & Fry, 2011). Tremblay and Gardner (1995) argue that language students learn better with specific, challenging goals. Additionally, Dörnyei (1994) mentions that as classroom L2 learning often occurs with a group of learners, group goal-directedness as well as classroom goal structures (particularly cooperative learning) are vital for more remarkable motivated learning outcomes (p. 279).

2.3.9 Related studies: Flow and Engagement in the Language Classroom

This section will review three studies that have investigated flow in language tasks through flow perception questionnaires. The findings from these studies inform the current study in many ways.

Although Flow Theory has existed since the 1990s and has been widely applied in fields such as sports and computer activities, its application in the language classroom has been limited (Finn, 2007). Nonetheless, in recent times, flow research in the language classroom has gained increased attention. Egbert (2003) was the first to employ flow to measure task engagement in the L2 classroom. Her objective was to explore whether flow occurs in the language classroom and what types of tasks contribute to flow. Her study involved 13 anglophone students in a high school Spanish class who completed seven language tasks. The study distinguished four

conditions of flow – challenge -skill balance, focused attention, authenticity or interest, and sense of control. Her findings revealed that flow does occur in the traditional language classroom and that when there is an appropriate challenge-skills balance, it induces flow in language classrooms. This, in turn, leads to more effective learning outcomes or improved performance.

Cox and Montgomery (2019) used Flow Theory to examine the effect of a project-based learning task requiring 21st-century skills (e.g. critical thinking, creativity and innovative skills) on the flow of 25 university students. Participants were asked to complete a perception questionnaire with a Likert scale and open-ended questions after an interview and a reflective writing task in class. The findings suggest that the project-based task was engaging and contributed to learners' emotional, cognitive, and behavioural engagement.

In a more recent study, Zuniga & Payant (2021) examined the effect of task repetition on the quality of students' flow experiences during TL oral and writing activities. The 24 university-level learners of English completed a perception questionnaire, and the results indicated that task repetition positively impacted learners' flow intensity. The findings also revealed that task characteristics interact differentially with flow outcomes, as participants reported having more control and focus during the collaborative oral task than the writing task.

The studies on L2 learner flow have informed the current study in various aspects: 1) They serve as methodological guidance for implementing this study. 2) They prove that Flow Theory is a valuable framework for understanding student engagement and the conditions that facilitate it and 3) They acknowledge that engagement and flow are complex and challenging constructs to measure. However, they also reveal that questionnaires are reliable for investigating such subjective experiences.

2.3.10 Flow Theory and Three-Dimensional Engagement Construct

The term “flow” has been used synonymously with optimal engagement in studies such as Shernoff et al. (2003) and Cox and Montgomery (2019), who investigated student engagement through Flow Theory. In the field of research on engagement, a plethora of authors ascribes to the categorization of the engagement construct into the three types explained in section 2.2 above – behavioural, cognitive, and emotional engagement (see Anderson, 2017; Fredrick et al., 2004; Skinner & Belmont, 1993 among others). A comparison of the traditional three-dimensional engagement and Flow Theory is justified as it reveals points of intersection that can serve as a stepping stone for moving research on flow and engagement forward. There are many similarities between the components of flow and the characteristics of the three types of engagement (Cox, 2014). Here is a summary of the similarities presented in Table 2.

Table 2

Conditions of Flow vs. Elements of the Three Types of Engagement

Conditions of flow	Types of Engagement	Relationship/Similarities
Matching challenge-skills	Behavioural	The performance of a TL task where skills are applied is fundamental in both cases. In the flow principle, a learner experiences flow through accomplishing a mental or physical TL task. Behavioural engagement implies the application of skills on a TL task or participation in class activities.
Transformation of time Disappearance of self-consciousness Autotelic experience (Interest)	Emotional	The language activity performed arouses emotions (negative or positive) such as apathy, anxiety, joy, and interest. In Flow Theory, emotions impact how time and oneself are perceived. Emotional engagement affects the willingness to do the task at hand.
Clearly defined goals Deep concentration Immediate feedback Sense of control	Cognitive	To perform a task, an individual must invest mental efforts. This includes employing metacognitive strategies like planning and monitoring goals and attaining clear instructions and feedback that sustain focused learning.

2.3.11 Flow Theory as a Measure of Engagement

In recent times, flow is gaining much attention as a measure of student engagement in general and on specific tasks (e.g., Cox, 2014, Czimmermann & Piniel, 2016; Cox & Montgomery, 2019; Egbert et al., 2019; Zuniga & Payant, 2021 among others). As stated previously, Flow Theory is defined as an experiential state characterized by intense involvement and focus on a purposeful, challenging, and doable activity, leading to improved self-confidence and performance (Csikszentmihalyi, 2008, 1990).

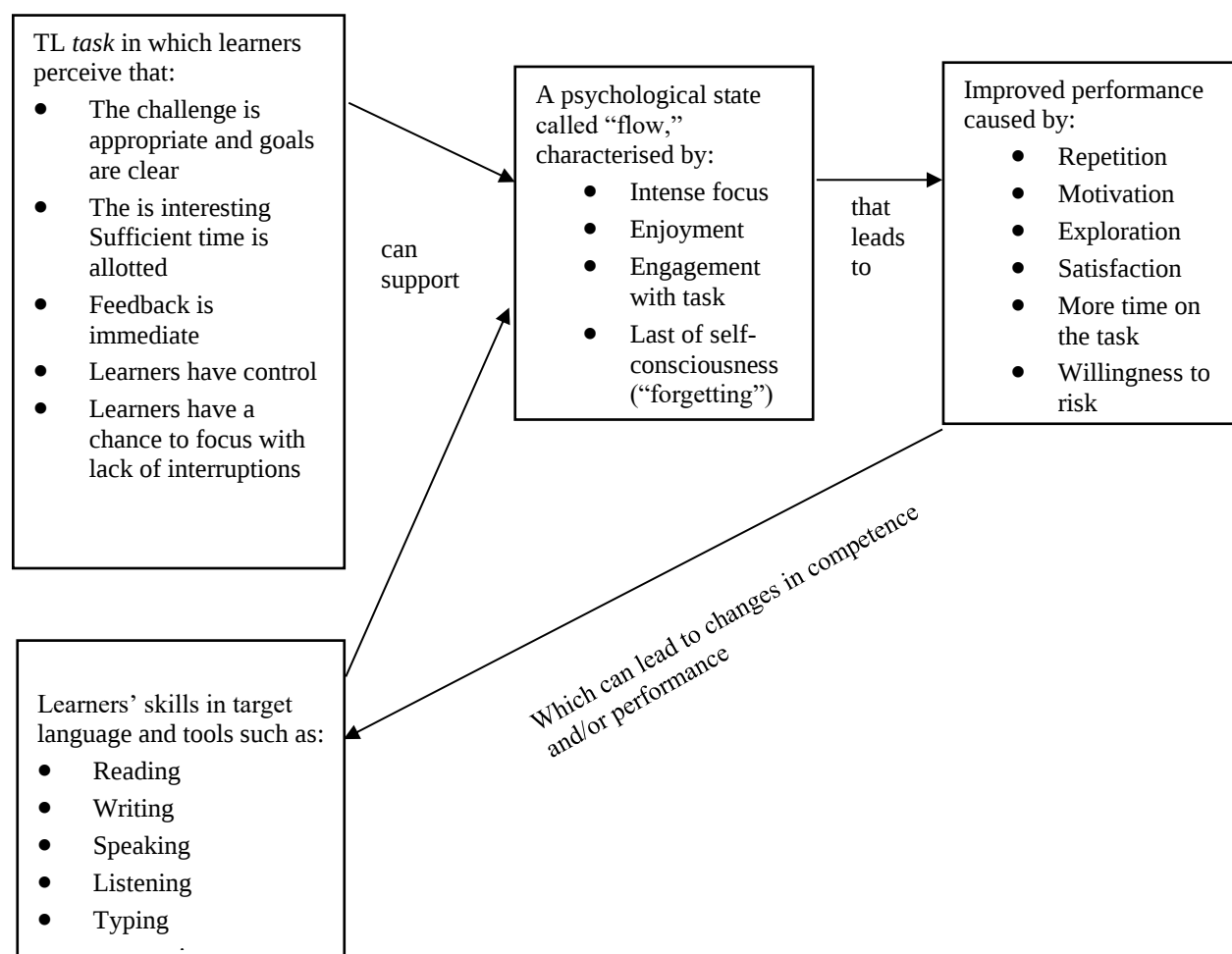
Egbert (2003) proposed a model of flow in teaching and learning in the foreign language classroom. The model prescribes flow as an individual experience yet not an isolated occurrence – factors such as skills and task features play a role. In other words, it implies that a carefully designed TL task and learners' skills in the target language and tools can lead to “flow” characterized by engagement, intense focus, loss of self-consciousness, and enjoyment. Learners' flow state, consequently, motivates them to persevere on the task and improve performance, leading to changes in language learners' skills (i.e., learning).

The model suggests that TL tasks significantly influence flow experiences and efficient language learning. The challenge of the TL task should be appropriate. The task should be interesting, within learners' control, and provide clear goals and immediate feedback. Thus, the model insinuates that flow as an individual experiential state depends on individual skills, the class activities assigned by the instructor, other class participants and the characteristics of the learning environment. See Figure 3 for a pictorial presentation of the flow model in language learning.

In keeping with the operational definitions of the dimensions of flow in language learning, the current study defines and measures student task engagement through flow as a four-dimensional manifestation of challenge-skill balance, concentration, interest, and sense of control. In addition, student engagement for this study was measured in online and in-person context.

Figure 3

Model of the Relationship between Flow and Language Acquisition



Note. Adapted from Egbert, 2003, p. 502

2.3.12 Summary of Review on Flow Theory

This section has attempted to provide a brief review of literature relating to Flow Theory in the context of the current research topic. Flow is an individual experiential state characterized by positive affect and intense cognitive involvement that manifest when a meaningful task challenges learners to the point where nothing else matters but the activity at hand. Beyond a specific flow task, flow experiences can last for an extended duration in a series of tasks. Flow Theory has gained research attention in the language classroom and four components of flow on language tasks have been identified including challenge-skill balance, concentration, control and interest.

Findings from studies on flow have reported differential flow outcomes for different language learning tasks. Results also indicate that high-proficiency learners have higher flow experiences. Additionally, TL Oral Tasks are flow-inducing, but it is unclear what level of language skills learners require to experience flow on Oral Tasks in different settings. The review showed that Flow Theory shares similarities with the three types of engagement as well as SLA theories and research. This warrants the need to apply Flow Theory in L2 learning environments because such investigations could broaden understanding and bridge gaps in SLA, engagement and flow research.

2.4 Positive Psychology

Positive psychology (PP) is a branch of psychology gaining increasing popularity in SLA research (MacIntyre & Mercer, 2014). It focuses on studying optimal learning environments, positive emotions and character traits (Tang, 2023), and its primary aim is “to help people live better lives” (MacIntyre & Mercer, 2014, p. 154). More broadly, it was developed to address

three main areas: positive experiences (e.g. emotions such as joy), positive individual traits (e.g. appreciation) and how institutions help people to thrive (e.g. through adopting positive values in dealing with the community) (Seligman & Csikszentmihalyi, 2000). General psychology tends to focus on problems such as disorders and mental illness. Hence, the popularity of PP has shifted attention from focusing only on the negative to emphasizing the positive aspects of life (Lopez & Snyder, 2009). MacIntyre and Gregersen (2012) were the first to explicitly draw attention to positive psychology in Applied Linguistics. They argued that positive emotions have five functions, including (i) expanding attention and thinking, (ii) counteracting negative emotions, (iii) promoting resilience, (iv) developing personal resources, and (v) increasing the spiral of well-being. They suggest that by stimulating learners' imaginations, teachers can potentially influence their emotions and help them recognize the gap between their present and future selves. They emphasize the need to create an enabling environment that diminishes the impact of negative emotions. However, the goal is not to entirely eliminate negative emotions but to leverage the power of positive emotions to establish a balance (Dewaele et al., 2019).

Positive psychology, flow, and student engagement share some similarities. They all aim to create conditions that enhance students' experiences by facilitating intrinsic motivation, positive emotions, and improved performance and well-being. For example, positive psychology highlights the creation of positive emotions. Flow state is characterized by intense satisfaction and enjoyment during tasks, and emotional engagement thrives on positive emotions and emotional connectedness students feel towards their learning. The environment created by all three concepts can lead to intrinsic motivation, fostering a sense of academic achievement and personal development.

2.5 National Survey of Student Engagement

As this study borders on engagement in higher education language classrooms, it is important to mention the National Survey of Student Engagement (NSSE), as it also measures engagement in higher educational contexts. George Kuh is the founding director of NSSE, which measures global student experiences and participation across the United States and Canadian universities and four-year colleges. It gathers information annually from freshmen and graduating seniors to assess their engagement in meaningful educational practices that align with positive student outcomes (Kuh, 2003; Kuh et al., 2005). More specifically, Kuh (2009) suggests that the NSSE “provide high-quality, actionable data that institutions can use to improve the undergraduate experience” (p. 9). The NSSE comprises ten engagement indicators grouped under four themes: Academic Challenge, Learning with Peers, Experiences with Faculty and Campus Environment. It also includes six High-Impact Practices (HIP), including service-learning, internship or field experience, and culminating senior experience (NSSE, 2023). Institutions use the indicators and HIP questions to compare their practices with other institutions and infer ways to improve students’ educational practices.

NSSE and Flow Theory are measures of engagement that share similarities and differences. Regarding similarities, both acknowledge that engagement is an important element that can predict learner success, learning experience and personal growth. Both consider students’ active participation in learning and the factors that produce positive outcomes in the learning process.

In terms of the differences, NSSE focuses on engagement at the broad institutional level from a behavioural perspective. Flow, on the other hand, focuses on the quality of individual

experiences characterized by deep concentration, enjoyment and challenge skill-balance from the perspectives of all three types of engagement on specific tasks and for extended periods of time.

NSSE and Flow can complement each other to broaden our understanding of engagement. While NSSE can provide broad institutional-level insights, flow can offer a deeper appreciation of how students experience and feel engaged during specific learning moments.

2.6 Validation of the Flow-based Task Engagement Questionnaire (FTEQ)

Validity and reliability are two of the most fundamental prerequisites in the assessment of any measurement instrument designed for data collection. Validity concerns whether an assessment measures what it is designed to measure. Reliability refers to the consistency of the measurements of an assessment tool. The current study proposes to carry out a validation of the student engagement questionnaire with a university population. There are two reasons why this validation is warranted:

1. Build on Egbert's (2003) study on flow in language learning: As Egbert (2003) conducted concurrent validity analysis, this study expands on the existing findings by conducting a more comprehensive and thorough validation of the 4-dimensional flow questionnaire - this will deepen our understanding as to whether the items under each flow condition tap into the same construct.
2. Determine the appropriateness of FTEQ in online learners: Validity is not an inherent characteristic of an assessment but rather a characteristic of using the assessment tool in a specific context, such as sports and language classroom contexts (Bachman & Palmer, 2010). When an assessment tool is used in a new context, at least some validity evidence must be established for that particular setting (Knekta et al., 2019). As previously mentioned, the FTEQ was validated in traditional classroom settings. Whether they are

appropriate for students in an online learning environment remains unclear. With this knowledge in hand, this current validation will help to assess the suitability of the student engagement questionnaire for use in both online and in-person learning contexts in post-secondary language classrooms.

In this study, reliability was established through Cronbach's Alpha (internal consistency). Validity was assessed via the think-aloud (TA) method. The next sections elaborate on validity and reliability measures as they relate to this study.

2.6.1 Internal Consistency via Cronbach's Alpha (CA)

Internal consistency gauges the correlation between questionnaire items that are loaded onto the same factor. It examines whether the questionnaire is consistent in assessing the construct intended. According to Churchill (1979), reliability must be the first measure in assessing the quality of an instrument. Cronbach's Alpha is the most commonly used measure of internal consistency reliability (i.e. to ensure that the items produce a reliable scale). As a standard statistical test, the coefficient Alpha has values ranging from 0 - 1.0, the higher the value of Cronbach's alpha, the greater the internal consistency. A minimum value of 0.6 and above is accepted for internal consistency. An item with a coefficient value below 0.6 may be considered for deletion if removing it significantly improves the CA of the survey. (Blend & Altman, 1997; Collingridge, 2014; Daud et al., 2018; Hair et al., 1998).

2.6.2 Think-Aloud (TA) Method

The need to evaluate content and cognitive response processes instead of merely looking into survey outcomes has long been emphasized (Stromer-Galley, 2007). The think-aloud method has been proposed as an approach useful for assessing problems in survey items and searching for validity evidence based on item response processes and content (Castillo-Díaz &

Padilla, 2012; Irwin et al., 2009; Peterson et al., 2017). In terms of content, it can evaluate the clarity and relevance of questionnaire items. In the case of response processes, it reveals the thought processes participants engage in to respond to an item.

The think-aloud method examines the cognitive processes participants undergo while responding to questionnaire items (Ericsson & Simon, 1980; Willis, 1999; Wilson & Miller, 2014). The most general model of cognitive theory posits that during the completion of survey items, participants engage in four cognitive processes: comprehension, retrieval, judgement, and response (Tourangeau, 1984). In other words, participants must understand what the question is asking, recall information from memory, make a decision or retrieve information and select an answer. Participants' understanding of survey items should reflect the intended interpretation of the developer (Ryan et al., 2012). Misinterpretation of survey items jeopardizes validity since such interpretations serve as the foundation on which inferences and conclusions are drawn from survey results (American Educational Research Association [AERA] et al., 2014).

The think-aloud method consists of two types: the concurrent and retrospective techniques. The concurrent technique requires participants to verbally describe their thinking while they complete each survey item. If an observer is present, limited prompts could be provided when necessary (e.g. prompt informant to keep talking) to avoid distracting the thought processes. In addition to providing responders with a detailed overview of the TA process, it is crucial to remind them that the interest is not in the chosen answer itself, but in understanding how they got to the response (Peterson et al, 2017). As participants may be unfamiliar with the TA procedure, careful training is needed at the start. Willis (2005) recommends the following practice prompt: "Try to visualize the place where you live and think about how many windows

there are in that place. As you count up the windows, tell me what you are seeing and thinking about." (p. 4).

By contrast, with a retrospective think-aloud, respondents answer questions after completing survey items. The retrospective probes are spontaneous or scripted questions that are asked immediately after the participant responds to the survey item (Buers et al., 2014). The questions may be related to the survey item completed or other information relevant to the specific response given by the informant.

Both methods aim to detect items that have been misconstrued. Some scholars recommend combining both techniques where participants employ concurrent verbalizations when answering an item and then answer follow-up questions as needed (Peterson et al., 2017; Willis, 2005). This is because there is evidence to suggest that concurrent TA is most useful in short-term memory issues, but the retrospective questions help provide information on item comprehension and retrieval of complex processes (Ericsson & Simon, 1993; Priede & Farrall, 2011).

This study used a combination of concurrent and retrospective think-aloud techniques to solicit data from informants and was conducted via an online think-aloud survey program. Phonic was the online tool used to record concurrent think-aloud verbalizations (Perrodin & Todd, 2021; Phonic Inc. 2020). Byrd et al. (2023) examined the feasibility of the Phonic online platform via the replication of the findings of a previous validation study. The results suggested that the information gathered via the online think-aloud platform is valuable in detecting problems in a survey and has promising benefits for large-scale think-aloud data collection.

The TA informants are often recruited using a purposive sampling technique that seeks a diverse range of insights and backgrounds (Willis, 2005). Selecting the right informants is

crucial for uncovering potential flaws in a questionnaire. It is advised that the sample be representative of a diverse community, particularly those with some connection to the intended concept (Peterson et al., 2017). For instance, in a survey designed to assess student engagement on L2 tasks, informants could include students, teachers, and language testing experts among others.

Concerning sampling adequacy, there is no set number of participants required. The goal is not to obtain a sample size large enough for statistical representativeness but rather to have a variety of insights. Hence, previous studies have recommended that a sample size ranging from 5 to 15 can produce meaningful results (Beatty & Willis, 2007; Peterson et al., 2017; Willis, 2005). The duration of one think-aloud session should be approximately an hour, as longer sessions could overburden informants (Willis, 2005).

There is also no consensus on a standard method for analyzing the resulting think-aloud data. A variety of analytical methods are available depending on the researchers' objectives. These may include a comparison of interviewer notes on detected problems to the compilation and coding of individual informant responses (Willis, 2005).

The think-aloud method of searching for validity evidence was used in this study for two reasons. First, psychometric analytical procedures such as exploratory factor analysis, confirmatory factor analysis, principal component analysis and Rasch help in identifying poor performing items to improve validity (Peterson et al., 2017). However, they require huge sample sizes than is available for this study.

Secondly, existing research has emphasized the need to focus on item response processes rather than only the outcome of a survey (Stromer-Galley, 2007). This is because, to date, little research has focused on collecting validity evidence based on response processes (Castillo-Diaz

& Padilla, 2022; Irwin et al., 2009). Moreover, Zumbo and Shear (2011) argue that in the last two decades, there has been very little increase in the number of publications focusing on the search for response processes evidence compared to other “traditional” types of validity support. In addition, the use of the think-aloud method to evaluate validity is scarce in language research. Peterson et al., (2017) stress that in addition to providing validity support based on content and item response processes, the approach can be used to complement psychometric measurements such as factor analysis. Hence, this study hopes to contribute to the limited research on the think-aloud method and demonstrate its use in language research questionnaires.

2.7 Language Learning Delivery Modes in Higher Education

A learning delivery mode is a system through which knowledge is imparted to learners. Each learning environment has its own method and may involve the use of technologies, a variety of facilities, and resources in line with the specific learning goals and intended learner experience. The prevalent methods used in delivering foreign language instruction at the post-secondary level include in-person, online, blended, and bimodal learning modes. Each one is presented in greater detail below:

In-person learning: This is the traditional in-person learning environment where instructors and students predominantly meet and interact physically on campus to accomplish learning goals. For decades, this method has been the preferred teaching and learning model in higher education. Although the COVID-19 pandemic forced academic institutions to adopt online teaching, many instructors and students are still inclined towards in-person classes (Mali & Lim, 2021).

The main benefits of in-person teaching are the direct social interaction among peers and instructors with fewer distractions (Heilporn et al., 2021). Research suggests that learners'

interaction with their peers promotes confidence, develops social intelligence and lessens the feelings of emotional and mental isolation associated with other teaching modes. (Chen, 1997). However, it is worth noting that learning in an in-person environment presents some challenges, including conflict with class schedules and the stress of commuting to the class venue.

Online learning: In this teaching model, the language course is delivered on the internet through a designated videoconferencing technology (e.g., ZOOM, Microsoft Teams, Echo360, among others), which allows students and teachers to meet, interact, and correspond in learning activities. With the widespread adoption of technology in education accelerated by the COVID-19 pandemic and technological advancements, students can now access a wide range of digital learning resources. In contrast with in-person learning, online teaching lacks in-person contact between teachers and students, and interaction among students in the physical learning environment is absent (Lee & McLoughlin, 2010). It is essential for teachers and student peers to regularly communicate and collaborate in online classes since learning in such an environment may arouse emotions of isolation and disengagement.

The online teaching mode has benefits and challenges. In terms of benefits, teachers and students alike find it convenient and flexible since it is accessible to many irrespective of geographical location. The challenges include network connection issues, lower interaction, external environment distractions, privacy concerns, academic integrity and self-discipline (Ababneh et al., 2022; Zhao; King et al., 2009, Zhang, & Chen, 2022). For instance, King et al. (2009) and Ababneh et al. (2022) found academic integrity an issue in online classes as they reported a higher penchant for cheating among students in online learning environments.

Hybrid and Blended Learning: This teaching and learning mode combines in-person and online elements (Lakhal & Meyer, 2019). It has become widely adopted in higher education

language classrooms following COVID-19 to integrate in-person and online components to provide students with a more flexible learning experience (Ng, 2022). The blended teaching mode leverages the benefits of online flexibility and technological opportunities to enhance, complement, and support traditional in-person interaction, hence considered the most feasible learning approach (Abdelkader & Barbagallo, 2022).

The benefits of the blended learning format include encouraging self-regulated learning through active student involvement, participation, and effective self-management, enhancing comprehension of course content, promoting more flexibility, and optimizing student engagement. The challenge might be the irregular communication and physical interaction with peers and teachers (Peimani & Kamalipour, 2022). Additionally, it requires technology and teacher training, hence the tendency of connectivity problems.

Bimodal learning: Bimodal delivery mode has become prominent in higher education to make teaching and learning safe and possible during the transition to on-campus learning following the Coronavirus pandemic. Bimodal learning involves the synchronous participation of two groups of students simultaneously – the instructor and one group of students join the class in person, and another group joins the class remotely via a designated videoconferencing tool. To ensure that in-person students can see and hear the online students, the online conference call is projected on a large screen in the classroom, or the in-person students also log into the web conference class.

The significant advantage of bimodal learning is its flexibility and learner autonomy – it is accessible and accommodates the needs of various students. Students can join the class remotely or in person, depending on their circumstances. The interaction challenge is the most significant disadvantage. Online students are not able to interact as much with the instructor and

student peers compared to in-class students. It is tedious and complex for instructors to coordinate the two groups of students and interact effectively with all students in the bimodal class. Another disadvantage is that it is not an appropriate delivery format for discussion-based language courses – it is challenging to have class-wide discussions because in-class students will not be audible to remote students without a microphone. In addition, it relies on technology and network connectivity; therefore, technological problems can disrupt the teaching and learning process (Germain-Rutherford & Karamifar, 2022).

In summary, higher education teaching and learning delivery modes saw massive shift in flexibility and adaptation occasioned by the impact of COVID-19 and related technological advances. Incorporating a wide range of technology can shape the future of language instruction in higher education. Leveraging the best of online flexibility and in-person interaction, blended and bimodal teaching modes provide promising benefits. This is to say that academic institutions have a responsibility to continue developing and improving a variety of learning modes to support the learning needs of all students better. Table 3 summarizes the advantages and limitations of the four (4) learning modes discussed.

Table 3

Current Learning Delivery Modes in Language Programs

Learning mode	Advantage	Disadvantage
In-person	• Direct social interaction with instructor and peers • Limited distractions, • Immediate feedback • Strengthens social intelligence and sense of community.	• Schedule conflicts, • Commuting stress, • One-size-fits-all instruction that does not accommodate all learners' needs.

Online	• Flexible schedules and convenience - Access to a variety of digital resources	• Lack of physical interaction can lead to feeling isolated and disengaged - Connectivity problems, • External distractions • Requires learner self-discipline and motivation • Privacy and integrity concerns.
Blended or hybrid	• Incorporates the best aspects of in-person and online learning • Encourages metacognitive learning, • More effective learning experience • Flexibility • Promotes higher engagement.	• Limited physical interaction • Requires technology • Connectivity and technological difficulties.
Bimodal	• Greater flexibility and autonomous student learning • Accommodates the needs of different students at the same time.	• Interaction difficulty • Challenging to manage two groups simultaneously • Concerns about learning quality and effectiveness • Unsuitable for class-wide discussion courses.

2.8 Summary of Chapter 2

This chapter reviewed existing literature on engagement and Flow Theory. Engagement is multidimensional and is a combination of behavioural, cognitive and emotional factors. A comprehensive overview of Flow Theory, its applicative nuances and the facilitative conditions concerning language teaching and learning were examined. Interrogating the overlap between flow and SLA research, the chapter provided a foundation for flow studies in the classroom. The chapter explored Flow Theory as a measure of engagement and described the four components of flow on language tasks. The methodological benefits and concerns with the data collection methods for engagement and flow research were discussed.

Chapter 3: Methodology

3.1 Overview

As stated previously, the current study examined the interactional effect of the learning environment (online vs. in-person) and proficiency on the nature and level of flow. This chapter involves a detailed description of the methodological design of the study. It starts with outlining the proposed research questions followed by the description of the data collection instruments and procedures. The requirements for participation and information on the three groups of participants (i.e. students, instructors and informants) included in the analysis are then presented. The TL Oral Task, pilot testing conducted, and data analysis procedures are presented as they apply to the study. Finally, the data screening and preliminary analysis carried out to verify the precision of the data, encompassing missing values, outliers, and the distribution of normality concludes the chapter.

Student engagement data in this study were collected from two perspectives – both students and teachers to present an all-encompassing picture of the engagement construct. The perception questionnaires alone were combined with structured open-ended questions, teacher ratings and follow-up interviews to complement and give nuance to the quantitative responses. Interviews were conducted with only course instructors. Open-ended questions rather than interviews were preferred for student participants to target a large number of students. The data analysis employed a mixed method approach since the questionnaire items elicited both quantitative and qualitative responses. In the next section, the research questions are presented.

3.2 Research Questions (RQ)

As indicated previously, this study aims to provide a deeper understanding of the nature and intensity of engagement between students enrolled in in-person versus online Spanish

courses. In light of the research gaps identified and the objectives of the study, the following research questions are addressed:

1. Do Spanish students experience flow during the Oral Task? If so, how do online and in-person students differ in their level of engagement during Oral Tasks?
2. Is there a difference in the proportion of flow states experienced by online and in-person students during Spanish classes?
3. Does the level of proficiency interact with Spanish students' flow experiences? If so, how does the interaction differ between online and in-person conditions?
4. What are the teachers' perceptions concerning the degree of student engagement and learning in the two environments?

3.3 Data Collection

This section provides information that justifies the type of questionnaires used, the language of the questionnaires followed by a description of each instrument. The study used online questionnaires because they were considered practical and cost-effective in targeting a larger and diverse participant pool, thus improving the ecological validity (i.e. how well the design of the data collection tool enables gathering of data representative of the target population) of the resulting data. This is because the targeted participants included online students and instructors who were taking the course from different geographical locations, hence the most effective way to reach them was through an online questionnaire.

Qualitative research methodology is widely used in second language teaching and learning. The complex nature of the L2 teaching and learning process requires that L2 research examine different facets of learning, including “in-depth examination and understanding of individual learners and their behaviours and experiences” (Nassaji, 2015, p. 129). More recently,

many studies are adopting a mixed methodology design that includes both qualitative and quantitative approaches. It has become clear that combining the two approaches to complement each other “provides quantitative research with a more authentic lens to view language processes in context” (Mackay & Bryfonski, 2018, p. 103). This study, therefore, included questions of a mixed-method nature.

3.3.1 Description of Data Collection Instruments

This section provides a detailed description of the design of the questionnaires used including the language of the questionnaires, consent forms, language background and demographic questionnaire, the Wisconsin Spanish Proficiency Test, student engagement questionnaire, teacher perception questionnaire, student engagement checklist and follow-up interview form. Moreover, the section outlines methodological justifications for the design of the questionnaires and the selection of items. An overview of the types of questions included in each one of them and the processes and information regarding the completion of the questionnaires are given. Each data collection instrument of the current study is listed and described below.

3.3.1.1 Language of the Data Collection Instruments

This study investigated students' and teachers' classroom experiences in two different learning platforms. Research tools for student participants were available in both English and French except the Spanish language proficiency test. This was done because the University of Ottawa is a bilingual university, and all students have to demonstrate language competence in at least one of the languages of instruction at the time of admission. Moreover, bilingual survey questionnaires were chosen to ensure that students fully understood the questions and gave responses that were as accurate as possible as research evidence substantiates that the language in which a survey is administered influences how respondents comprehend and answer questions

(Peytcheva, 2008). This was also done to increase the participation rate (Wong & Wang, 2008) and to ensure that students completed the questionnaires in the language in which they are most comfortable so that they are willing to respond to the open-ended questions more than they would have if they did not have a choice.

The questionnaire in French was translated and analyzed with the English questionnaire. Hence, it was important to ensure that the questionnaires were “free of translational problems and convey the same concepts and ideas” (Peytcheva, 2008, p. 8). Peytcheva (2008) emphasized that “survey results are meaningful to the extent to which respondents understand the survey questions as they are originally intended. Question comprehension involves processing the syntactic structure and understanding the semantic (literal) and pragmatic (intended) meaning.” As such, the translations were checked by the research supervisor and pilot testing participants to ensure the accuracy and retention of the original meaning. The French translations were finally verified by a native speaker in Canada. In the following section, the research tools used to gather data are described in-depth.

3.3.1.2 Consent Forms

The instructor and student participants' consent forms were written in English by the researcher and then translated into French (See Appendices J, K, P and Q for student and instructor forms in English and French, respectively). They included a brief description of the purpose of the study, what participants are required to do, duration and compensation as well as information on confidentiality. All participants were required to complete the consent forms before they could participate in the study.

3.3.1.3 Language Background and Demographic Questionnaire

This questionnaire (found in Appendix B in English and Appendix C in French) was used to collect information regarding student participants' Spanish language background and demographics. It included five questions about participants' current age, gender, academic major, how long they had studied Spanish and whether they spoke Spanish outside the classroom.

3.3.1.4 Wisconsin Spanish Proficiency Test

The information gathered on the test was used to address research question 3. Student participants were asked to complete a proficiency test to measure their proficiency level in Spanish. The Wisconsin Spanish Proficiency Test is a standardized test and has been commonly used in L2 research to place study participants into proficiency groups (E.g. Kirk et al., 2021; Valenzuela et al., 2012; Valenzuela et al., 2015). It consists of 36 items divided into three sections. The first and second sections both measure grammar with different question formats. Section 1 has 20 items relating to language usage and communication with four multiple-choice response options to fill in the blanks.

Section 2 has a cloze format. It is a single passage with omitted words or phrases and 11 blank spaces that must be filled with one of three multiple-choice answer options corresponding to each blank. Section 3 tests reading comprehension knowledge. It consists of five questions with a true or false response option to be completed based on information from the passage presented.

One point was awarded for each correct answer and an incorrect choice received zero points on the test. The results were used to classify students into two groups – low proficiency (0-18 points) and high proficiency (19-36 points) to examine the interaction between proficiency and flow. The classification was informed by the placement score distributions that guided

students' enrolment into Spanish course levels. Based on the placement decisions, students who scored 53% or lower were assigned to beginner level courses while scores of 54% and above placed learners into higher level courses.

While it seems practical to use participants' actual placement levels to classify them into proficiency groups. Students in the Spanish courses are placed into various course levels through two different mediums. The first group are students who have not taken a Spanish course at the department before and are required to complete a placement test that assesses their language level and assigns them to a corresponding course. The second group are students who have already taken a course at the department and are to progress to the subsequent level. Such students automatically move to the next level course if they obtain a passing grade. Given these differences, it was decided that to prevent potential biases, it was ideal to administer an independent proficiency test that classifies all student participants on the same basis.

3.3.1.5 Student Engagement Questionnaire

The online student engagement questionnaire was used to gather information for measuring students' flow experiences in the two learning environments (See Appendix D and E for the English and French versions respectively). The data gathered was used to address research questions 1, 2 and 3. It consisted of quantitative and qualitative items adapted from other questionnaires as well as others created specifically for this study. Regarding items collecting quantitative data, Likert-type items, checkboxes and percentage scale-type questions were preferred to make the questionnaire items simple, clear and efficient for collecting high-quality data. As mentioned earlier, for the sake of time and to target as many participants as possible, the research tool was designed not to include interviews with individual student participants, but rather the questionnaire had qualitative open-ended questions regarding

participants' experiences. The open-ended questions collecting qualitative data were optional in the Fall semester to increase the overall completion rate of the questionnaires (Ruel et al., 2015). This was done because sufficient qualitative data had been gathered but there was a need to increase the sample sizes in two out of four Proficiency by Learning Environment¹ groups for quantitative statistical analysis.

The online student engagement questionnaire contained 62 questions in total. The first two introductory questions asked whether participants studied online or in-person and the reason why they chose the specific mode of their course. This was followed by Part I (i.e. the flow-based task engagement questionnaire – FTEQ) which consisted of 16 Likert scale-type items measuring engagement on the Oral Task. The items were adapted from a flow questionnaire in Egbert's (2003) and Jackson and Marsh's (1996) Flow State Scale. Modifications were made to the content and structure of some items to tailor them to the specific objectives of the study. Egbert (2003) adapted 12 items of her flow questionnaire from Webster et al. (1993) and Trevino and Webster (1992), who originally designed it to measure flow in employee computer-mediated communications. She modified the content to reflect learning tasks, but no changes were made to the structure of the items, and she added two more items to it, making it 14 in total. The items corresponded to challenge-skill balance (three items), interest (three items), focus (four items) and control (four items). Egbert (2003) conducted a concurrent validity of the flow questionnaire by comparing the results from her observation data with the perception survey data. A correlation coefficient of 91% was obtained, indicating a high concurrent validity of the two sets of scores. Since Egbert (2003) was one of the first to research flow in the language classroom, her study has informed many studies investigating flow in language tasks. Jackson and Marsh

¹ The classification of the groups is provided under 3.5.2

(1996) developed and validated the Flow State Scale (FSS) to assess flow in sports and physical activity contexts.

Of the 16 items measuring flow on task, 10 (i.e. items 2, 3, 4, 6, 7, 8, 9, 10, 11 and 15) were adapted from Egbert (2003) and six (i.e. items 1, 5, 12, 13, 14 and 16) were taken from Jackson and Marsh (1996). Regarding the six items from Jackson and Marsh (1996), four items were exchanged with another four in Egbert (2003) belonging to the same component. The exchange was done based on the clarity of the wording of the items. Two other items were added to increase the items to 16 with four items under each component. All 16 items are based on the four conditions of flow investigated in this study and were used to gather relevant information about students' experiences to compare the level of flow between students in the two conditions. Each element had four items corresponding to it – 1) Challenge-skill balance (“*The task felt not too easy, nor too hard*”); 2) Concentration (“*When doing this task, I was totally absorbed in what I was doing*”); 3) Control (“*During this task, I could make decisions about what to study, how to study it, and/or with whom to study*”) and 4) Interest (“*I would do this task even if it were not required*”). A seven-point Likert scale was selected to gauge participants' experiences, and it included ‘strongly disagree,’ ‘disagree,’ ‘somewhat disagree,’ ‘somewhat agree,’ ‘agree,’ and ‘strongly agree.’

Part II of the online questionnaire had items measuring Class Engagement (i.e. engagement during an extended period – a semester of Spanish instruction). It is a percentage scale where participants were to manually enter a number between 0 and 100 to indicate the proportion of their specific class time they felt they were ‘totally focused,’ ‘fulfilled,’ ‘happy,’ ‘distracted,’ ‘frustrated,’ ‘enthusiastic,’ and ‘learning and improving’. The responses to these seven items together allowed the examination of the average class time students spent in a state

of flow (i.e. Class Engagement). It is important to note that items related to the proportion of flow were based on Larson and Csikszentmihalyi's (2014) Experience Sampling Method, as seen in Dewaele and McIntyre's (2021) frequency of flow scale. The validity of the ESM was addressed by Larson and Csikszentmihalyi (2014), and the form has been adapted widely in many positive psychology studies investigating flow in foreign language classrooms (see Botes et al., 2020; Dewaele et al., 2022; Dewaele & MacIntyre, 2022 among others). The first five items of the Class Engagement scale were taken directly from Dewaele and McIntyre (2021). The remaining two items were added in line with the research goals to capture students' impressions about their engagement and learning in class.

The subsequent set of questions in part III were open-ended items with open-text responses to capture student participants' inner voices. They facilitated an understanding of the perceived influence of the instructional delivery format on flow and learning experience. The eleven questions gathered qualitative data for this study. They proved quite productive as they provided indispensable insights into the experiences and quantitative responses of students.

The questionnaire was administered after participants completed the designated language tasks for this project. In Appendix F (part I), the 16 items have been arranged according to the flow component they fall under, but during data collection, the items were randomized as seen in Appendix D to avoid potential bias introduced by item order (Dörnyei & Dewaele, 2023).

3.3.1.6 Student Engagement Checklist

This was completed by teacher participants twice during the semester at four-week intervals (7th and 11th week) for both online and in-person classes. The items were based on observable characteristics of the four conditions of flow. They included the following (see Appendix L): 1) Body language cues (related to the component of "interest"); 2) Participation

and focus (linked to “concentration” on class tasks); 3) Competence and Confidence (related to “challenge-skill balance”) and Autonomy and proactivity (related to “control”). The collected information was used as an additional data source to answer research question 4, which analyzed student engagement from the instructors’ perspective (See Appendix L for the entire check for in-person and online classes). The construction of the items in the checklist was informed by the components of flow investigated, Egbert (2003), Guilloteaux (2007), Guilloteaux and Dörnyei (2008) and the Student Engagement Teacher Handbook (International Center for Leadership in Education, 2009).

The checklist consisted of ten items in total, five corresponding to each instructional delivery mode. Each checklist started with a question asking teacher participants to confirm the mode of class for which they were completing the checklist. The other four items present each flow dimension and description of observable characteristics typical in each course mode. Instructor participants were to select between high to low based on the descriptions and encoding criteria of the dimensions. The encoding of the flow dimension variables in the observation checklist is similar to that of Guilloteaux (2007), except in this study, the three-level scale is as follows: “Low = indicates few or less than 1/3 (33.3%) of students,” “Medium = indicates 1/3 (33.3%) to 2/3 (66.7%) of the students,” and “High = more than 2/3 (66.7%) of the students.”

3.3.1.7 Teacher Perception Questionnaire

This questionnaire was used to collect data on teachers’ perceptions of the interaction between student engagement and the learning environment. The collected data was used to address research question 4. The course instructors have close contact with students and often observe their level of engagement, so their insights help draw a thorough image of how learners are engaged in activities in the two learning environments. Questions based on the four flow

dimensions from the student perception questionnaire were rewritten for instructors. The questionnaire was completed towards the end of the semester (in the 11th week of the Winter 2023) after having completed two student observation checklists. The questionnaire had 12 questions in total – one introductory question, four questions in part I and seven in part II. Before completing the questionnaire, the first question asked participants to confirm whether they have taught both online and in-person Spanish courses at the University of Ottawa. Part I consisted of a 5-point Likert scale type questions ranging from strongly disagree to strongly agree. Part II collected qualitative data and asked participants to provide their impressions about engagement and learning in online and in-person courses as well as the factors that facilitated or impeded learner engagement in each learning mode. The last question asked for additional comments and observations on the topic that will be vital for our analysis (it can be found in Appendix M).

3.3.1.8 Follow-up Interview Guide

The information gathered from the interview addressed research question 4 and select quotes were used to complement the findings in research questions 2 and 3. Follow-up interviews are an effective triangulation technique to “significantly enrich questionnaire data” (Dörnyei & Dewaele, 2023) and analysis. Interviews breathe life into a research study as they complement quantitative results and provide a better understanding of the numerical data (Gillham, 2008). Semi-structured interviews were conducted with course instructors to gain insights on the impact of proficiency level on engagement in the two learning environments. It was also used as an opportunity to get instructor feedback on students’ engagement in the designated oral task. Additionally, the follow-up interview proved invaluable for the analysis as it elicited instructor comments on student responses and clarification of issues of doubt. The individual recorded interviews were conducted in English via ZOOM and lasted between 15-30

minutes. The sample structured interview questions can be found in Appendix R. The questions were arranged in three parts – The first part had questions related to the connection between proficiency level and engagement; in the second part, the questions focused on the interplay of oral task engagement, proficiency and the mode of task delivery; and the last part consisted of questions about instructors' impressions on the mode of instruction and suggestions on improving course design, among others. The subsequent section looked at the procedures followed in order to conduct this research.

3.4 Procedures

Data collection began in March of the Winter 2023 semester. First, information regarding the study was shared with the target participants through email. The principal researcher sent emails to the course instructors to share the recruitment flyers with their students. Student participants completed the questionnaire after completing the designated Oral Task which formed part of the Spanish curriculum. Instructor recruitment flyers were sent directly by the student researcher. Teacher participants completed two (2) observation checklists in a four-week interval (7th and 11th week) and the teacher perception questionnaire towards the end of the semester (11th week).

All forms and questionnaires were hosted on [surveymonkey.com](https://www.surveymonkey.com). At the end of the data collection period, participants who provided their emails were entered into seven Amazon voucher draws worth \$50 each. The seven winners were sent their Amazon electronic gift cards in November 2023 through email. Although it was not part of the initial design, data collection was extended to the Fall 2023 semester to increase the sample size adequacy for valid statistical analysis. The student questionnaires required about 20-25 minutes to complete. The observation checklists and teacher perception questionnaires took approximately 10-15 minutes to complete.

The questionnaires had been pilot tested on students and instructors who form part of the target population to review the questions for clarity as well as the adequacy of the time needed to complete the questionnaires. The questionnaires were available online until the end of the data collection period in December 2023 after which the data were downloaded and analyzed. The questionnaires were anonymous as no personally identifying information was collected on respondents except for the compensation page which gave participants the option to leave their emails if they wished to be entered into the prize draw and or receive the e-transfer payment. For those who provided this information, it was deleted before commencing data analysis to safeguard participants' identity and prevent any potential influences or bias on the data analysis.

The next section describes the procedures involved in completing the study questionnaires.

3.4.1 Administration and Completion Procedures

A click on the link in the student recruitment flyer takes participants to an informational page which provides an overview of the questionnaire, how long it would approximately take to complete it, the benefits and compensation for participation and two links (English and French versions) to online questionnaires. Upon clicking on either of the links on the informational page, participants are presented with a set of questionnaires. The first page starts with the mandatory consent form authorized by the University of Ottawa (English version found in Appendix J and translated French version in Appendix K). This is followed by two open-text questions requesting participants who wish to receive compensation to provide their email for the \$10 e-transfer and \$50 Amazon prize draw, respectively. Upon completing this page, participants clicked the next button to proceed to page two where they are presented with the demographic and language background questionnaire. On the third page, they are presented with the 36-item

Spanish language proficiency test. The fourth and final page presented the student engagement questionnaire.

Instructor participants completed two rounds of surveys at two different times (the seventh and eleventh weeks of the Winter 2023 semester). In the first round, a click on the link in the recruitment announcement presented them with a two-page questionnaire in English. The first page had the mandatory consent form and an open-text response question asking participants to enter their email if they wished to receive a \$20 e-transfer as compensation for participation. At the end of the page there was a brief instruction on how to complete the next pages. The second page presented the engagement checklists for online and in-person courses, respectively. Instructor participants completed the checklist that corresponded with the mode of class they were teaching and those who were teaching both online and in-person courses complete checklists for both classes (See Appendix L for the checklist).

In the second round of data collection, participants completed the engagement checklist and a perception questionnaire. Upon clicking on the link in the recruitment text, it opened a three-page questionnaire. The first two pages were the consent and engagement checklist and were exactly as those described in the first-round questionnaires. In the second round, a third page was added which presented participants with a perception questionnaire to complete.

For both instructor and student participants, there was an option to go back to previous pages if needed. A progress bar was visible in the right-hand corner indicating the page and percentage of the questionnaire completed, as well as the time elapsed. After completing the last page, participants pressed a submit button and they were then presented with a prompt thanking them for participating in the study.

The questionnaires for instructor participants were available online for two weeks for each round of data collection. Student participant questionnaires were available online for a period of two months during the Winter 2023 semester. Due to insufficient data, it was reopened for a duration of one month each during the Summer and the Fall 2023 semesters. In total 105 students attempted the questionnaires. The English version of the student questionnaires had a completion rate of 82% with a total of 89 responses in total and an 18% drop-off rate. The French questionnaires had a completion rate of 88% with 16 responses in total and a 12% drop-off rate). Both versions of the questionnaires took an average of 24 minutes to complete. 18 responses (16 from the English questionnaire and two from the French questionnaire) were incomplete and were not included in the analysis. For student participants who started but did not complete the questionnaires, a vast majority dropped off while completing the Spanish language proficiency test. This could have been due to the required test being intimidating/lengthy for those few potential participants. Others also completed only the proficiency test accurately and entered random figures to be able to skip the rest of the questionnaire. It could be assumed that such participants did not want to participate in the study but wanted to complete the proficiency test for practice since their final exams were approaching.

The first-round instructor participant questionnaire gathered six responses with a 100% completion rate while the completion rate of the second-round questionnaires was 63% with eight responses. It took an average of five minutes for the first round of questionnaires and the second took an average of 10 minutes to complete.

3.4.2 The Think-Aloud Completion Procedure

Through the online think-aloud platform, informants verbalized their thoughts while completing the 16 items of the FTEQ (See Part I of Appendix D). After each item, they listened

and answered pre-recorded retrospective questions (See Appendix S for the TA questions). The six pre-defined questions explored – item understandability (*In your own words, can you rephrase or describe what this item/question is aiming to ask?*); judgement (*which response choice would you choose?*); cognitive strategy used (*What did you think of when answering this item?*); confidence probe (*How sure are you of your answer?*); level of difficulty (*Was this item easy or hard to understand?*). The pre-defined questions were included to ensure standardization of analyses across informants. The information aided in assessing item interpretation and response processes of informants.

Following the item-level think-aloud of all 16 items, informants responded verbally to other pre-recorded questions soliciting feedback on the task engagement construct as a whole and domain coverage of the questionnaire. The information collected aided in assessing validity based on content. The questions (See Appendix S) that guided the think-aloud procedure were adapted from Willis (2005), Willis and Artino (2013) and Irwin et al. (2009).

The links inviting informants to provide think-aloud data were shared with informants who consented to participate. Upon clicking the link, informants are presented with a welcome page and an oral and written explanation of the purpose of the study, directions for verbalizing thoughts, followed by a think-aloud practice. Informants then completed a brief listening and speaking task² which was to be the reference task for providing cognitive information for the 16 task engagement items (See appendix S for a description of task). Informants then engaged in a concurrent think-aloud process while completing each item. Their verbalizations and answers to

² It was initially indicated that informants should think of any class task they have completed. However, feedback from the first submission indicated that having a common task for all informants was ideal.

retrospective questions were auto-recorded and saved. Informants spent an average of one hour to complete the think-aloud procedure.

In the section that follows, information on participants whose data were included in the analysis is presented.

3.5 Participants

This section will describe student and instructor participants who completed the questionnaires, including participation requirements, the number of participants, their age, academic major, their Spanish studying history and proficiency scores. Information on the recruitment of informants who provided think-aloud data is also presented.

3.5.1 Criteria for Recruitment and Inclusion

The criteria for participants to be included in the study were: (i) student participants must be undergraduate level students enrolled in Spanish beginner and intermediate level courses and (ii) teacher participants must be course instructors who teach Spanish beginner or intermediate courses and have taught both online and in-person courses. The initial intended number of participants was 60 students and 5-10 teachers. The intended number of participants was based on the sample size in similar studies on student engagement and flow in the language classroom (e.g. Egbert, 2003; Cox, 2014; Cox & Montgomery, 2019). Beginner-level learners were targeted to address a research gap. Secondly, there is a higher number of enrolments in beginner and intermediate classes than advanced levels. Hence, targeting the two groups could increase the participation rate

Participant recruitment was done through convenience or opportunity sampling, a type of non-probability sampling (Dörnyei, 2007; Dörnyei & Dewaele, 2023; Dörnyei & Taguchi, 2010; Ness Evans & Rooney, 2013) via electronic messaging. For student participants, a shortened

version of the calls for research participants in the form of a flyer was shared with course instructors to forward to students enrolled in their courses. The flyer contained an embedded web link that led students to the detailed call for participation. The flyers and calls for participation were shared in English (Appendix G and H) and French (Appendix I). Calls for instructor participants were sent directly by the principal investigator through email in English (Appendix N) and French (Appendix O). The calls for teachers and students included a brief description of the study, participation criteria, information on compensation and confidentiality and web links to the questionnaires. As mentioned earlier, student participants had the option to complete the questionnaires in English or French while teacher participants were asked to complete their questionnaires in English.

Teacher participants were rewarded \$40 each for participating in the study. They received \$20 after completing the first questionnaire and another \$20 after completing the second set of questionnaires through e-transfer. They were asked to provide their email on the first page of each survey for compensation. Student participants received \$10 through e-transfer after participating. At the end of the data collection period, student participants who provided their emails were entered into a draw for a chance to win one of seven (7) Amazon gift cards worth \$50 each.

Demographic data was collected from only student participants. The information retrieved from the data is discussed in the section that follows.

3.5.2 Demographic Data of Student Participants

Student participants were drawn from the population of students enrolled in beginner and intermediate-level undergraduate Spanish courses. Participants consisted of students registered in Spanish beginner (ESP 1991 and 1992) and intermediate (ESP 2991 and 2992) level courses at

the University of Ottawa. A total number of 87 participants were included in the study – 31 reported that they took the course online and 56 completed the course in-person. The reasons cited for choosing an online format include convenience, flexibility, individual differences (e.g. shyness) and multitasking. In-person participants reported that they primarily chose this format for social connection, direct contact with the instructor and to avoid network failures.

Participants came from different academic majors – Arts (15%), Engineering (14%), Social Sciences (30%), Health Sciences (22%), Law (1%) and Business (10%). The majority enrolled in the course to fulfil the language requirements of their major (i.e. a source of instrumental motivation), others sought to improve their ability to communicate with family and loved ones (i.e. integrative motivation) while a few others enrolled for the sheer desire to learn the language (i.e. intrinsic motivation) (Dörnyei 1994, 2010).

Table 4*Participants' Academic Major*

Faculty	Majors	Number of Participants (N)
Arts	Communication, History, Linguistics, World languages and cultures	13 (15%)
Engineering	Software engineering, electrical engineering	12 (14%)
Health Sciences and Medicine	Health science, medicine, biomedical science, biology, chemistry, nursing	22 (25%)
Social sciences	Criminology, economics, psychology, sociology, social work, political science	30 (35%)
Law	Juris doctor	1 (1%)
Business	International management, Accounting, Commerce	9 (10%)
Total		87 (100%)

The participants' ages ranged from 16 to 40 years old with the vast majority falling within the 16-25 age bracket (n=70, 81%). Over half of the participants were female 65% (n =56), 33% (n=29) were males and 2% (n=2) of participants identified as non-binary. Participants reported having studied Spanish for an average of 3 years, ranging from one to seven plus years. Table 5 classifies the age, gender and Spanish studying history of respondents.

Table 5*Student Participants' Age, Gender and Past Spanish Studies*

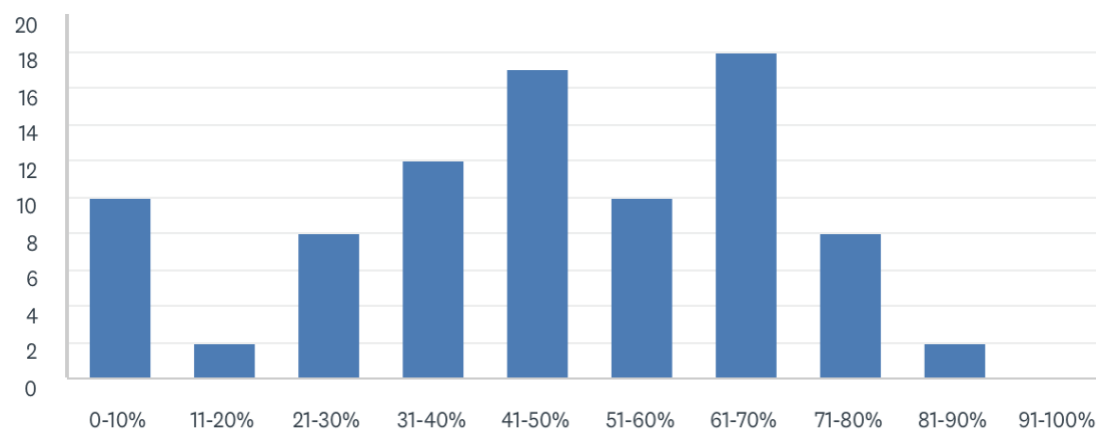
Age	N	Gender	N	Spanish History	N
16-20	28 (32%)	Female	56 (65%)	1 year or less	31 (36%)
21-25	42 (49%)	Male	29 (33%)	2-3 years	36 (41%)
26-30	14 (16%)	Other	2 (2%)	4-6 years	19 (22%)
31-40	3 (3%)			7+	1(1%)

Regarding usage of Spanish, 37% (n=27) reported speaking Spanish outside the classroom with family, friends, co-workers, acquaintances or through self-practice and 63% (n = 46) indicated they do not speak Spanish outside the classroom.

Based on their Spanish proficiency test score, 57% (n = 50) were placed into the low proficiency group and 43% (n = 37) were categorized into the high proficiency learner group. The average score was 51% (18 points). The lowest score was 19% while the highest score was 89%. The median score was 50%. Figure 4 illustrates the distribution of scores for all respondents.

Figure 4

Distribution of Participants' Proficiency Test Scores



The distribution of participants according to mode and proficiency group is summarized in the Table 6 below.

Table 6*Classification of Proficiency by Learning Environment Groups*

Learning Environment	Proficiency group	N
In-person	Low	28 (32.2%)
	High	28 (32.2%)
Online	Low	16 (18.4%)
	High	15 (17.2%)
Total		87 (100%)

3.5.3 Recruitment of Think-Aloud Informants

As the TA method sought to capture unique perspectives and interpretations of the student task engagement construct, think-aloud informants were selected via an intentional technique (Castillo-Diaz & Padilla, 2012). After listing potential informants, they were contacted individually by the student researcher or supervisor via face-to-face, phone call or other electronic messaging methods. The purpose of the TA and participation requirements were explained, and informants indicated their willingness to provide cognitive information for the study. Additionally, informants were told that there was no right or wrong response and that the interest was in understanding their thought processes and gaining feedback to improve the questionnaire items.

The initial aim was to obtain insights from nine individuals consisting of three undergraduate-level students, three Spanish course instructors and three language testing experts. In the end, a total of eight informants provided the think-aloud data but only seven were considered in the analysis (One informant was excluded based on incomplete submission). Three

of the eight informants were students, two were teachers, and two others were language testing experts. No other demographic information was collected from informants.

In the ensuing section, a description of the selected TL Oral Task that was used as a basis for examining students' speaking task engagement is described.

3.6 Description of the Online and In-person Spanish Courses

In-person Spanish classes are typically held on campus, where students interact face-to-face with course instructors and peers. The online courses, on the other hand, are synchronously held through ZOOM; that is, both instructors and students meet in live sessions, and office and tutoring hours are observed virtually. Students in both formats attend a lecture component (i.e. a form-focused grammar instruction) and a communicative skills component (reading, writing, speaking, listening and cultural aspects). In online classes, pair and small group activities are carried out through breakout rooms, polls and whiteboards, among others. Both instructional formats cover the same course content and follow the same syllabi. The objectives of the online and in-person courses for beginner and intermediate-level learners are summarized as follows:

Beginner Level

- Understanding and expressing basic ideas about present and past situations – Oral and Written.
- Developing the four language skills.
- Producing brief and coherent texts and speeches
- Reaching level A1/A2 of the Common European Framework

Intermediate Level

- Development of linguistic and pragmatic competence as well as sociocultural Knowledge.

- Four skills development
- Special attention to vocabulary and grammar in context
- Producing and analyzing texts
- Achieving level B1-B2 of the Common European Framework

3.7 Oral Language Task

Student participants were asked to complete the student engagement questionnaire after completing the Oral Task. Oral Tasks have been found to be engaging and flow-inducing (Ak Sentürk, 2012; Czimmerman, 2022; Egbert, 2003). While group activities have been suggested to be more flow-inducing than individual activities, some research evidence suggests that individual tasks can be just as engaging as group tasks (Czimmerman, 2020; Shernoff et al, 2003).

The Oral Task has been an integral part of the Spanish curriculum for many years, with periodic adjustments to its content and structure. In the beginner and intermediate level courses, the Oral Task is in the form of an interview between the instructor and the student. The student is provided with information and required to produce linguistic interaction appropriate for the course level to complete the task. It lasts five to ten minutes, and the objective is to assess learners' overall linguistic competence (i.e. how well they can speak and understand the language) after completing 90% of the course content.

The assessment criteria of the Oral Task focus on various aspects of the presentation and communication process, including:

Language Use

- Appropriate use of vocabulary, grammatical structures, syntax and pronunciation
- Spontaneous use of language.

Content and Organization

- Coherence and quality of the oral presentation
- Comprehension of the questions
- Formulation and coherence of the answers

Assessment methods of the task include a rubric and instructor feedback. Instructors use a rubric that is shared with students before the Oral Task. It outlines specific criteria and performance levels, so students understand what to expect. After the task, students receive a copy of the graded rubric with constructive feedback on their performance. It highlights students' strengths and areas needing improvement. The task is completed once each semester, starting from the 10th to the 12th week of the semester.

Based on the Integrated Performance Assessment (IPA) framework (Adair-Hauck et al., 2015; Adair-Hauck, Glisan et al., 2006; Adair-Hauck & Troyan, 2013; Glisan et al., 2007; Sandrock, 2008), the Oral Task can be divided into two subtasks: oral presentational and interpersonal subtasks:

1. Oral presentational subtask: This part consists of a one-way communication activity where the student makes an oral presentation about a topic (See Table 7 for a list of common themes) selected by the student at the beginning of the task. The length should be 100 - 200 words approximately and should involve the incorporation of grammatical, syntactic and lexical structures studied in the course. The student is given visual support (e.g. image, photo, drawing, agenda) to accompany the topic.
2. Interpersonal subtask: This stage of the oral task is a two-way communication in the form of a dialogue between the instructor or peer and the student about the chosen topic. It includes follow-up questions regarding the oral exposition or the student's chosen topic in general.

Students work on various topics, themes and language functions related to everyday life and the socio-cultural aspects of the Spanish-speaking world throughout the course to prepare them for the Oral Task. The language functions that feature in the Oral Task are summarized as follows.

Table 7

Oral Task Language Functions and Topics

Prevalent Topics of the Oral Task as Covered in the Course Textbook
• <i>Presenting basic information about self and others</i> • <i>Describing individual and collective activities</i> • <i>Describing and giving directions to places</i> • <i>Expressing preferences and personal opinions</i> • <i>Talking about time and plans</i> • <i>Ordering at a restaurant</i> • <i>Describing habits and daily routines</i> • <i>Talking about the media and transportation</i> • <i>Making comparisons</i> • <i>Requesting opinions and making value judgements</i> • <i>Expressing negations and preferences with the subjunctive</i> • <i>Expressing approval and disapproval.</i> • <i>Expressing sympathy and condolences</i> • <i>Narrating or recounting stories and past events</i>

3.8 Pilot Testing

The questionnaires for students and instructors were pilot tested before collecting actual data. Pilot versions of the student engagement questionnaires in both French and English were tested on ten individuals (Eight completed the English version and two completed the French version). The instructor perception questionnaire and the engagement observation checklists were tested on two course instructors. The testing was done to review the questionnaire items for clarity, to conduct a mock analysis of survey responses, to ensure that the overall design of the

questionnaire was organized properly and to get an idea of the time it would take to complete the questionnaire. Pilot participants completed the questionnaires and filled out a form with questions to get as much concise and specific feedback as possible. Following careful consideration of pilot feedback, finalized versions of the questionnaires were created and administered to participants.

After editing the questionnaire based on pilot feedback, the final version of the student engagement questionnaire included a total of 62 items which consisted of a mixture of Likert scale, percentage scale and open-ended questions. The instructor perception questionnaires consisted of a total of 11 items including five Likert scale type items and six open-ended questions. The observation checklist included a total of five checkbox Likert scale-type questions. All questions required a response before participants could move to the next page, except the 11 optional open-ended questions.

In conclusion, the pilot study was a necessary step to test both the instruments and procedures of the study. The results allowed some important adjustments to the questionnaire items and design before collecting the data. Next, the procedure for analyzing the collected data is described.

3.9 Data Analysis Procedures

Quantitative Data: After sufficient data was gathered, incomplete and unusable questionnaires were deleted, and the remaining collected data was downloaded in Comma Separated Values (CSV) format for analysis. The quantitative (i.e. numerical) data was thoroughly checked and analyzed through SPSS software. Negative worded Likert-type questions were reverse scored, and all items were coded. Although responses to the quantitative part of the questionnaire were made mandatory to avoid participants skipping over a question,

the data was checked for missed, skipped and incomplete answers to eliminate any potential problems with the statistical analysis. Finally, as Likert scale items were randomized to eliminate potential bias, items were grouped according to the element of flow they corresponded to.

Descriptive and inferential statistics including independent sample t-tests and ANOVA measurements were carried out to compare outcomes between groups and find the statistical significance of the difference. After statistical analyses were completed, tables were used to organize and present the comparison between modality and proficiency groups.

Qualitative Data: The qualitative (i.e. long, typed) responses were cut and pasted into a word document. The follow-up interview data were transcribed via Apple's Whisper Transcription program and verified by the principal researcher. The qualitative data was analyzed using both deductive and inductive approaches through thematic analysis (Saldana, 2016). First, participant answers were labelled according to the order of submission and modality. This allowed cross-referencing of numerical responses with corresponding qualitative answers for each participant and permitted referencing of quoted responses in the Results and Discussion chapters. E.g. For student participants – SP10 and for instructor participants – IP2.

Next, responses were grouped according to the questions they corresponded to. Student responses in French were then translated by the principal researcher and reviewed by a native French speaker in Canada. The responses were thoroughly read for familiarization with the data. While reading the second time, patterns related to flow components, engagement, the learning modality, proficiency and frequently occurring themes in the data were annotated and relevant keywords or sentences were highlighted. After coding and grouping codes under the relevant general themes they corresponded to, the most pertinent answers to be reported in support of related quantitative results were identified. A table was used to organize the responses relating to

the components of flow, the learning environment and other categories that emerged. The table was organized according to three headings – main themes, sub-categories, and references or quotes. The data were analyzed and used to complement quantitative data and provide additional information to answer research questions.

Specific analytical processes for each of the four research questions are summarized in Tables 8 and 9 and described in the ensuing paragraphs.

Table 8

List of Variables & Measurement Scales

Variable	Number of the Items	Measurement Scale
Oral Task Engagement		
• Challenge-Skill Balance (CSB)	4	7-Point Likert Scale ^a
• Concentration (COC)	4	7-Point Likert Scale ^a
• Control (CON)	4	7-Point Likert Scale ^a
• Interest (INT)	4	7-Point Likert Scale ^a
Class Engagement (CE)	7	Continuous ^b
Proficiency Level	1	Dichotomous ^c
Course Environment	1	Dichotomous ^d
Proficiency Level * Course Environment	1	4 Groups ^e

^a: 1 = strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = neither agree nor disagree, 5 = somewhat agree, 6 = agree, 7 = strongly agree

^b: Range = 0, 100

^c: 1 = Low (0-18), 2 = High (19 – 36)

^d: 1 = In-Person, 2 = Online

^e: 1 = Low [']=[poikjuhgvfcx In-Person, 2 = High & In-Person, 3 = Low & Online, 4 = High & Online

Table 9

List of Research Questions and Associated Statistical Methods

No.	Research Question	Statistical Section / Parametric Tests
RQ1	Do Spanish students experience flow) during oral tasks? If so, to what extent do online and in-person students differ in their oral task engagement	Descriptive Statistics & Independent Sample T-test
RQ2	Is there a significant difference in the proportion of class time spent in flow between online and face-to-face students?	Descriptive Statistics & Independent Sample T-test
RQ3	Does the level of proficiency interact with Spanish students' flow levels? If so, how does the interaction differ between online and in-person conditions?	Independent Sample T-test & One Way ANOVA/Welch Test
RQ4	What are the teachers' perceptions concerning the degree of student engagement and learning in the two environments?	Wilcoxon Signed Ranks Test and Descriptive Statistics.

To answer the first and third research questions concerning the interaction of mode and proficiency level with flow, descriptive and inferential statistics were necessary for the quantitative data. The Likert scale and percentage scale data were analyzed in terms of the four (4) conditions of flow investigated. First, the coded responses were tallied and the mean score for each of the four conditions (i.e. challenge-skill, control, interest and concentration) was determined. Next, the overall level of engagement on the Oral Task for each group — mode (in-person vs online) and proficiency level (low proficiency vs high proficiency) were calculated. The tabulation was done by adding and averaging the overall mean scores corresponding to each of the four elements of flow. The scores were then compared and discussed. The third step involved conducting a parametric test to determine if there were significant differences between the group means.

Similar to research questions 1 and 3, descriptive and parametric t-test was used to answer the second research question. Responses on the seven items were aggregated and averages were calculated for each item. Then the averages for the items were added to determine

flow average state scores for each modality group. Next, a t-test was conducted to confirm if the differences were significant. Finally, a box plot was drawn for a pictorial presentation of the differences between the two groups.

The final question about the teachers' perceptions concerning student engagement and learning in the two environments was answered by calculating and comparing the averages of the quantitative responses. For the data gathered on the observation checklist, responses were coded as High (3), Medium (2) and Low (1). The responses were totalled and averages were calculated and compared for online vs in-person participants.

3.8.1 Analysis Procedure of the Think-Aloud Data

Given the lack of consensus on the best analysis technique for analyzing the think-aloud data, the information was examined through inductive and deductive strategies. The analysis was informed by previous studies such as Balza et al. (2022), Castillo-Díaz & Padilla (2012), Irwin et al., 2009, Peterson et al. (2017) and Willis (2005). First, the audio files and auto-generated transcripts were downloaded from the Phonic website. The think-aloud informants were assigned labels – e.g. Think-Aloud Informant 4 (TAI4). The researcher listened to each file while reading through the transcripts to ensure that the information was transcribed accurately. A second reading of the transcripts was done for familiarization with the data points. During the third reading, the researcher reviewed each informant's transcripts and extracted keywords, phrases or statements for each item. This was followed by revision of informants' comments to determine problems relevant to item interpretation or comprehension, instructions, response choices and content coverage. The analysis including suggested item revisions was reviewed by the project supervisor.

3.10 Data Screening and Preliminary Analysis

Prior to conducting data analysis to answer the research questions, the dataset was checked. This was done to ensure that data properties that could affect the interpretation of the statistical analysis are treated accordingly. It involved a systematic review of missing values, common method bias, outliers and normality distribution of variables.

3.10.1 Addressing Missing Values

Missing data occurs when no data value exists for one or more variables or cases in an observation. Little and Schluchter (1985) stress that missing data up to 5% for a single variable and up to 25% for a single case may not have any serious issues with the interpretation of the results. Among the 87 observations, there were no missing values found, neither for a single variable nor for a single case. This was unsurprising as only completed questionnaires were included in the analysis. However, checking for missing values was necessary to minimize potential errors in the analysis.

3.10.2 Common Method Bias (Harman's Single-Factor Test)

Podsakoff, MacKenzie, Lee, and Podsakoff (2003) define common method bias as “variance attributable to the measurement method rather than the constructs the measure represents” (p. 10). The term refers to a bias in the dataset caused by something other than the measures i.e. something unrelated to the questions could have influenced the responses.

Harman's single-factor test (Hoyle, 1995) was used in this study to determine whether common method variance was a serious issue. It was warranted since this study used a one-wave self-reported design, which means that all the variables' data were collected at the same time with a single questionnaire. The results of Harman's single-factor test revealed that one factor explained 29.484 of the total variances, which was less than the 50% cut-off (Hoyle, 1995). This finding

indicates that common method variance is not a substantial concern (The results are reported in Appendix U).

3.10.3 Assumptions of Parametric Test

Before conducting the inferential parametric tests specified in Chapter 3 to answer the research questions. It is important to check that the data meet the underlying assumption of a parametric test. There are two assumptions of the parametric tests proposed – removal of outliers and confirmation of normality distribution (Field, 2013; Hair et al., 1998; Tabachnick & Fidell 2007). The two assumptions are assessed and discussed in the following subsections.

3.10.3.1 Removing Outliers

The treatment of outliers is a critical step in the data screening process. Outliers are extreme data points that show a distinct set of characteristics from other observations (Hair et al. 1998). Outliers can affect the normality of a dataset and distort statistical results; hence, it is important to check and treat any potential outliers (Hair et al. 1998; Tabachnick and Fidell 2007). In order to detect outliers, the standardized (z) score for each variable was examined. Absolute (z) > 4 indicates an extreme observation in a small sample size (Hair et al.,1998). As a result, any Z-score greater than 4 or less than -4 is regarded as an outlier. Table 10 summarizes the standardized (z) scores of the latent constructs.

Table 10

Result of Univariate Outlier Based on Standardized Values

Variable	Standardized value (Z-Score)	
	Lower Bound	Upper Bound
Oral Task Engagement	-3.483	1.715
Challenge-Skill Balance (CSB)	-3.326	1.599
Concentration (COC)	-2.589	1.571

Control (CON)	-3.097	1.634
Interest (INT)	-3.125	1.809
Class Engagement (CE)	-2.555	2.141

Note. N = 87

As shown in Table 10, the findings reveal that the standardized (z) scores of the latent variables ranged between -3.483 and 2.141, indicating that none of the variables exceeded the threshold of ± 4 . Therefore, there was no outlier among the observed variables from the 87 student participants.

3.10.3.2 Assessment of Data Normality

Normality is the main assumption of the parametric tests employed in this study. The Kolmorove-Smirnov (K.S) test was used to determine whether the dataset of latent constructs was well-modelled by a normal distribution or not. A normal distribution of the data is represented by a K.S p-value greater than the standard significant level of 0.05. Field (2013) proposed that if the assumption of normality is violated due to a significant K.S p-value, it is sufficient to inspect the skewness and kurtosis values and virtually observe the shape of the distribution. Skewness values reflect the distribution score's symmetry, and a skewed variable indicates that the score is not in the centre of the distribution. Kurtosis, on the other hand, indicates the "peakedness" of the distribution, which can be either too peaked (with a short and thick tail) or too flat (with a long and thin tail) (Tabachnick & Fidell, 2007). As a general rule, data can be assumed to be normally distributed if the skew and kurtosis are between -2 and +2 (Schumacker & Lomax, 2010). Byrne (2013) proposed a kurtosis cut-off point of less than 7 as an acceptable value. She went on to say that data that are skewed between -2 and +2 could be considered normally distributed. The results of the normality test for the latent constructs are shown in Table 11.

Table 11*Results of the Normality Test*

Variable	Kolmogorov-Smirnov		Skewness ($\leq \pm 2$)	Kurtosis ($\leq \pm 7$)
	F (df = 87)	p		
Oral Task Engagement	0.112**	0.009	-1.264	1.908
Challenge-Skill Balance (CSB)	0.117**	0.005	-0.896	0.868
Concentration (COC)	0.173***	0.000	-0.751	-0.362
Control (CON)	0.201***	0.000	-1.139	1.194
Interest (INT)	0.147***	0.000	-0.665	0.768
Class Engagement (CE)	0.088	0.096	-0.036	-0.716

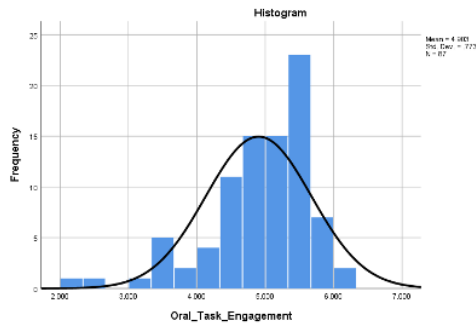
Note. N=87; * P< 0.05; ** p<0.01; *** p<0.001

As shown in Table 11, the Kolmogorov-Smirnov p-value of the CE construct (p= 0.096) is greater than 0.05 and thus meets the assumption of normality. The KS p values of the Task Engagement construct and its components were less than the threshold of 0.05 and therefore did not display statistical significance. The phenomenon violated perfect normality. However, the results of assessing deviation from normality showed that the skewness value for all latent constructs ranged between -1.264 and -0.036, within the acceptable range of ± 2 . The results also indicated that the kurtosis value of the latent constructs ranged between -0.716 and 1.908, within the acceptable range of ± 7 . Therefore, the normality distribution of the task engagement construct was judged to be acceptable for this study's inferences. Figure 5 shows the histogram and normal curve of the hypothesized latent constructs.

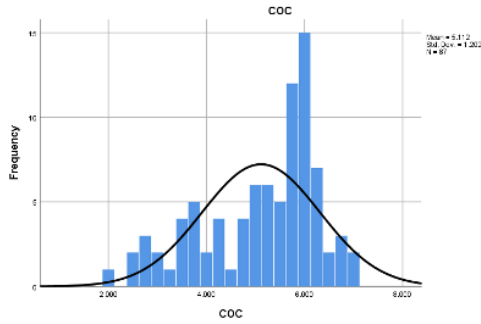
Figure 5*Histogram and Normality Curve of the Hypothesized Latent Constructs*

Oral Task Engagement

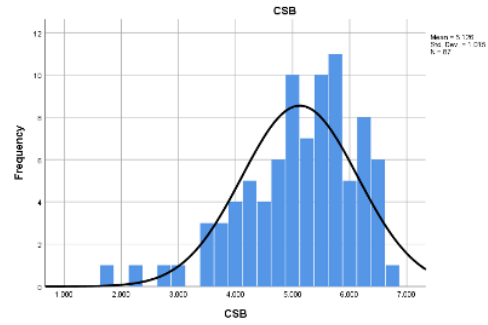
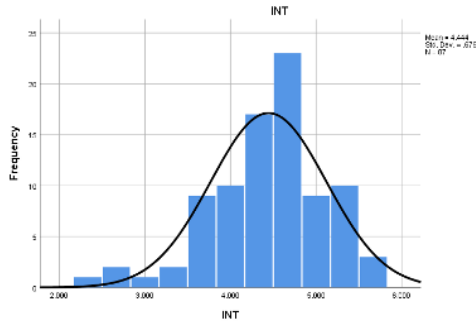
Challenge-Skill Balance (CSB)



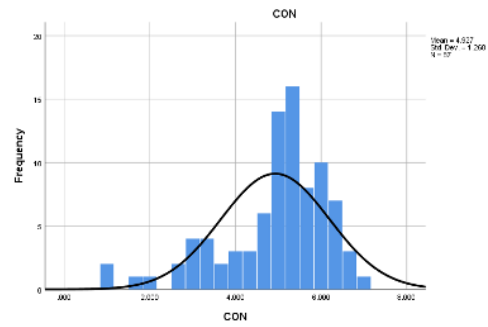
Concentration (COC)



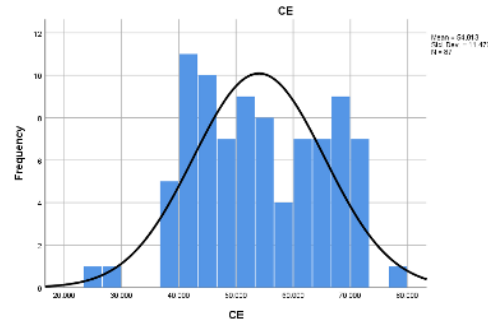
Interest (INT)



Control (CON)



Class Engagement (CE)



3.11 Summary of Chapter 3

In this chapter, the methodology used for this experiment was discussed including the research questions formulated to guide the study. A detailed description of each research instrument designed to collect data was given including justification of the selection of items, design of the questionnaires, and the review process. The questionnaire administration and

completion procedures followed this. The criteria for participation, recruitment process and information on participants whose data were included in the study were then presented. Following this, an overview of the oral language task selected for this project and the pilot testing information was provided. The procedures for analyzing both the quantitative and qualitative collected data as well as the analysis process undertaken for each research question is outlined. Finally, a description of the screening and preliminary analysis conducted to check the data properties was provided. The analysis indicated that there were no missing values nor outliers, Common Methods Bias was not an issue, and the data had an acceptable distribution.

Chapter 4: Results

4.1 Overview

This chapter reports on the results of the qualitative and quantitative data gathered from student participants (SP) and instructor participants (IP). Six main sections make up the organization of the chapter. The initial section delineates the findings of the validation that was conducted to evaluate the validity and reliability of the flow questionnaire. Each research question is divided into subsections, each supported by results from pertinent data sources – including the engagement checklist, teacher perception questionnaire, student perception questionnaire, and follow-up interview. The first research question is addressed by presenting results related to flow on the Oral Task for mode (online vs. in-person) and proficiency level (low vs. high), along with results by flow components and relative overall findings. Results of Class Engagement (i.e., the proportion of class time spent in flow) are presented after this. Findings of the interplay between flow and proficiency level are discussed next. Finally, results of the instructors' perceptions of learning and engagement in the two environments are provided under research question 4.

The mixture of qualitative and quantitative data analysis provided a robust foundation for understanding the complexities of student engagement. The findings shed light on the factors that influence student engagement and speaking task flow dynamics in different learning environments within the context of Flow Theory. It is important to note that, although qualitative data from both instructor and student participants was analyzed and presented in section seven, in responding to the research questions, select quotes from both perspectives will be used to support and provide rich qualitative insights into the numerical evidence. Additionally, various graphs and tables depicting relevant data samples were presented throughout the chapter. The

findings presented will be discussed and interpreted in Chapter 5 (Discussion) of this dissertation.

4.2 General Results Related to the Validation of the FTEQ

As stated earlier, the FTEQ was validated to build confidence in what the questionnaire is measuring. The results of the validity (TA) and reliability (Cronbach's Alpha) will be reported in this chapter before presenting the results of the research questions because the evidence explains why some items were excluded in the data analysis of the research questions. It will start with the results of Cronbach's Alpha followed by the TA data analysis.

4.2.1 Analysis of Internal Consistency

Internal consistency measures the extent to which the FTEQ is low in random error and whether all the questionnaire items are tapping into a similar construct. A generally accepted rule of thumb is that an alpha of 0.60 or above is an acceptable level of reliability (Hulin, Netemeyer, and Cudeck, 2001; Ursachi, Horodnic, Zait, 2015). Table 12 shows the results of the Cronbach Alpha test for Oral Task and Class Engagement constructs.

Table 12

Results of Cronbach Alpha (Internal Consistency of Oral Task and Class Engagement Scales)

Recode		1 st Iteration		2 nd Iteration		3 rd Iteration
Construct	Item	<i>a if item is</i>	<i>Deleted</i>	<i>a if item is</i>	<i>Deleted</i>	<i>α</i>
		<i>deleted</i>	<i>Item</i>	<i>deleted</i>	<i>Item</i>	
Challenge-Skill Balance (CSB)		0.560		0.567		0.665
	CSB1 ^a	0.552		0.665	Deleted	
	CSB2	0.367		0.321		
	CSB3 ^a	0.567	Deleted			
	CSB4	0.450		0.370		

		0.748	
Concentration (COC)	COC1	0.693	
	COC2-R	0.800	
	COC3	0.616	
	COC4	0.626	
		0.517	0.644
Control (CON)	CON1-R ^a	0.644	Deleted
	CON2	0.426	
	CON3	0.306	
	CON4	0.357	
		0.577	0.627
Interest (INT)	INT1	0.419	
	INT2	0.496	
	INT3-R	0.480	
	INT4 ^a	0.627	Deleted
		0.701	
Oral Task Engagement	CSB	0.472	
	COC	0.613	
	CON	0.627	
	INT	0.761	
		0.665	
Class Engagement (CE)	CE1	0.584	
	CE2	0.531	
	CE3	0.551	
	CE4	0.804	
	CE5	0.736	
	CE6	0.523	
	CE7	0.545	

Note. N = 87; α = Cronbach Alpha; ^a = denoted to be deleted to improve Cronbach alpha; R = reverse coded

As shown in Table 12, the findings reveal that for all four items of Challenge-Skill Balance (CSB), the Cronbach Alpha value was 0.56, below the minimum acceptable threshold of 0.60. It was indicated that by deleting CSB3, the Cronbach Alpha value can increase to 0.58. In the second iteration, the results point out that by deleting CSB1, the Cronbach Alpha can increase to 0.67, above the minimum acceptable threshold of 0.6. The Cronbach Alpha of “Concentration (COC)” with all four items was 0.75, above the minimum acceptable threshold of 0.6. Also, the Cronbach Alpha value of Control (CON) obtained for all four items was 0.52, below the minimum threshold of 0.60. It was therefore indicated that by deleting CON-R1, the Cronbach Alpha value can increase to 0.64, above the minimum acceptable threshold of 0.6. The coefficient of Alpha of Interest (INT) for all four items was 0.58, below the minimum threshold of 0.60. The results suggested that by deleting INT4, the value of Cronbach Alpha can increase to 0.63, greater than the minimum acceptable cut-off of 0.6. The overall coefficient of Alpha value for the Oral Task Engagement (measured through the FTEQ) with all four flow components was 0.70, above the minimum acceptable threshold of 0.6. Lastly, the Class Engagement construct with all seven items achieved a Cronbach Alpha value of 0.665 above the minimum of 0.6.

In conclusion, the FTEQ achieved an acceptable level of internal consistency reliability after deleting four items. The Class Engagement questionnaire obtained a borderline alpha level deemed acceptable for the inferences this study intends to draw. The four items that were recommended for deletion will not be included in analyzing the data of the research questions they apply to – this means that with the removal of the four items, 12 out of 16 items will be used. The next section presents the findings of the think-aloud data.

4.2.2 Analysis of Think-Aloud Data

TA data was gathered from seven informants to evaluate and enhance the validity of the FTEQ. The data provided support for the validity of the content and response processes of the questionnaire items. Issues identified with item interpretation, instructions, response choices and assessment coverage are presented and discussed in Tables 13 and 14. The analysis was guided by the operationalization that items that receive two or more problematic comments will be revised for clarity (Irwin et al., 2009).

Table 13 outlines issues related to content identified by informants. There was an indication that five out of seven informants had no difficulty with the response options. One informant felt that the 1-7 Likert scale range was too wide and it was a challenge to distinguish between adjacent agreement or disagreement points (e.g. agree vs strongly agree). The informant opined that it could consequently lead to guessing or glossing over questionnaire items. In the literature, an average score of five or greater has been categorized as having experienced flow. Hence a six or seven-point Likert scale is typically used to capture this pattern. Perhaps, future research involving the questionnaire could use a six or seven-point Likert scale and include a descriptor of the scale levels with the instructions. This might help respondents interpret the scale levels accurately and select response options that truly reflect their viewpoint. As indicated in Table 13, almost all informants expressed difficulty with selecting a response choice for item 9 (see Table 14 for the specific item) due to it being an item encompassing three different parts. The item was revised to eliminate conflicts in selecting an appropriate Likert scale response.

In general, the majority of informants had fewer comprehension difficulties with the questionnaire instructions. One informant suggested that the specific tasks for which the questionnaire is being completed should be specified in the items to avoid confusion (e.g. ‘The

oral task bored me’ instead of ‘This task bored me’). Another informant expressed that though the instructions were clear, lower-level students may find them challenging hence the wording of the instruction should be adjusted to suit the educational level of students. Overall, informants had a positive impression of the items in the task flow questionnaire and did not recommend the inclusion of any additional content that was missing from the questionnaire. Table 13 presents the issues detected along with explanations from informants.

Table 13

Common Problems Related to Content Identified by Informants

Item	Problems Identified	Informant Comments
Issues with Instructions	Specify the task to make directions clearer	“One thing to make the directions more clear is to make them more concrete. Add the same situation or task for all participants” (TAI1)
	Consider students’ educational level	“The wording of instructions should take into consideration the education level of students completing the questionnaire” (TAI5)
Issues with Response choices	The 1-7 scale is too large. Can promote guessing/skipping	“I think it's difficult to have from 1 to 7. I think the grading is too big and, or too, too large and the difference between agreeing and strongly agreeing for me is very non-existent and is not very clear. Some are more a simple yes/no questions” (TAI1)
	Likert scale is not suitable for items with multiple components	“Don't do like double-barrelled items, given that it's a scale and not like a box where you can put precisions and things like that” (TAI4)
		“I think that a Laker scale is fine but, um, it limits the responses that you get. And you also have, if the question is not well formulated or like it can lead to um, confusion, then a lot of the times those questions will just get answered by the scale four, So neither agree nor disagree, which kind of defeats the purpose a little bit because you don't get much information from those answers. Uh a scale

		doesn't seem to be appropriate for those types of questions that can encompass multiple things" (TAI2)
Feedback on Domain Coverage and Construct	Rephrase vague items to elicit stronger response	"I can see that the group of items um are about engagement. I can see or I think I can see that um engagement is sort of being um related or linked to um how long or how easy it is to, for example, stay focused at one task, if you feel inspired or creative right? (TAI2) "The items that don't belong to this questionnaire are those which have this weird wording. Those weird phrases that are sometimes there might lead to participants glossing or skipping the questions. Rephrase them for them to make participants react in a stronger way. And that stronger reaction should ideally also make them or allow them to choose um those strongly agree or strongly disagree answers". (TAI1) "I would say that you covered everything generally, and I would say that the questions were fine. They were mostly clear and easy to understand and some needed a bit of tweaking" (TAI5) "I don't think that there are any items that don't belong in the questionnaire. Um, at most, I think maybe there were some items that may need a bit of clarity" (TAI4)

Table 14 shows all 16 items, the issues related to item interpretation identified and the revisions made. In general, 95% of items were interpreted as intended. Although some informants had difficulty with certain wordings, they comprehended the intention of the items and were able to map their internally generated interpretation to the response options provided. Informants had no difficulty comprehending that they needed to verbalize or think-aloud while answering items. The majority were able to accurately rephrase items using their own vocabulary

indicating that they clearly understood the items and the response choices. Some specific words (i.e., in itself, sense of freedom, aroused) were confusing for informants and others were too ambiguous or vague (i.e., interesting, fun, problematic structure) for clear understanding.

In cases where there was no readily available substitute for words or concepts that were not well interpreted by some informants, the researcher judged the importance of the problem identified and decided whether revision was necessary in light of the objectives of the study. For instance, the concept of “interesting” is an important content for the “interest component” and it was retained in the questionnaire even though some informants noted interpretation issues with it. As seen in Table 14, items highlighted in red were those deemed problematic and recommended for removal in the CA analysis. Going by the operationalization for revision, four out of 12 items were revised for clarity, and 12 items were included in the results of research questions 1 and 3 (See Appendix V for the revised questionnaire).

Table 14

Item Interpretation Issues, Revised FTEQ Items and Reasons for Revision

Original flow Item	Item Interpretation Issue	Informant Comments/Reasons	Revised Item
1. The task felt not too easy, nor too hard.	Problematic word: Not, nor	“It was hard because the words ‘not’ and ‘nor’ um had me thinking for a bit” (TAI2)	Removed as recommended by the CA analysis
		“It's ambiguous, it's giving me like too kind of too much of a choice between easy or hard” (TAI1)	
		“Is a little bit ambiguous. I would just not use, not too easy, nor too hard. I would just try to use one word that describes that” (TAI5)	

2. This task was interesting in itself	Vague words: Interesting In itself	“the word interesting and in itself makes it complex” (TAI2)	The task was interesting on its own
		“Interesting is such uh a broad and general word” (TAI3) “in itself at the end might be ambiguous” (TAI2) “I would just take off the in itself part and just keep it to the task was interesting” (TAI5)	
3. I felt that I had no control over what was happening during this task	Confusing phrase: “what was happening...”	“The words that are difficult for me at least to understand are what was “happening” during this task. Rephrase it by actually mentioning what is the aspect that might have seemed out of control during the task” (TAI1)	Removed as recommended by the CA analysis
4. The task was fun for me.	Vague word: fun	“fun is supposed to be understood as motivation or clearness or entertaining, fun is a very general word. Define fun uh within the concept of a task” (TAI3)	I enjoyed doing this task
		“I wouldn’t relate to a task at this level as fun, maybe in kindergarten or primary school” (TAI1)	
5. I was completely focused on the task at hand.			I was completely focused on the task at hand
6. When doing this task, I thought about other things.		“instead of when I would do, maybe while” (TAI4)	When doing this task, I thought about other things.
		“Change when to while” (TAI4)	When doing this task, I was totally absorbed in what I was doing
7. When doing this task, I was totally absorbed in what I was doing			

8. This task excited my curiosity		“Define ‘when’ to make it clearer. I don’t understand the when, how or what. If during or if after having completed the task, When was my curiosity excited?” (TAI1)	This task excited my curiosity.
9. During this task, I could make decisions about what to study, how to study it, and/or with whom to study.	Problematic structure	“it feels like there's a lot going on in this question, the answer might not be accurately representing one or the three of these questions in this question. (TAI2) Difficult to answer on a Likert scale” (TAI2) “The three parts complicate the answer. What I would do is probably break them apart instead of having the three things” (TAI3) “hard item to understand the wording itself. The structure is, I think too long, I think it's also very complex” (TAI6)	I felt I could make my own decisions on how to complete the task
10. This task bored me.			This task bored me.
11. I would do this task even if it were not required			Removed as recommended by the CA analysis
12. I had a sense of freedom that I am in charge of my work.	Confusing phrase: sense of freedom	“The sense of freedom, it's weird. I'm not sure if that's grammatical” (TAI1) “It's the sense of freedom that kind of throws me off” (TAI5)	I felt I was in charge of my work
13. I was challenged, but not overwhelmed (I believed my skills would allow me to meet the challenge).		“remove what's in parenthesis. Um because I think it's too long” (TAI1) “The little parenthesis kind of helps to understand the question”. (TAI2) “Overwhelmed, depending on the education, may be difficult to understand for some students. (TAI6)	Removed as recommended by the CA analysis

14. It was no effort to keep my mind on what was happening.		‘what was happening’ (TAI1)	It was no effort to keep my mind on the task I was doing.
15. This task aroused my imagination	Problem word: arouse, imagination.	“not a good use of the word aroused in my opinion. Maybe a more neutral register verb ‘sparked’ my imagination. I would also add the one adverb before during or after the completion” (TAI1) “I think that the word aroused is a bit difficult. I would change the word to make it clear” (TAI2) “Imagination, maybe difficult word, I don't know, student of lower levels” (TAI6)	This task fuelled my imagination Or This task sparked my imagination
16. During the task, I felt like I was given choices.	Vague: specify the choices	I would prefer if there was a bit more clarity in terms of given choices to do what? (TAI1)	During the task, I felt like I was given choices.

4.2.3 Summary of Validation Results

The validation of the FTEQ employed the TA technique as a validity measure and internal consistency reliability was checked via Cronbach’s Alpha. Based on the CA and TA analysis results, it was adjudged that the questionnaire had reliability and validity levels that were acceptable for the study. Only 12 out of 16 items were used in analyzing research questions 1 and 3 presented in the next sections.

4.3 Task Engagement: Students’ Flow Experiences on the Oral Task (RQ1)

This section will present the results of the first research question. The question asked whether Spanish students' experienced flow on the Oral Task and if online and in-person students differed in their flow experiences. In order to provide evidence to determine learner

flow experiences in the oral activity, the quantitative data in Part I and qualitative responses in Part III of the student engagement questionnaire were considered (see Appendices D and E for the full student engagement questionnaire in English and French respectively). The findings will highlight differences and similarities between the two groups of students in the instructional modalities (i.e. online vs. in-person). Furthermore, the influence of each of the four flow components (i.e. challenge-skill balance, concentration, control and interest) on learners' experiences is described.

Part I of the engagement questionnaire elicited Likert scale responses, whereas Part III collected open-ended responses. From the former, the flow during the oral activity in both instructional groups was obtained – with the responses coded as 1 referring to “strongly disagree”, 2 “disagree”, 3 “somewhat disagree”, 4 “neither agree nor disagree”, 5 “somewhat agree”, 6 “agree” and 7 “strongly agree”. From the latter, qualitative responses related to the quantitative responses of the four flow elements were gathered

4.3.1 General Results Related to Flow in Spanish Language Oral Task

The results for descriptive statistics showing the overall flow of online and in-person groups were reported. This was followed by the findings for each flow component. Finally, results for the Independent Sample t-test were reported for each instructional group.

4.3.1.1 Summary of Overall Flow in Online and In-person Groups

As mentioned earlier, flow experience on a task was designated as attaining above average score on all components combined (Egbert, 2003). With this knowledge in mind, in this study, an average score of five or above (representing agreement on all items) on the questionnaire was designated as flow experience on the Oral Task.

Table 15 shows the findings for each of the four components of flow and the overall level of flow on the Oral Task separated by instructional delivery group. The overall flow levels in online and in-person groups were at the upper half ($M > 4$) of the flow scale, indicating that the Oral Task subtasks induced learner engagement in both conditions. Also, it is notable that the results for all components were above the midpoint level of the flow scale ($M > 4$) in the two groups.

Table 15

Summary of Flow in Online and In-person Courses

Components of Flow	In-person		Online	
	Mean	SD	Mean	SD
Challenge-skill balance (CSB)	5.21	1.05	4.98	0.96
Concentration (COC)	5.13	1.11	5.08	1.23
Control (CON)	4.89	1.35	4.99	1.12
Interest (INT)	4.41	0.66	4.51	0.71
Overall Flow	4.91	0.82	4.89	0.70

Note: $N=87$, the measurement scale is a 7-point Likert Scale referring to: “Strongly disagree (1)”, “Disagree” (2), “Somewhat disagree” (3), “Neither agree nor disagree” (4), “Somewhat agree” (5), “Agree” (6) and “Strongly agree” (7).

The results of the descriptive statistics showed that the reported overall flow in the two modality groups was quite close to each other. While the in-person group reported an overall flow of 4.91 (i.e. very close to the “somewhat agree” level on the 1-7 flow scale), the online group reported an overall flow of 4.89 (meaning students in this group were also very close to five, or “somewhat agree” level). Although the two groups were above the mid-point level (4 out

of 7 points) and quite close to the average of five, both groups did not reach the minimum score characterized as flow (i.e. an average of five or higher of all components combined).

Figure 6

Mean Values of Oral Task Engagement (Overall Flow) between Instructional Groups

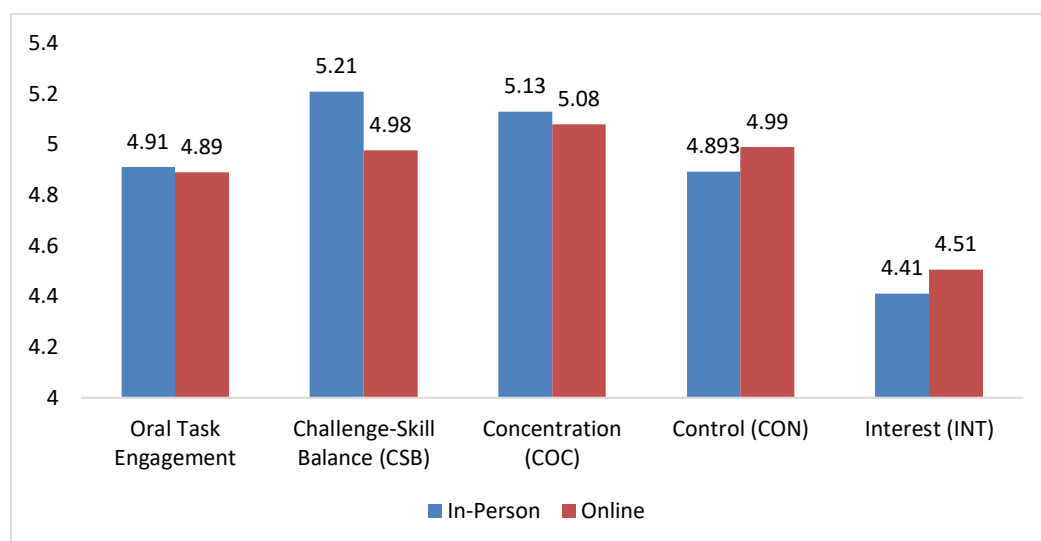


Figure 6 shows that the in-person group reported 5.21, 5.13, 4.89 and 4.41 averages for the “challenge-skill”, “concentration”, “control” and “interest” components, respectively. On the other hand, the Online group reported averages were 4.89, 4.98, 4.99 and 4.51 for the four components of flow. The following section examines flow experiences by students in each group.

4.3.1.2 Flow Experience of Individual Participants on the Oral Task

To further explore students’ flow experiences on the Spanish Language Oral Task, individual participants' averages were also examined. Table 16 summarizes the findings of flow experiences in Spanish classes organized by the number of participants in flow.

Table 16

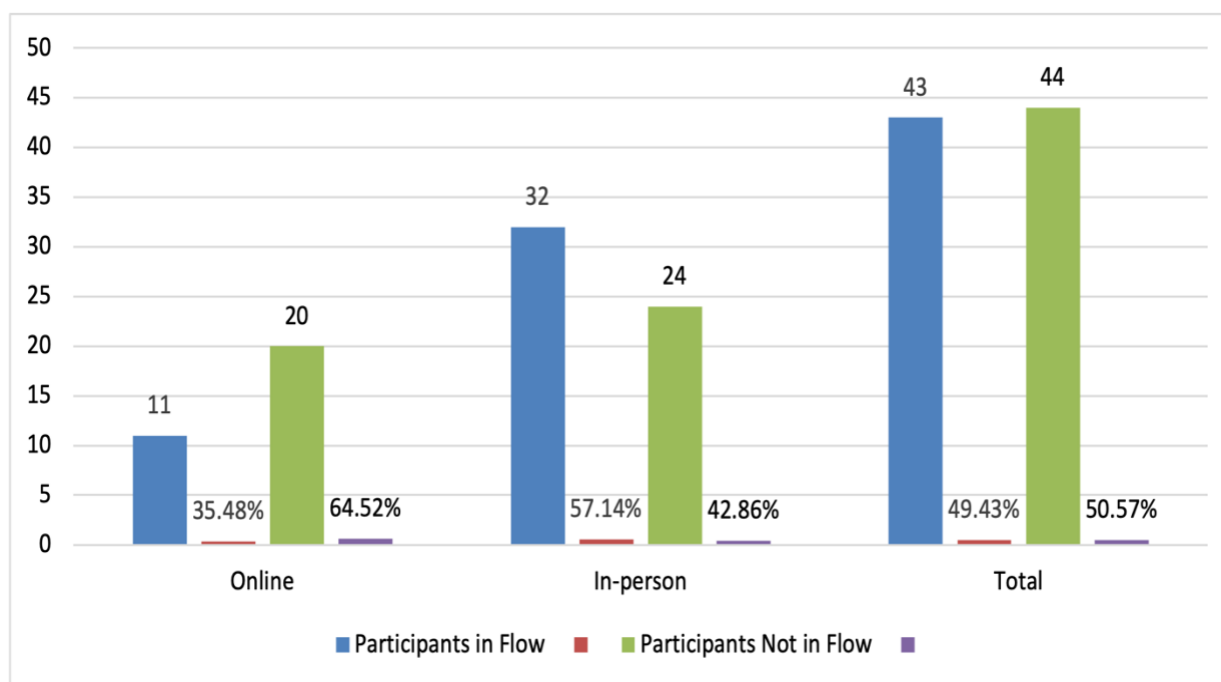
Number of Individual Participants in Flow by Learning Environment Group

N	Online	In-person	Total
Participants in Flow	11 (35.48%)	32 (57.14%)	43 (49.43%)
Participants Not in Flow	20 (64.52%)	24 (42.86%)	44 (50.57%)
Total	31	56	87

From the data gathered it was established that out of 87 total students, close to half of participants 49.43% (N=43) attained an average score of five or above on the flow questionnaire. These participants were adjudged as having experienced flow on the Oral Task. The remaining 50.57% (N=44) obtained an average score below five and were deemed as not having reached flow on the Oral Task. Looking at individual participant flow experiences by modality group, the results establish that for the in-person group more than half of students 57.14% (N=32) reported flow experiences. The remaining 42.86% of in-person learners did not reach flow on the Oral Task. In contrast, only 35.48% (N=11) of online students reported experiences characterized as flow. Of the 31 total participants in this instructional group, the majority (64.52%, N=20) did not reach flow on the Oral Task.

Figure 7

Number of Individual Participants in Flow by Learning Environment Group



The findings under this section indicate that individual students within the groups experienced engagement on the Oral Task that reached flow. A higher number of students in the in-person group experienced flow than in the online group (57% vs. 35%) suggesting that the in-person environment facilitated increased opportunities for individual learners' flow on task than the online setting. Figure 7 is a pictorial presentation of individual students in flow during the Oral Task. The next sections present the results of each of the four components of flow.

4.3.1.3 Fundamental Conditions of Flow in Oral Task

This section describes the results of the main conditions that support flow experiences during the realization of the Oral Task. As previously stated, in the language classroom, flow experiences on task depend on four conditions. The most fundamental requirement is the balance between the challenge and the skills needed to accomplish it. Other components that play an important role in sustaining the balance for flow to occur are “concentration”, “interest” and the “sense of control” perceived over the task. A description of how students' experiences on the

four flow conditions link to the three types of engagement (i.e. behavioural, cognitive and emotional engagement) will be included throughout the section.

4.3.1.4.1 Challenge-Skill Balance

It is an important condition of flow that the challenge of the task should be adequate and only slightly above the individual's skills. In other words, whether an individual desires to persevere or abandon an activity comes down to the right interconnection between the individual's competence and the demand of the task at hand. Table 17 shows the results of the challenge-skill component by modality group.

The findings revealed that in-person group reported an optimal "challenge-skill balance" of 5.21. This means that students in this group "somewhat agreed" (5 points on a 7-point scale) that their Spanish language knowledge and the requirements of the Oral Task matched at an adequate level. In contrast, the online group had an average "challenge-skill balance" of 4.98, which is at the "neither agree nor disagree" scale and very close to the "somewhat agree" level. The high challenge-skill (i.e. approximately 5 out of 7 on the scale) is an indicator that students were behaviourally engaged in realizing the Oral Task.

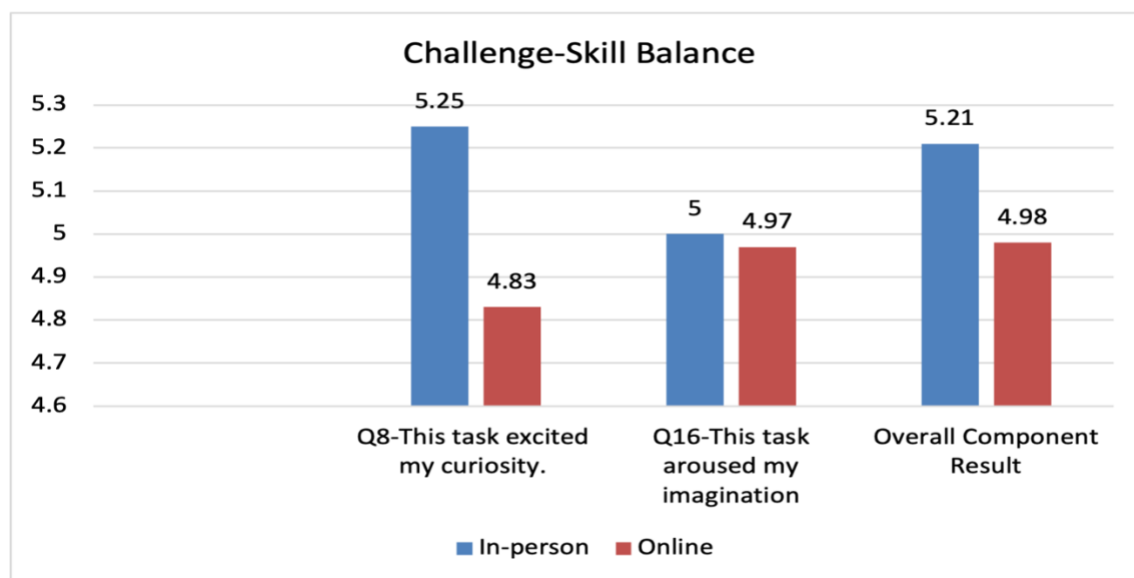
Table 17

Results for Flow Component "Challenge-Skill Balance"

Flow Component (Challenge-Skill Balance)	In-person		Online	
	Mean	SD	Mean	SD
Q8-This task excited my curiosity.	5.25	1.43	4.83	1.21
Q16-This task aroused my imagination	5.00	1.74	4.97	1.62
Overall Component Result	5.21	1.05	4.98	0.96

Figure 8

Chart of Results for “Challenge-Skill” Component



From the qualitative results both groups of students expressed that although they felt challenged by the Oral Task, they simultaneously felt confident that the lessons through their class modality have imparted them with the knowledge and abilities needed to realize the task. As multiple students expressed: [*“Online may not be the best option to learn a language but I did build speaking confidence”* (SP31, Online); *I speak 4 languages so this was challenging”* (SP23, In-person); *“I’m more at ease expressing my thoughts”* (SP27, Online); *“I was confident chatting in the language”* (SP5, Online); *“I have gotten good at using complex language”* (SP38, In-person); *“It (the in-person class) enabled me to speak in Spanish”* (SP64, In-person)].

The findings also suggest that the format of delivery of the course had an impact on the attainment of high challenge-skill balance in both groups. While online students were challenged by the task, lower participation and passiveness of the online setting dulled their competence level to some extent. As one student confirmed, *‘I think my confidence level would be much higher if I had gotten to participate in class and focus a little more’* (SP53, Online). Another

student added, *“Honestly, am a passive student in online classes as I don’t push myself like I would in a face-to-face course”* (SP34, Online). These learners’ experiences depict a decrease in behavioural engagement as participation and persistence on a task are meaningful for students to behaviourally engage with the task at hand.

In contrast with the online group, several students in the in-person group stated that the course format enhanced their Spanish language abilities and confidence: *“my language abilities increased very much thanks to the TLBs. I believe if it had been online, it wouldn’t have grown quite as much”* (SP71, In-person); *“it increased my ability to hold basic conversations and broadened my grammar and naming skills* (SP65, In-person); *“you get more confident when attending in-person class since you can get live feedback on your work”* (SP16, In-person); *“Ma confiance en moi en espagnol est assez élevée mais je sais que j’ai besoin de m’améliorer l’expression à l’orale* (Now my self-confidence in Spanish is quite high but I know that I want to improve speaking) (SP40, In-person); *“ being in person increased my confidence to speak Spanish in front of others, in particular when speaking around those who are more skilled than I”* (SP2, In-person); *I learned by interacting with fellow students and the professor* (SP11, In-person); *I needed to practise speaking, this class gave me the space to do so* (SP33, In-person). Judging from the statements, in-person learners’ optimal challenge-skill balance is linked to direct feedback and increased speaking interaction in Spanish which enhanced their behavioural engagement on the task. The following section presents results related to the “concentration” component.

4.3.1.4.2 Concentration

By nature, flow-inducing activities are enjoyable because they involve complete absorption in the task at hand with no attention remaining for worry or problems (i.e. the self-

consciousness disappears). Applying one's skills to accomplish the challenge of a flow activity requires full focused attention (Csikszentmihalyi, 1990). Like any other flow task – the Oral Task demanded that Spanish students apply their language skills to fulfill the monologue and dialogue oral activities (For details, see Chapter 3).

Some students experienced an imbalance of “challenge-skills” because of higher task demands over skill level – this aspect can generate anxiety instead of flow. Students' challenge-skill outcome is a signal of the concentration level experienced on the Oral Task. Consequently, the results on the component of concentration might parallel to some degree the level of students' reported experiences on the challenge-skill balance. Table 18 reflects the findings in both instructional groups.

Table 18

Results for Flow Component “Concentration”

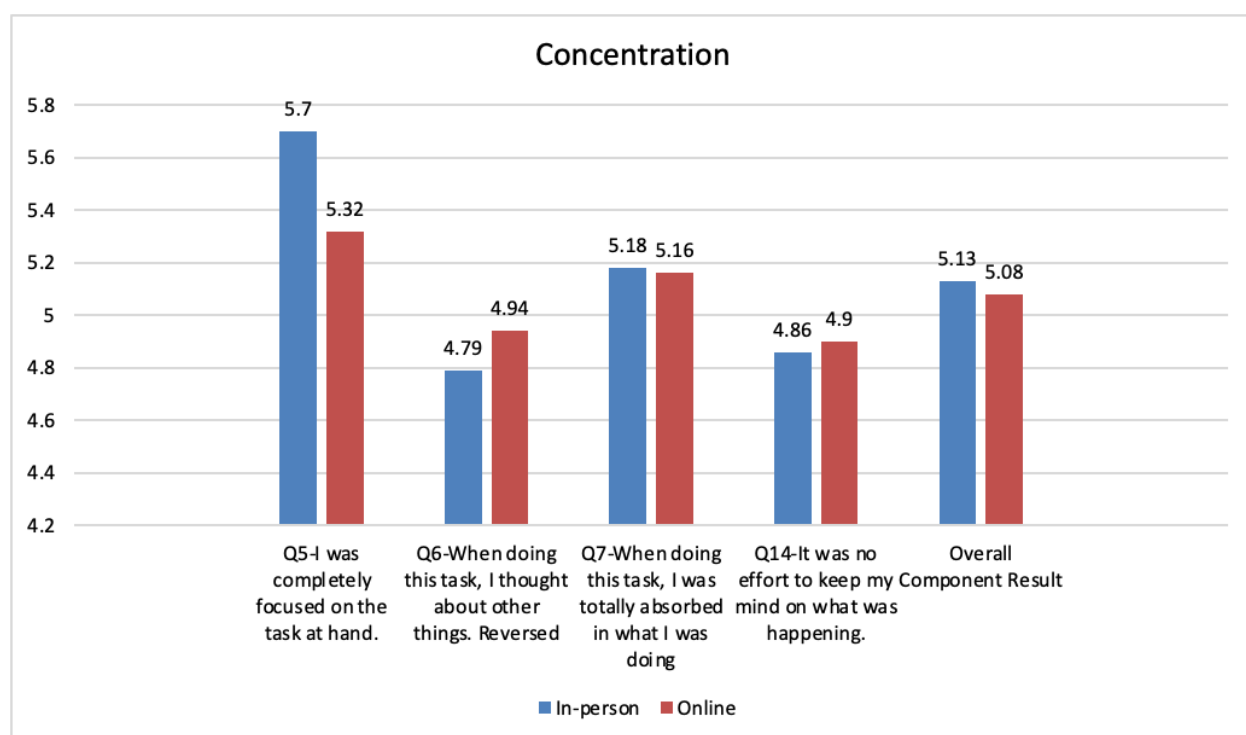
Component of Flow (Concentration)	In-person		Online	
	Mean	SD	Mean	SD
Q5-I was completely focused on the task at hand.	5.70	1.09	5.32	1.30
Q16-When doing this task, I thought about other things. (Reversed scored)	4.79	1.84	4.94	1.65
Q7-When doing this task, I was totally absorbed in what I was doing.	5.18	1.59	5.16	1.66
Q14-It was no effort to keep my mind on what was happening.	4.86	1.86	4.90	1.58
Overall Component Result	5.13	1.20	5.08	1.23

In slight contrast to the results of the challenge-skill component, both groups of students reported optimal concentration levels (i.e. above an average of 5). The in-person group recorded

an overall “concentration” level of 5.13, while the online group recorded a 5.08 average. The overall component results revealed that while some students might have been deeply absorbed in the Oral Task, the vast majority of students in both groups “somewhat agreed” that they were absorbed when carrying out the Oral Task at hand. The optimal concentration (i.e. above an average of 5) recorded in each group indicates that the Oral Task demanded cognitive abilities (i.e. completing the activities required communication skills in the target language, listening skills, critical thinking and problem-solving skills). These skills stimulate cognitive engagement in learners.

Figure 9

Chart of Results for “Concentration” Component



Similarly, it was observed from the qualitative findings that in both groups some students experienced intense concentration during the Oral Task and thus were cognitively engaged. One

student noted that the in-person environment made them focus “*I concentrated well and the in-person format contributed*” (SP25, In-person). Two other participants who experienced flow stated that “I was focused most of the time” (SP37, In-person); “*I concentrated well...*” (SP40, Online). One other student in the online class who experienced flow associated the enhanced attention to the comfort derived from the learning setting “*I was concentrating in the comfort of my bed*” (SP54, Online)

The “somewhat agree” overall results could be explained to some extent by students' experiences. In the online group, a student who did not experience flow on the Oral Task associated it with technological challenges – “*I felt anxious about my grades. On two occasions I lost connection while completing a timed quiz*” (SP20, online). This experience is an indication of an interruption in cognitive engagement which aroused feelings of anxiety and consequently emotional disengagement. The next section presents students' reported insights on the “control” dimension of flow.

4.3.1.4.3 Control

The amount of control students perceive over a challenge determines the extent to which they are willing to apply their skills during task realization. The ‘control’ element measured the degree to which students felt they could make their own decisions to match up to the challenge of the Oral Task. During flow, individuals typically experience “a lack of anxiety about losing control” (Csikszentmihalyi, 2014, p. 231) – in essence, they feel in control of their actions and the situation around them.

Students in the in-person group explained that the course format gave them control over the task because it provided them with opportunities to hone speaking skills, “*I had control over the efforts I made to speak Spanish and how to complete class assignments*” (SP86, In-person);

“I felt increased control in how and what we answer to questions - could be creative, funny, etc.” (SP73, In-person). This finding indicated that learners understood and knew how to complete the Oral Task, a meaningful aspect of cognitive engagement.

Some online students associated the kind of control that their learning environment provided with convenience, *“I liked that with one click am in class and as soon as class ended with the next click am on to other things”* (SP6, Online); *“Camera and audio controls were good”* (S`p12, Online); *“J’ai suivi les cours à la maison, au travail ou au café (I followed the lessons at home, at work or the café)”* (SP49, Online). The use of words like “good”, “liked” and “easy attendance” expressed indicate that “sense of control” created positive affect (emotional engagement) and behavioural engagement (attendance).

Table 19

Results for Flow Component “Control”

Component of Flow (Control)	In-person		Online	
	Mean	SD	Mean	SD
Q9-During this task, I could make decisions about what to study, how to study it, and/or with whom to study.	4.48	1.95	4.55	1.52
Q12-I had a sense of freedom that I am in charge of my work.	5.14	1.61	5.16	1.51
Q6-During the task, I felt like I was given choices.	5.05	1.65	5.26	1.53
Overall Component Result	4.89	1.35	4.99	1.12

The types of control observed from students’ written responses were reflected in responses to Q12 and Q16 of the flow component (Table 19). Both the in-person and online

groups “somewhat agreed” (5.14 and 5.16 respectively) that they felt a sense of freedom that they were in control of their Oral Task performance. Also, for Q6 both groups “somewhat agreed” (5.05 for in-person and 5.26 for online) that during the Oral Task, they were given choices. It is notable that Q9 received quite low average in both instructional groups (4.48 for in-person and 4.55 for online). Possible explanations for students being on the fence (neither agree nor disagree level) on item Q9 could be inferred from the qualitative results. One student said, *“there weren't many choices. In an online class you can't choose who to pair with during pair and group work like we do in an in-person course. With cameras turned off, it's hard to get to know other students”* (SP33, Online); Others supported the claim, *“I wasn't given choices or control over what or whom to study with, the course was pre-planned”* (SP4, In-person); *“There was no choice for what I want to study in this class, the materials are the materials”* (SP80, In-person); *“Most of the time we really don't choose whom to work with or what to study”* (SP9, In-person).

Figure 10

Chart of Results for “Control” Component

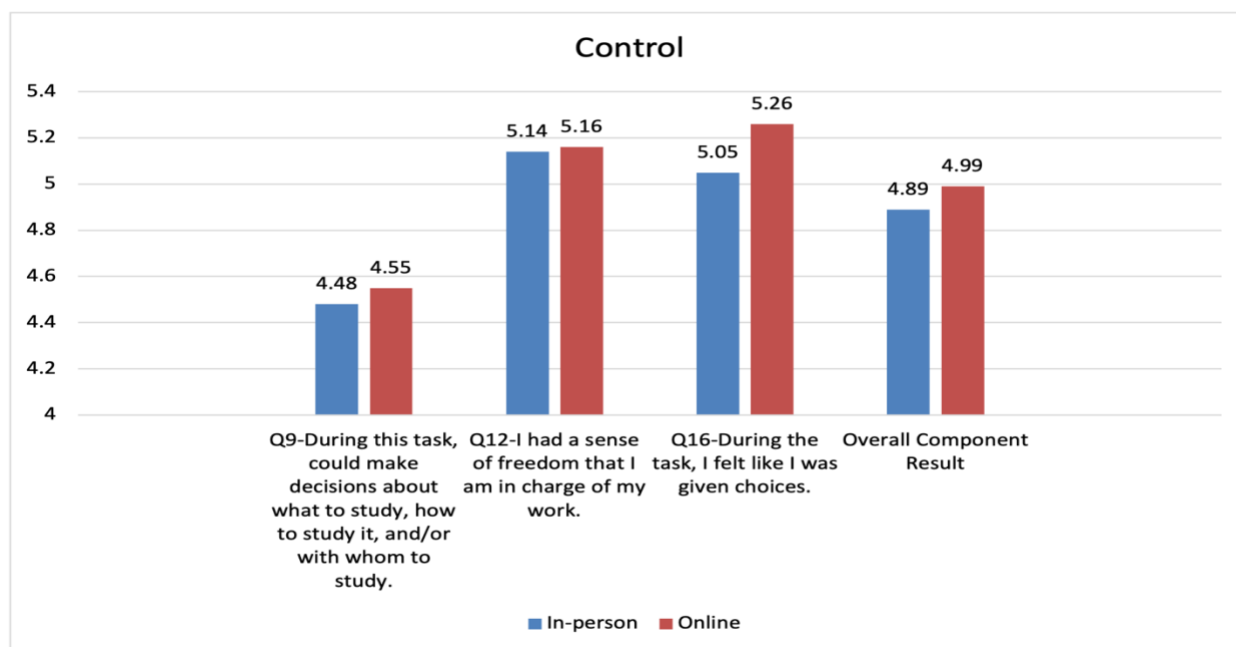


Figure 10 reflects students' overall results for this category. Regarding the overall component results, students in both groups were quite close to the “somewhat agree” scale. The in-person group reported a 4.89 average while the online group recorded 4.99. The lack of optimal control levels (i.e. not reaching an average of five or higher) in both groups could be attributed to students' responses on item Q9. The high scores in both groups (> 4.88 out of 7) indicate that the Oral Task created opportunities for learners to cognitively engage through thinking, making decisions and exercising control to complete the task. The next section describes the findings of the “interest” component.

4.3.1.4.4 Interest

Csikszentmihalyi (2014) affirms that “interest in an activity is one precondition for finding flow in it” (p. 244). Classroom tasks have the potential to excite students' interests and promote flow (Egbert, 2003) including speaking practice exercises that sustain learners' level of involvement (Jones, 1998).

Results in Table 20 showed that despite the required efforts of using target language skills in handling the challenge associated with the Oral Task, students in both in-person and online groups approximately “agreed” that the Oral Task was interesting in itself (Q2) with 5.57 and 5.61 averages respectively.

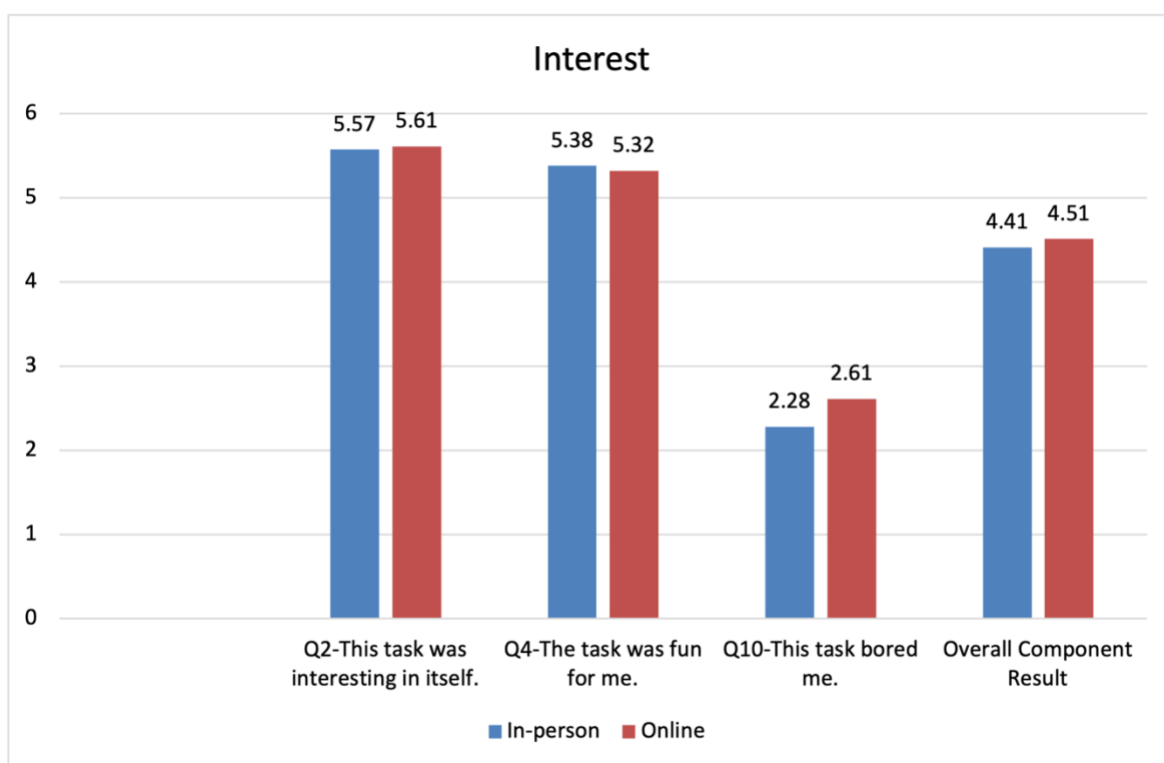
Table 20

Results for Flow Component “Interest”

Component of Flow (Interest)	In-person		Online	
	Mean	SD	Mean	SD
Q2-This task was interesting in itself.	5.57	1.14	5.61	1.05
Q4-The task was fun for me.	5.38	1.46	5.32	1.33
Q10-This task bored me (Reverse scored)	2.28	1.44	2.61	1.36
Overall Component Result	4.41	0.66	4.51	0.71

Figure 11

Chart of Results for “Interest” Component



Responses to Q4 (Table 20 and Figure 11) show that the Oral Task spoke to students' Spanish skills and that students in both groups found the oral activity fun. The resemblance in the averages to Q4 is particularly striking (5.38 for in-person – 5.32 for online) indicating that regardless of differences in delivery format, both instructional groups enjoyed the learning process associated with the Oral Task. This finding coincides with the evidence observed for item 10 – students in both groups “disagreed” that the Oral Task bored them.

Instances of students' experiences that stimulated their “interest” on the oral presentational and interpersonal subtasks (see section on Oral Language Task) can be inferred from the qualitative results. For one participant in the in-person group, interest level was directly related to the type of activities they did in class, *“the speaking practice activities were fun. I*

much needed them” (SP10, In-person). Two other participants pointed out, *“it left me more interested in pursuing the language”* (SP65, In-person); *“Mon niveau d’intérêt a augmenté de plus en plus, réveillant mon sens de toujours apprendre d’avantage (My level of interest has increased more and more, awakening my sense of always learning more)”* (SP82, in-person).

The use of expressions like “fun”, “more interested”, “increased interest” and “desire to learn” shows that the learning experience stimulated emotional engagement and a passion for taking on higher-level challenges.

Online students generated interest from the flexibility and self-inspiration associated with remote learning – indications of emotional engagement. One student said, *“It’s good to have some flexibility”* (SP1, Online) while another elaborated that *“in an online class, interest comes from within. It truly required more dedication on my part to learn Spanish and complete the assignments”* (SP25, Online).

Although not all students necessarily experienced interest in the ways described in students’ accounts, the qualitative results suggest that students in the two instructional environments derived interest from different sources.

4.3.1.4 Independent Sample T-Test for Oral Task Engagement

An Independent sample t-test was run as a parametric comparative test to examine the mean differences in flow components between the dichotomous groups of the learning environment (i.e. in-person and online). Before conducting the t-test, it was critical to check variance homogeneity. Levene’s Test was performed to test the assumption of equal variances. The results revealed that all variables obtained p-values greater than 0.05. This confirms that the sample variance differences observed were most likely caused by random sampling of a

population with equal variances. As a result, the null hypothesis of equal variances was accepted for all variables under consideration

Table 21

Results of Levene's test and Independent Sample T-test for the Oral Task

Flow Component	Levene's test		Mean		ΔM	Independent Sample T-Test			Effect Size	
	F	p	In-person	Online		t	df	p	f ²	Effect
Challenge-Skill	0.00	0.99	5.21 (1.05)	4.98 (0.96)	0.23	1.03	85	0.31	0.24	Small
Concentration	0.12	0.78	5.13 (1.20)	5.08 (1.23)	0.05	0.18	85	0.86	0.04	Small
Control	0.45	0.50	4.89 (1.35)	4.99 (1.12)	-0.10	-0.34	85	0.74	0.08	Small
Interest	1.17	0.28	4.41 (0.66)	4.51 (0.71)	-0.10	-0.62	85	0.54	0.14	Small
Overall flow	0.24	0.62	4.91	4.89	0.02	0.13	85	0.90	0.03	Small

Note. N=87; ΔM = mean difference; df = degree of freedom; * $P < 0.05$; ** $p < 0.01$; *** $p < 0.001$; values in parentheses represent standard deviations (SD).

Descriptive statistics suggest that, on average, students in the in-person group experienced higher overall flow levels ($M = 4.91$, $SD = 0.82$) than the online group ($M = 4.89$, $SD = 0.70$). However, the results of the t-test indicated that the differences in overall flow between the two instructional groups were not statistically significant ($p = .13$) because the p-value was greater than the .05 threshold for significance. Furthermore, the observed differences between groups in all four flow components were not significant.

4.3.1.5 Summary of Students' Flow Experiences on the Oral Task (RQ1)

The findings revealed that, while both modality groups had overall flow levels on the upper end of the flow scale indicating high engagement, they did not attain flow on the Oral Task. Over half of the in-person learners reported flow experiences whereas a little above one-third of online learners had experiences designated as flow. An independent t-test revealed that the overall flow and component differences between the groups were not significant. However,

the qualitative findings revealed that the two groups experienced the flow components differently. Online learners commented that low participation and passiveness diminished their abilities, compared to in-person learners who stated that live feedback and interaction heightened their confidence and skills to realize the Oral Task. Both modality groups reported optimal concentration levels, however, students' comments suggested that the format enhanced as well as decreased concentration (via poor internet connection). The control levels observed were linked to speaking interaction and anywhere learning in the in-person and online groups respectively. Both groups cited a lack of choice over study topics as a factor that diminished control. In-person learners derived interest from the types of tasks they did compared to the online group that sustained interest because of flexibility paired with a commitment to complete the task. The findings on the flow components also revealed that both modality groups experienced all three types of engagement at varying levels.

4.4 Class Engagement: Proportion of Spanish Class Time Spent in Flow (RQ2)

In this section, findings related to the second research question about the proportion of class time online and in-person students spend in flow. In answering this question, percentage scale responses in Part II of the student engagement questionnaire were analyzed (see Appendix D and E for the full questionnaire in English and French respectively). As stated earlier, the percentage scale is a continuous scale with possible responses ranging from 0%-never to 100%-always. The analysis sought to describe both differences and parallels between the instructional modalities. For presenting findings and because this study examined student engagement via Flow theory, the proportion of time spent in flow when students ^{OB}attend^{OB} online, or in-person Spanish classes will be referred to as Class Engagement (CE).

4.4.1 General Results Related to Class Engagement.

The result of RQ2 will start with the presentation of overall descriptive results for all participants and then instructional groups. This is followed by the results of the Independent Sample T- Test and finally, a description of findings for individual items and their impact on overall flow states

4.4.2 Findings of Overall Class Engagement for All Participants

When looking at the Class Engagement of all students combined in Table 22, the overall mean value of Class Engagement (CE) was 54.013, greater than the mid-value of 50 out of 100 ($M = 54.013$, $SD = 11.470$). This suggests that on average Spanish students are engaged at optimal levels (i.e. in a state of flow) during more than half of their class time.

Table 22

Summary of Reported Class Engagement for all Students

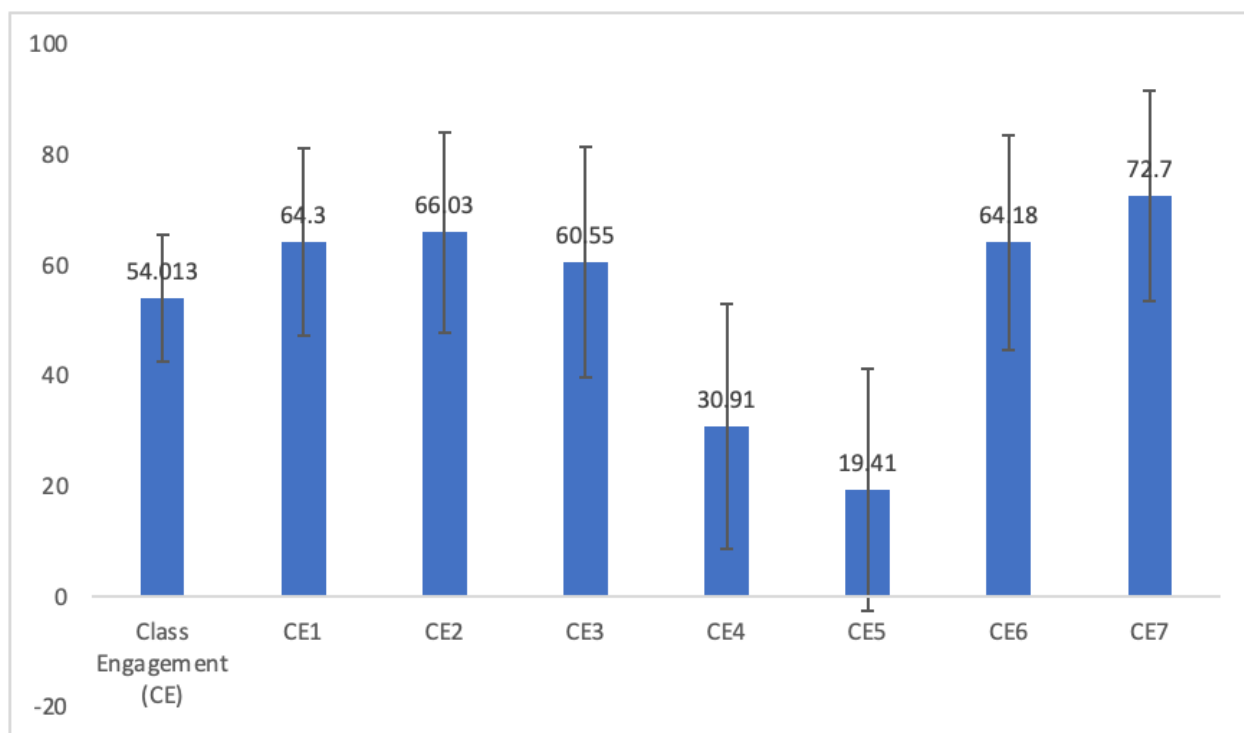
Code	Variables	Mean (M)	St Dev (SD)	Min	Max
CE1	I'm totally absorbed...%	64.30	16.99	25	100
CE2	I feel fulfilled...%	66.03	18.13	30	100
CE3	I'm happy...%	60.55	20.88	12	100
CE4	I'm distracted...%	30.91	22.25	0	99
CE5	I'm frustrated...%	19.41	21.98	0	100
CE6	I'm enthusiastic...%	64.18	19.37	2	100
CE7	I feel am learning and improving...%	72.70	19.07	9	100

Overall Class Engagement	54.01	11.47	24.71	78.57
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As reflected in Figure 12, among the variables of Class Engagement, item CE7 [*I feel am learning and improving*] recorded a 72.7 average (SD = 19.065) while item CE5 [*I'm frustrated*] had a 19.41% (SD = 21.973). These findings suggest that students view approximately 73% of their class time as a learning experience while they spent only 19% of their class time feeling frustrated.

Figure 12

Chart of Reported Class Engagement for all Students



4.4.3 Results of Overall Class Engagement and Parametric Independent Sample T-Test

In Table 23, results of class engagement were presented for each instructional modality group. The in-person group reported an above-average value of 56.94 (SD=10.90) while the online group had a below-average score of 48.73 (S=10.69).

Table 23

Proportion of Class Time in Flow State by Instructional Groups

Class Engagement Variables	Course Environment			
	In-Person		Online	
	M	SD	M	SD
I'm totally absorbed...% (CE1)	67.39	16.768	58.710	16.179
I feel fulfilled...% (CE2)	69.52	17.779	59.740	17.299
I'm happy...% (CE3)	66.110	20.491	50.520	17.845
I'm distracted...% (CE4)	27.570	21.165	36.940	23.223
I'm frustrated...% (CE5)	20.160	24.707	18.060	16.205
I'm enthusiastic...% (CE6)	70.070	14.915	53.550	22.036
I feel am learning and improving...% (CE7)	77.750	15.946	63.580	21.031
Overall Class Engagement	56.94	10.90	48.73	10.69

In order to determine whether the mean differences observed between in-person and online students were statistically significant, an Independent Sample T-Test was performed. Preceding the performance of the t-test, Levene's test was carried out to test the assumption of equal variances. The p-values obtained for the Class Engagement construct were greater than 0.05, revealing that the sample variances were equal (Table 24). Thus, a t-test with equal variances was reported.

The independent sample t-test showed a significant difference ($p = 0.001$) in the proportion of flow between in-person ($M=56.94$, $SD= 10.90$) and online ($M=48.73$, $SD=10.69$) modality groups. This suggests that learners in the in-person condition spent a higher proportion of time in a state of flow than online learners. The effect size as measured by Cohen's d , was $d = 0.76$. Following the recommendation by Polonsky and Oswald (2014), d values are interpreted as: 0 – 0.40 is considered as small, 0.50 - 0.70 is medium, and > 0.70 is large. Based on this interpretation, the 0.76 obtained for differences in Class Engagement represents a large effect.

Table 24

Levene's test and Independent Sample T-test for the Instructional Groups

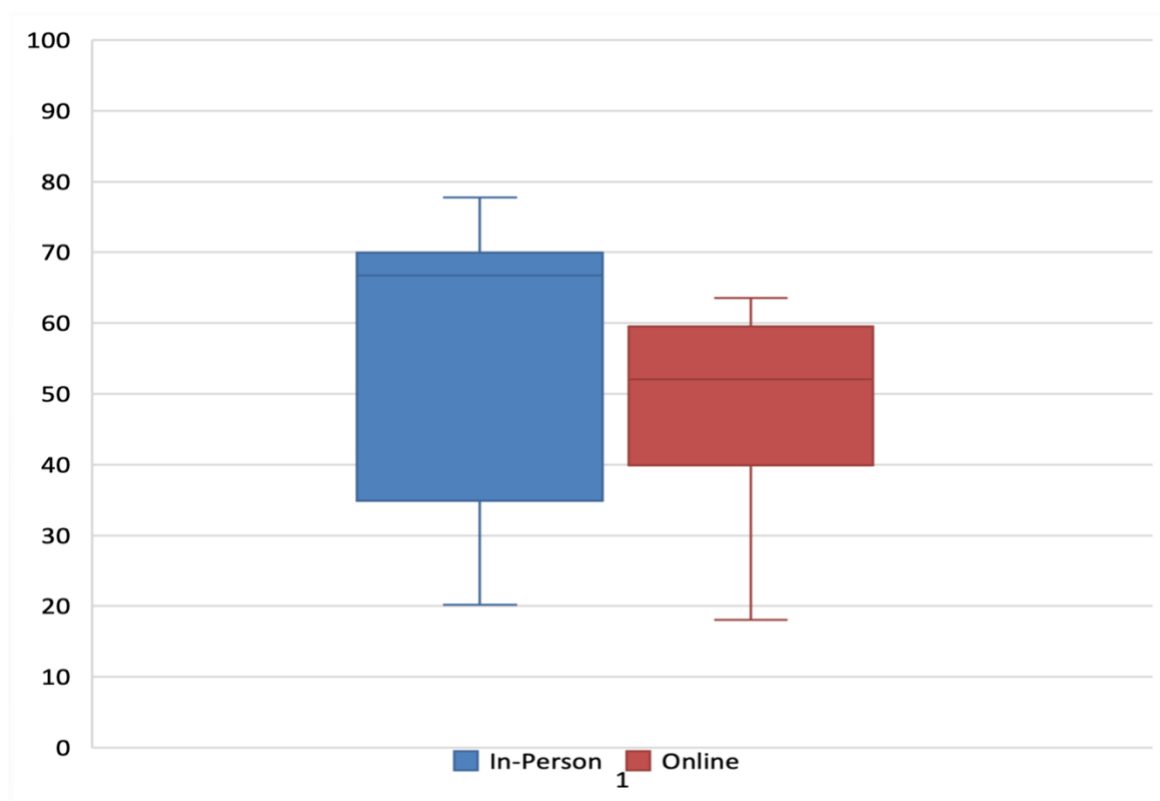
Variable	Levene's Test		Mean		Indep. Sample T-test				Effect Size	
	F	p	In-person	Online	ΔM	t	df	p	f^2	Effect
Class Engagement	0.88	0.35	56.94	48.73	8.21	3.39	85	0.001	0.76	Large
CE1	0.32	0.57	67.39	58.71	8.68	2.34	85	0.02	0.52	Medium
CE2	0.14	0.71	69.52	59.74	9.78	2.48	85	0.02	0.56	Medium
CE3	1.76	0.19	66.11	50.52	15.59	3.55	85	<0.001	0.80	Large
CE4	0.08	0.79	27.57	36.94	9.37	1.91	85	0.06	0.43	Small
CE5	1.81	0.18	20.16	18.06	2.1	0.42	85	0.67	0.10	Small
CE6	2.53	0.12	70.07	53.55	16.52	4.16	85	<0.001	0.93	Large
CE7	1.64	0.21	77.75	63.58		3.54	85	<0.001	0.79	Large

Note. $N=87$; ΔM = mean difference; df = degree of freedom; * $P < 0.05$; ** $p < 0.01$; *** $p < 0.001$

The box plot in Figure 13 gives a better understanding of the differences between online and in-person flow states during class time. Although the mean values for the two groups were close to each other, it is conspicuous that the median of the in-person group is higher. The interquartile range box is bigger in the in-person condition, suggesting that in-person learners were scattered out in their flow experiences. The size of the whiskers indicates that the bottom 25% in the in-person class exhibited higher agreement in their experiences than the online participants – the opposite is true for the top 25%. Thus, both groups of students showed varied levels of dispersion which can also be deduced from the variations in their standard deviations.

Figure 13

Proportion of Class Time in Flow by Instructional Groups



The finding that the proportion of class time spent in a state of flow in an in-person environment is higher than in an online mode fits with patterns of learning experiences described

by student and instructor participants. Many course instructors noted that students' participation and involvement in class tasks are relatively modest in the online modality:

(IP2) *Students in an in-person class are compelled to participate and get involved because they are physically present. In an online class, students can turn off their cameras and be engaged in some other activity.*

(IP9) *I do think that the level of benefit and the level of how they get the most out of the classes is much better in-person than online because their participation is not as frequent and as required when they are in the online environment as when they are in person [...] So, I think that there's a big difference in terms of participation and Class Engagement.*

(IP3) *Most of my students do not turn on the camera and do not participate too much (always preferring to write their comments rather than talking). Also, they do not use emoticons or reactions as a way to express emotions.*

Furthermore, other instructors noted that overall engagement is lower in the online environment due to minimal participation.

(IP5) *Engagement in an in-person class is spontaneously bigger compared to an online class. In an online classroom, everything HAS TO BE engaging (the teacher, the activities, the platform); in an in-person class, communication in the target language is more spontaneous, it does not need constant prompts from the teacher.*

(IP3) *I think online classes allow students to multitask when attending classes, and besides being helpful in some ways, it reduces the amount of participation and engagement. In an in-person class, students cannot do that and you can interact with them in a direct way.*

Both teachers and students stated that for a language course speaking skills are at the topmost part of the hierarchy and the language learnt is consolidated by communicating with others. However, the online modality did not facilitate the teaching of this skill hence reducing the overall benefit that online learners get out of the course:

(IP3) *In a language class participation and interaction are important, and I do not think online classes encourage these characteristics.*

(IP5) *It would depend on the skill, speaking is the one that suffers the most in an online environment; yet writing can be highly promoted in an online environment.*

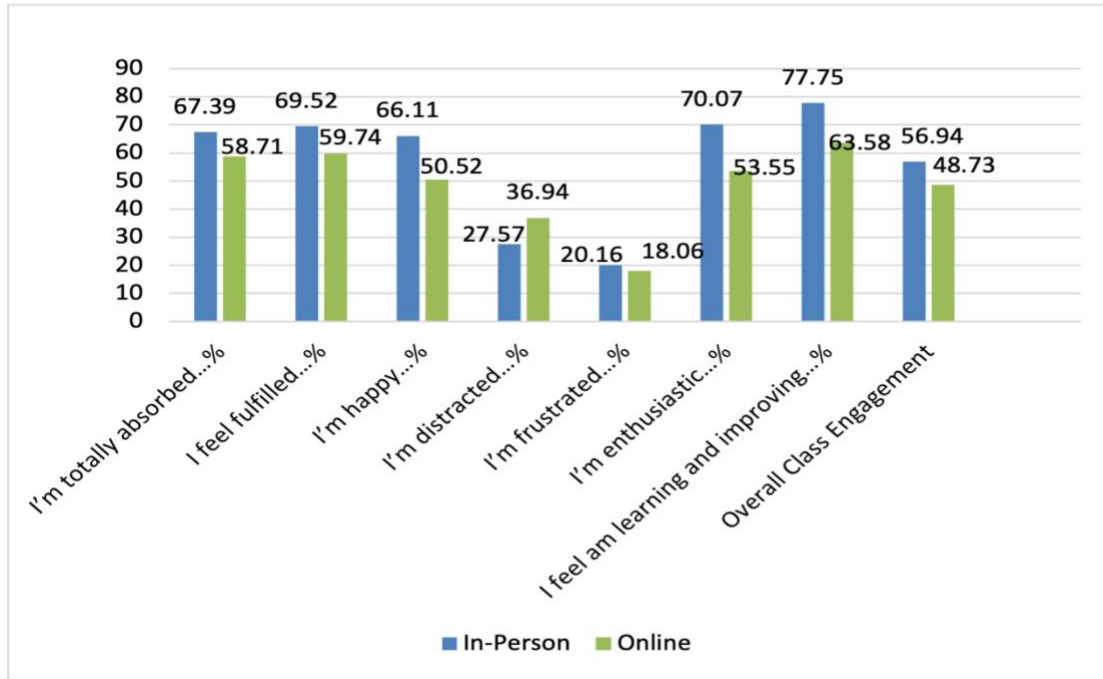
In the next section, the results of individual variables in the seven-item scale and their impact on overall Class Engagement in both modalities will be described.

4.4.3.1 Description of Class Engagement Items

The proportion of class time in a state of flow was determined by a combination of seven variables (See Table 24 and Figure 14). The first item (CE1) is linked to concentration – it requested students to indicate the level at which they felt they were fully engrossed during their class sessions. With an average of 67.39 (SD= 16.77), in-person students were focused far more than their online colleagues who reported a 58.71 average (SD= 22.04). Table 24 shows that the difference was statistically significant at $p = 0.02$.

Figure 14

Mean Values of Class Engagement Items for Instructional Groups



Item CE2 is related to challenge-skill balance and enquired about students' fulfilment level – the level at which they felt their skills and abilities were being completely utilized in the realization of class activities that promote learning. Similar to the first item, in-person students reported significantly greater fulfilment ($M = 69.52$, $SD = 17.78$) during class time than online learners ($M = 59.74$, $SD = 17.30$) at a p -value of 0.02.

Learners' positive emotional state weighs in on the outlook they adopt towards learning and, hence is a harbinger of flow levels. To the positive emotion in item CE3, in-person learners reported feeling happy 66.11% ($SD = 20.50$) of the time during their Spanish classes while online learners recorded a significantly smaller proportion at 50.52% ($SD = 17.85$, $p = 0.001$). Of the two negative items included in the seven-item construct, Item CE4 examined the rate of distractions and interruptions that hindered flow during Spanish class time. Descriptive statistics

suggest that in-person students were less distracted [$M=27.57$, $SD=21.17$] than online learners [$M=36.94$, $SD=23.22$], but the difference was not significant ($p = 0.06$). The lack of difference between groups on item CE4 contradicts a typical trend in the qualitative findings – key to challenges in online learning is the level of distraction that learners are exposed to. One instructor commented that:

(IP9) *We don't know what they're (students) doing when their cameras are off. And I do think that the tendency is to get distracted more often, maybe talking to someone else or going and grab a bite. And so I think that the online environment allows for more distractions than the in-person environment where we are all looking at each other.*

Item CE5, the second negative item, received the lowest mean score in both groups. The feeling of frustration can be a sign of an imbalance of challenge-skill or might be linked to other classroom-related issues. Descriptive statistics revealed that online learners reported feeling frustrated approximately 18% ($SD= 16.21$) of their class time while in-person students had an average frustration level of 20.16% ($SD= 20.71$) - the difference observed between groups was not significant ($p = 0.67$). It is important to note that Flow Theory predicates that some stress is necessary to induce flow and learning because individuals perceive flow-promoting circumstances as urgent, essential and meaningful (Mitchell, 1988). Hence, feeling a low level of stress and frustration is important in preventing relaxation and boredom, thus allowing flow and learning to occur.

Item CE6 is a positive emotion looking at learners' level of enthusiasm. Online students perceived an enthusiasm level of approximately 53.55% of their class time in contrast to the in-

person group which was enthusiastic well over 70% of the time spent in class. The result of the t-test for CE6 showed significance ($p = 0.001$).

Lastly, item CE7 was to assess the proportion of class time that learners believed they were acquiring knowledge and progressing in their learning. For engagement during Spanish classes, it was the case that both groups of students perceived that they were learning and improving their language capacities. This was the highest-scoring item in both modality groups, with levels of 77.75 ($SD=15.95$) and 63.58 ($SD=21.03$) in in-person and online groups respectively ($p = 0.001$).

Qualitative responses corroborate the findings of item CE7. Student participants were asked to comment on how taking the Spanish course through their chosen modality has impacted their Spanish language skills and perception of learning Spanish. Many online learners were content with the learning outcome:

(SP2, Online) *Am learning every day and speaking with fewer errors*

(SP14, Online) *J'apprends de plus en plus. (I'm learning more and more.)*

(SP21, Online) *I missed seeing my friends and teachers. Yes, it can't replace everything you get in face-to-face interaction. I still learned a whole lot.*

(SP52, Online) *Though online may not be the best option to learn a language, I did build speaking confidence.*

(SP66, Online) *Grâce à ce cours, j'ai acquis une capacité générale de base à utiliser l'espagnol. (Thanks to this course, I've acquired a basic general ability to use Spanish.)*

Although many online learners expressed that the online modality provided opportunities for self-improvement and sustained learning, there were others who considered that the instructional modality was detrimental to the learning process:

(SP14, Online) *Not good, especially when the courses are for both online and in-person, it is very unfriendly for online students in my opinion.*

(SP25, Online) *I must take a language class for the degree program. I picked Spanish because I took it in my junior year. After a semester of taking this course, I have had no real conversations.*

It is notable that in-person learners expressed more positivity about the influence of the in-person mode on the development of their language abilities and learning experiences compared to online learners. In-person learners stated that the learning environment played a crucial role in not only the language skills they developed but also in the confidence and language competence gained:

(SP10, In-person) *My language abilities increased very much thanks to the TLBs. I believe if it had been online, it wouldn't have grown quite as much.*

(SP15, In-person) *Am happy with the language abilities I developed from this course.*

(SP16, In-person) *Certainly learning because my language abilities got better.*

(SP28, In-person) *In the beginning, I didn't notice changes in my abilities, but at the end, I sure feel I have learned new expressions.*

(SP84, In-person) *I felt I focused and retained more information.*

(SP71, In-person) *Je trouve que je fais des progrès surtout à l'oral (I think I'm making progress, especially when it comes to speaking).*

(SP52, In-person) *The class was active, I am happy that I was able to talk in class and express ideas in Spanish.*

(SP1, In-person) *I gained a lot of confidence thanks to the TLB, the in-person format definitely helped with that.*

(SP73, Online) *Ma confiance en moi en espagnol est assez élevée mais je sais que j'ai besoin de m'améliorer l'expression à l'orale (My self-confidence in Spanish is quite high but I know that I want to improve speaking).*

(SP19, In-person) *I enjoy speaking the language and I love the progress I see.*

4.4.3.2 Within Groups – Individual Students Class Engagement Experiences

In order to provide a profound understanding of the learner flow state during Spanish class, individual students' reported proportion of flow was further examined. The number of students who experienced below average (i.e., less than 50%) proportion was categorized into the low proportion group while those who reported a 50% score or higher were placed into the category of high proportion as shown in Table 25. The categorization was done based on natural trends in the data collected.

Table 25

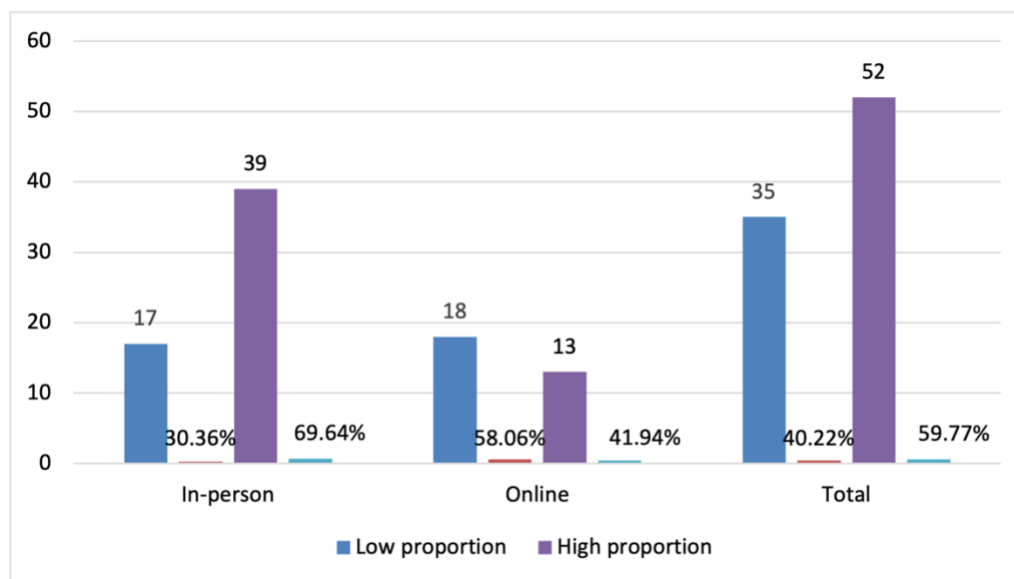
Categorization of Individual Participants Reported Proportions of Flow State

	In-person	Online	Total
Low proportion	17	18	35
	(30.36%)	(58.06%)	(40.22%)
High proportion	39	13	52
	(69.64%)	(41.94%)	(59.77%)
Total	56	31	87

When looking at the low proportion category, the results demonstrated that around 30% of in-person students surveyed expressed a proportion of flow state below average. In comparison with the latter group, well above 58% of online respondents experienced Class Engagement levels that were subpar. Apropos the high proportion category, fewer than 42% of online learners experienced a flow state above average. On the contrary, many more than 69% of in-person students expressed average or higher in-class flow state proportions. A graphic representation of the results can be viewed in Figure 15.

Figure 15

Categorization of Individual Participants Reported Proportions of Flow



In conclusion, individual students in the in-person group experienced longer periods of Class Engagement than in the online class. The findings lean towards teachers' expressed views, that on average, in-person learning provides students with enhanced learning outcomes that are minimal in the online setting.

4.4.3.3 Summary of Findings Related Class Engagement

The preceding section has described the findings relating to learner flow state during in-person and online Spanish courses. The synthesis of the qualitative and numerical results offered a comprehensive understanding of the complex connection between students' Class Engagement and the instructional format. Overall, respondents in the in-person condition reported spending a significantly longer proportion of class time in a state of flow than online participants with a large effect size. Both groups of learners specified the feeling of learning and improvement in language skills as the variable that most facilitated the Class Engagement they experienced. The two groups of participants unanimously reported that the level of distractions during class time was a detractor to higher flow state. The categorization and comparison of the proportions of flow states of individual participants within each instructional group indicated that a vast majority of in-person students experienced higher than average proportions of flow. Meanwhile, many students in the online group only experienced below-par flow state proportions. The results from the numerical data coupled with qualitative findings revealed a pattern – while both in-person and online students made gains from lessons, the in-person environment accentuated conditions that led to a long-lived flow state.

In the following sections, findings pertaining to the interaction between learner proficiency level and flow will be presented.

4.5 Interplay of Proficiency Level, Learning Environment and Flow (RQ3)

This section presents the findings related to research question three which looked at how proficiency level interacts with both task and Class Engagement. Given that proficiency level shapes different facets of language learning, this study aimed to investigate its contribution to L2 task realization and learner flow experiences. The information used to answer research question

3 was collected in Parts I, II and III of the student engagement questionnaires. Participants have been categorized into two proficiency groups: high proficiency (HP) and low proficiency (LP). The grouping was done according to student participants' scores on the Spanish Proficiency Test. The presentation of findings will be organized according to the two parts of RQ3. The first part will describe results related to the influence of proficiency level alone (low vs high) on flow for both Oral Task and Class Engagement. The second part will present results on the joint impact of proficiency (low vs. high) and the learning environment (in-person vs. online) on flow experiences.

4.5.1 General Results on the Impact of Proficiency Level on Flow

In the following sections, the results on the link between proficiency and flow on the Oral Task will be presented first followed by findings on Class Engagement. Moreover, the findings of the Independent Sample T-Test, description of scale items and flow experiences by individual students in each group will be described.

4.5.1.1 Results on the Interplay of Proficiency Level with Oral Task Engagement

In Table 26, the findings for overall flow as well as results for each of the four components of flow are presented across proficiency groups. The overall flow on the Oral Task for both groups was at the upper end of the 7-point flow scale (i.e. approximately 5 out of 7). The LP group recorded an overall flow of 4.81 – meaning students were closer to the “somewhat agree” level. Meanwhile, the HP group achieved an overall flow of 4.99 (also quite close to 5 or “somewhat agree” on the 1–7-point scale).

Table 26

Summary of Oral Task Engagement by Proficiency Group

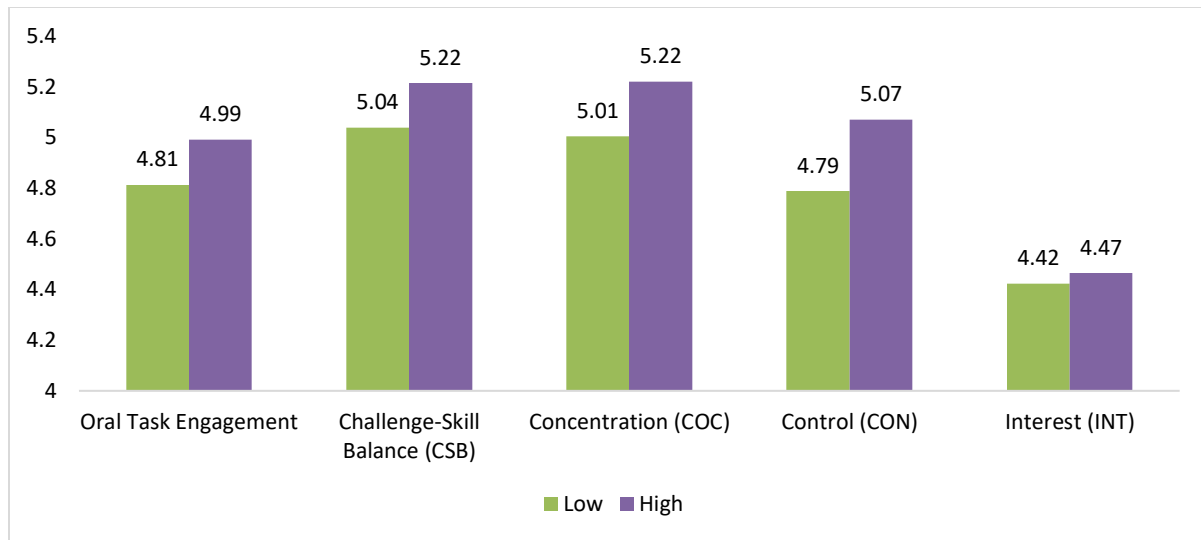
Components of Flow	Low Proficiency	High Proficiency
--------------------	-----------------	------------------

	Mean	SD	Mean	SD
Challenge-skill balance (CSB)	5.04	1.19	5.22	0.80
Concentration (COC)	5.01	1.23	5.22	1.17
Control (CON)	4.79	1.50	5.07	0.98
Interest (INT)	4.42	0.69	4.47	0.67
Overall Flow	4.81	0.90	4.99	0.62

The LP reported an average SD of 0.90 while the HP group reported a 0.62 average on all flow elements combined. Concerning mean values of the four components of flow as shown in Table 26 and Figure 16, both proficiency groups had optimal “challenge-skill balance” [M = 5.04, SD = 1.19 for LP and M = 5.22, SD = 0.80 for HP group] (i.e. the scores were above 5). This confirms that learners with low language abilities can experience an optimal balance of skills and challenges if the conditions are right. The HP group reported M = 5.22 (SD = 1.17) for “concentration”, M = 5.07 (SD = 0.98) for “control” and M = 4.47 (SD = 0.67) for the “interest” component. The LP group means were 5.04, 5.01, 4.79 and 4.42 for the CSB, COC, CON and INT components respectively. Although both LP and HP groups recorded averages for the components and overall flow were high indicating that students experienced engagement on the Oral Task, both groups did not attain flow (i.e. averages were lower than 5).

Figure 16

Summary of Oral Task Engagement by Proficiency Group



4.5.1.2 Results on the Interplay of Proficiency Level with Class Engagement

The findings in Table 27 (illustrated in Figure 17) suggest that students in both proficiency groups reported spending more than half of their class time in a state of flow. The HP group reported spending 55.22% of their class time in flow ($SD=11.40$). Conversely, the LP group denoted that 52.83% of their class time was characterized by flow experiences ($SD=11.55$).

Table 27

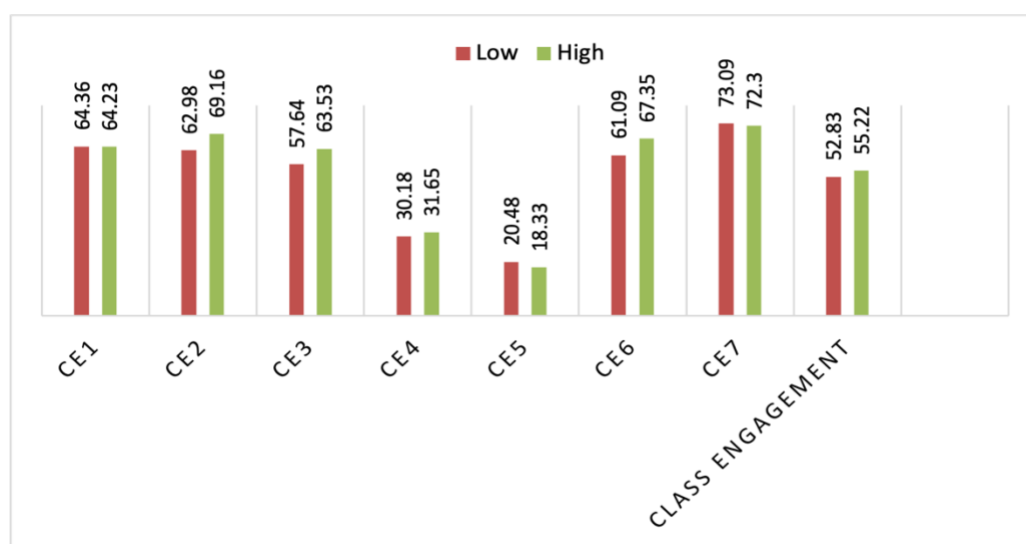
Proportion of Class Time in Flow Organized by Proficiency Groups

Class Engagement Variables	Proficiency Group			
	Low		High	
	M	SD	M	SD
I'm totally absorbed...%	64.36	17.14	64.23	17.04
I feel fulfilled...%	62.98	18.57	69.16	17.33
I'm happy...%	57.64	20.51	63.53	21.08
I'm distracted...%	30.18	21.92	31.65	22.81

I'm frustrated...%	20.48	23.64	18.33	20.36
I'm enthusiastic...%	61.09	18.25	67.35	16.32
I feel am learning and improving. %	73.09	17.67	72.300	20.60
Overall Class Engagement	52.83	11.55	55.22	11.40

Figure 17

Proportion of Class Time in Flow Organized by Proficiency Groups



With respect to items in the CE scale, LP students reported an average of 73.09 (SD=17.67) while the HP cohort had a mean of 72.30 (SD=20.60) for item CE7. In other words, LP learners felt they were learning and improving during 73% of class time while the HP group indicated 72%. LP students experienced a frustration level (item CE5) of 20% SD=23.64) whereas the HP group reported 18% (SD=20.36). Regarding concentration (Item CE1), both groups of students indicated that they were fully absorbed during 64% of the time spent in class [M=64.36, SD=17.14 and 64.23, SD=17.04 for LP and HP respectively]. Results of the three positive emotions, CE2 (fulfilment), CE3 (happiness) and CE6 (Enthusiasm) revealed that the

HP group felt that their skills and capacities were being fully utilized during 69% of class time while 63% was recorded by the LP group. The level of happiness and enthusiasm mirrored the results of the level of fulfilment. Whereas the HP learners reported feeling happy 64% of class time, the LP group indicated an average of 58%. The LP group also reported a degree of enthusiasm of 61% compared to 67% of the HP group.

4.5.1.3 Independent Sample T-test: Proficiency Level vs. Engagement

A parametric comparative test was conducted to determine whether the mean differences observed on the Oral Task and Class Engagement between proficiency groups reached statistical significance. First, Levene's test was performed to test the assumption of equal variances. Aside from "challenge-skill balance" and "control," equal variances were assumed for all latent constructs. Table 28 shows the results of the t-test for the Oral Task and Class Engagement.

Table 28

Levene's Test and Independent Sample T-test for Proficiency Group

Flow Component	Levene's Test		Proficiency Level Mean			Independent Sample T-Test			Effect Size	
	F	p	Low	High	ΔM	t	df	p	f ²	Effect
Challenge-Skill	3.97*	0.05	5.04 (1.19)	5.22 (0.80)	-0.18	-0.81	75.47	0.42	0.17	Small
Concentration	0.04	0.85	5.01 (1.23)	5.22 (1.17)	-0.22	-0.83	85	0.41	0.18	Small
Control	7.03*	0.01	4.79 (1.50)	5.07 (0.98)	-0.28	-1.04	74.21	0.30	0.22	Small
Interest	0.01	0.91	4.42 (0.69)	4.47 (0.67)	-0.04	-0.28	85	0.78	0.06	Small
Overall Flow	2.68	0.11	4.81	4.99	-0.18	-1.08	85	0.29	0.23	Small
CE	0.01	0.91	52.83 (11.55)	55.22 (11.40)	-2.39	-0.97	85	0.33	0.21	Small

Note. N=87; ΔM = mean difference; df = degree of freedom; * $P < 0.05$; ** $p < 0.01$; *** $p < 0.001$; values in parentheses

represent standard deviations (SD)

The descriptive statistic suggested that HP learners experienced higher overall flow on

the Oral Task and spent a longer proportion of class time in flow. However, these findings were not confirmed by the Independent Sample t-test which revealed that the differences in the Oral Task and Class Engagement between the proficiency groups were not statistically significant. In other words, the overall flow differences between proficiency groups (0.18 on task engagement and 2.39 on Class Engagement) did not yield a 0.05 significance level ($p=0.29$ and 0.33 respectively).

4.4.1.4 Within Proficiency Groups: Individual Students Flow Experiences

This section delves further into Spanish students' engagement both on the Oral Task and Class Engagement by looking at individual participants' flow experiences within the two proficiency levels. It will start with the categorization of students' flow on the Oral Task followed by Class Engagement. Similar to previous research questions, for the Oral Task, participants who achieved an average of five points or higher were designated as having experienced flow. In the case of Class Engagement, students who reported 50% or greater proportion of flow in-class were categorized into the high proportion group and those who had lower than average proportions were put into the low proportion group.

4.5.1.5 Within Proficiency Group: Individual Students' Experiences on the Oral Task

Table 29 presents the number of participants in flow for each proficiency group as well as the total of each category.

Table 29

Number of Individual Participants in Flow State by Proficiency Group

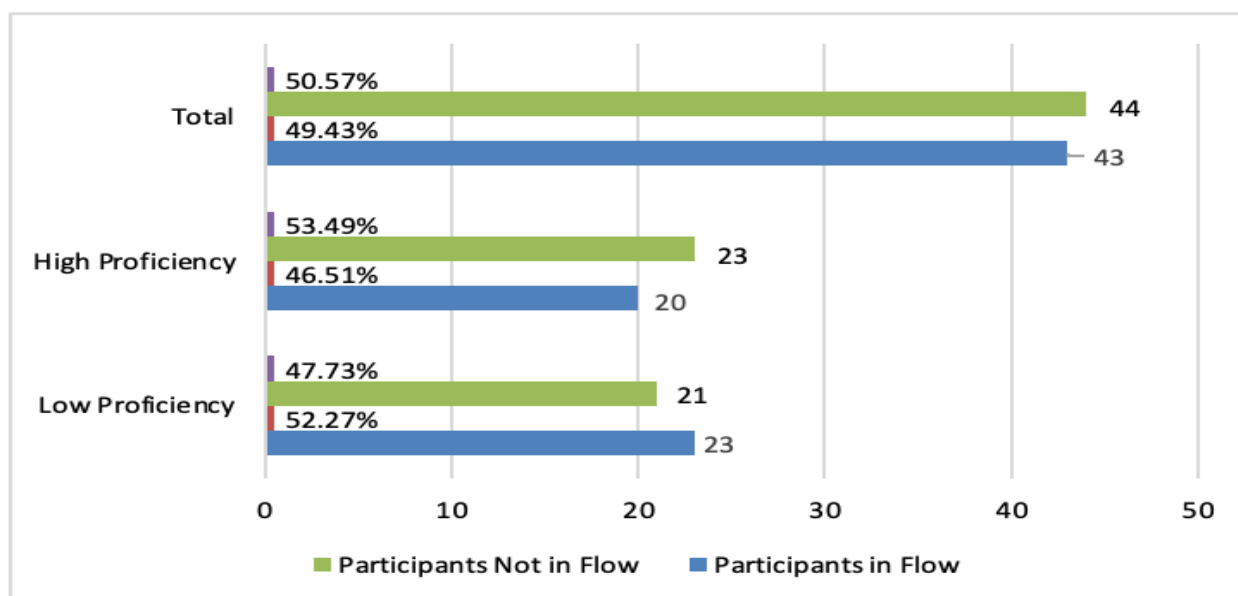
	Low Proficiency	High Proficiency	Total
Participants in Flow	23 (52.27%)	20 (46.51%)	43 (49.43%)

	21	23	44
Participants Not in Flow	(47.73%)	(53.49%)	(50.57%)
Total	44	43	87

Of the 44 participants in the LP group, 23 students representing 52% experienced flow while the other 47.73% did not experience flow on the Oral Task. In contrast, the HP group had 47% of students in flow. As many as 53.49% of respondents in the HP group did not report flow. Combining HP and LP groups for each category, approximately 49% reported an average indicative of a flow experience, while the remaining 51% did not find the Oral Task as a flow-inducing activity.

Figure 18

Number of Individual Participants in Flow by Proficiency Group



That a sizeable number of participants in each proficiency group (47% or higher) reported a pattern of experiences that indicate flow on the Oral Task suggests that with the right

preconditions of a task, students can experience task flow regardless of their proficiency level.

This finding corroborates the lack of differences on the t-test between proficiency groups.

4.5.1.6 Within Proficiency Group: Class Engagement by Individual Students

Concerning students' level of Class Engagement within proficiency groups (See Table 30 and Figure 19), the results revealed that 65% of learners within the HP group experienced an average or greater proportion of flow during Spanish class time. On the other hand, the LP group had 55% of students who reported above-average duration of flow. For the low proportion category, about 35% of HP students had Class Engagement below par while 45% of the LP learners reported less than 50% proportion of flow state.

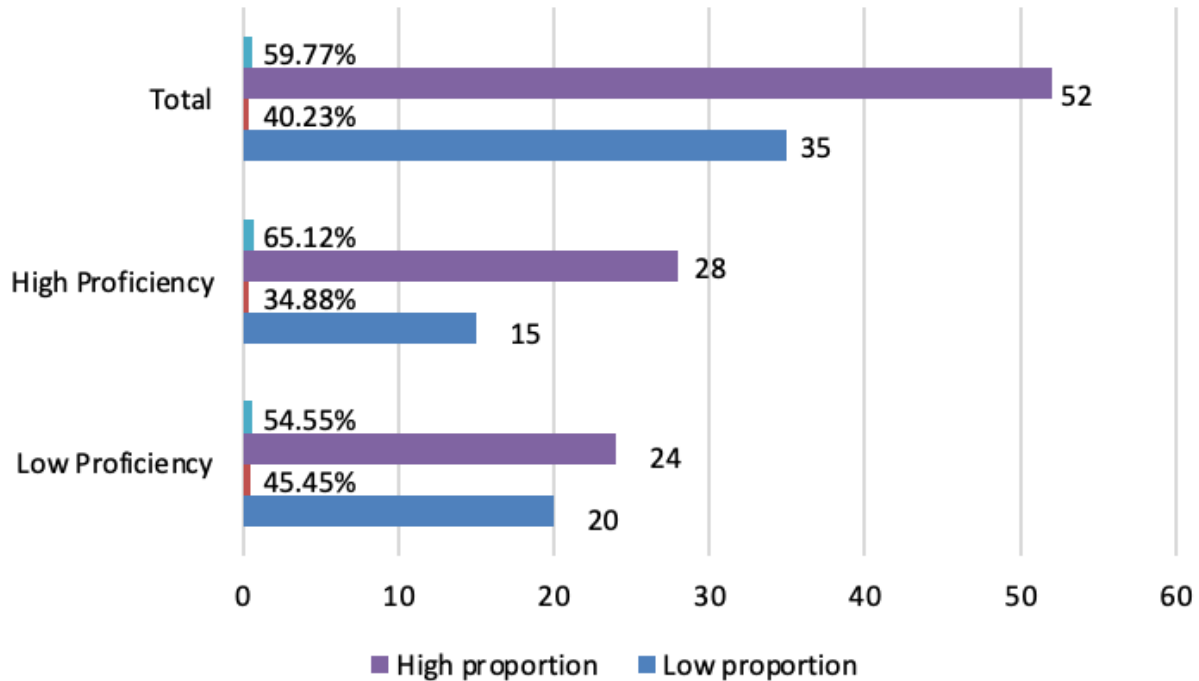
Table 30

Individual Participants' Class Engagement by Proficiency Group

	Low Proficiency	High proficiency	Total
Low	20	15	35
proportion	(45.45%)	(34.88%)	(40.23%)
High	24	28	52
proportion	(54.55%)	(65.12) %	(59.77%)
Total	44	43	87

Figure 19

Individual Participants' Class Engagement by Proficiency Group



4.5.1.7 One-Way Welch/ANOVA Test: Proficiency Level by Course Modality

The second part of RQ3 enquired about the relationship between proficiency level, the learning environment and flow. The One-Way Welch/ANOVA procedure was used to compare the mean values for Oral Task and Class Engagement constructs across groups of proficiency level by learning environment (i.e. Low & In-Person, High & In-Person, Low & Online, High & Online). The underlying assumption of the One-Way ANOVA test is homogeneity of variances which was checked via Levene's test. If the Levene's p-value is above the threshold of 0.05, then the population variances are considered as equal. If the data fails to meet this assumption, the Welch Test should be carried out in place of a One-Way ANOVA test. Table 31 presents the

results for descriptive statistics, Levene's test, One-Way ANOVA and Welch Test for the four Proficiency by Learning Environment groups.

Table 31

Descriptive Statistics, Levene's Test, One Way ANOVA and Welch Test

Construct	Levene's Test			One Way ANOVA			Welch Test			Significant Difference
	F	df	p	F	df	P	F	df	p	
Oral Task Engagement	1.389	3, 83	0.252	0.389	3, 83	0.761				No
Challenge-Skill Balance (CSB)	1.309	3, 83	0.277	0.586	3, 83	0.626				No
Concentration (COC)	2.348	3, 83	0.378	0.357	3, 83	0.784				No
Control (CON)	3.239*	3, 83	0.026				0.745	3, 39.360	0.532	No
Interest (INT)	0.844	3, 83	0.473	0.448	3, 83	0.720				No
Class Engagement (CE)	0.634	3, 83	0.595	4.158**	3, 83	0.009				Yes

Note. * $P < 0.05$; ** $p < 0.01$; *** $p < 0.001$; df = degree of freedom

The findings of Levene's test suggest that the homogeneity of variance was assumed for Oral Task engagement ($F(3, 83) = 1.389, p = 0.252$), "challenge-Skill Balance" (CSB) ($F(3, 83) = 1.309, p = 0.277$), "concentration" (COC) ($F(3, 83) = 2.348, p = 0.378$), "interest" (INT) ($F(3, 83) = 0.844, p = 0.473$) and Class Engagement (CE) ($F(3, 83) = 0.634, p = 0.595$) as they have p-values greater than the standard significant level of 0.05. Therefore, a One-Way ANOVA test was conducted to examine the mean differences of these latent constructs. Unequal variance was assumed for "control" (CON) since it yielded a p-value less than the threshold of 0.05; $F(3, 83)$

= 3.239, $p = 0.026$. Therefore, the Welch test was conducted to examine the mean differences in the “Control” (CON) component.

The result of the One-Way ANOVA test was significant for the mean differences of Class Engagement (CE). This suggests that CE significantly changed between the groups of Proficiency Level by Learning Environment because of having a p -value below the threshold of 0.05; $F(3, 83) = 4.158$, $p = 0.009$.

Conversely, the One-Way ANOVA/Welch test revealed that the mean differences in Oral Task engagement ($F(3, 83) = 0.389$, $p = 0.761$), “challenge-skill balance” (CSB) ($F(3, 83) = 0.586$, $p = 0.626$), “concentration” (COC) ($F(3, 83) = 0.357$, $p = 0.784$) and “interest” (INT) ($F(3, 83) = 0.448$, $p = 0.720$), were not statistically significant at 0.05 threshold. The results of the One-Way Welch test indicated that the mean differences observed for Control (CON) between the groups of Proficiency Level by Learning Environment were not statistically significant because the p -value was above the threshold of 0.05; $F(3, 36.360) = 0.745$, $p = 0.532$.

4.5.1.8 Post-Hoc Analysis

The previous section determined the mean differences between the two constructs for the four groups of students through the One-Way ANOVA/Welch procedure. Statistical significance was observed for only the Class Engagement construct. Therefore, a post-hoc analysis was performed for the significant means to identify exactly which group means differ from each other and where the difference may lie. Tukey test is used if the equality of variance is assumed and Tamhane’s T2 test is used if the equality of variance is violated. Since equality of variance was reported for the Class Engagement construct, the Tukey test was used to examine where the significant differences lie. The findings of the post-hoc test of Tukey for each mean of Class

Engagement against every other in relation to the groups of Proficiency Level by Learning Environment are presented in Table 32.

Table 32

Post Hoc Test of Tukey for Class Engagement - Pairwise Group Comparisons

Low & In-Person	Mean		High & Online	ΔM	SE	Tukey	Significant Difference
	High & In-Person	Low & Online				p	
56.168	57.709			-1.541	2.909	0.952	No
56.168		46.991		9.177*	3.411	0.042	Yes
56.168			50.581	5.587	3.483	0.382	No
	57.709	46.991		10.718*	3.411	0.012	Yes
	57.709		50.581	7.128	3.483	0.18	No
		46.991	50.581	-3.590	3.912	0.796	No

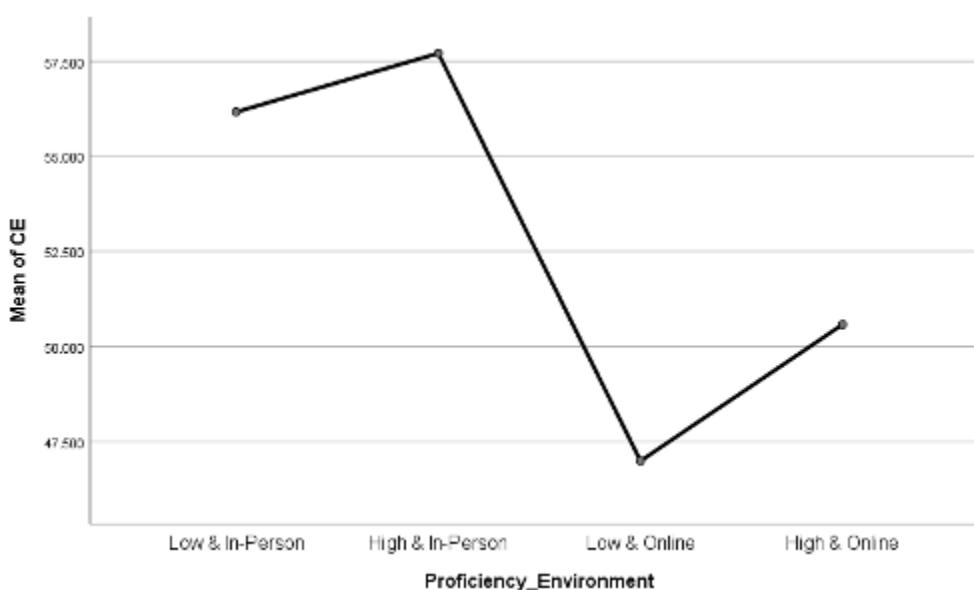
Note. N=87; Δ = mean difference; df = degree of freedom; SE = standard Error; * $P < 0.05$; ** $p < 0.01$; *** $p < 0.001$

As shown in Table 32 (and Figure 20), the descriptive statistics show that the two in-person groups (Low & In-person: $M=56.17$ and High & In-person: $M=57.71$) obtained above average flow state while the online modality groups reported $M=46.99$ for Low and Online and $M=50.58$ for the High and Online group. The results of the Tukey test showed that the average value of Class Engagement for the Low and Online group ($M = 46.99$) is significantly lower than Low and In-Person group ($M = 56.168$) ($\Delta M = 9.18$, $SE = 3.41$, $p = 0.04$) and High and In-Person group ($M = 57.71$); $\Delta M = 10.72$, $SE = 3.41$, $p = 0.01$. The statistical significance achieved between Low and Online vs. Low and In-person groups indicates that low proficiency online learning makes it harder for learners to reach and sustain longer flow states. The mean differences between Low and Online

vs. High and In-person was also statistically significant corroborating the finding that the learning setting of HP in-person learners creates enabling opportunities for them to experience longer flow states. The remaining pairwise groups had Tukey p-values above the threshold of 0.05, hence no significant differences were found between those pairwise groups of Proficiency Level by Learning Environment.

Figure 20

*Means Plots of CE between Proficiency Level * Learning Environment Groups*



The lack of significant differences between LP and HP groups contradicts qualitative findings. Evidence gathered from qualitative analysis demonstrated that students' interaction and engagement with the learning process is influenced by proficiency level. Lower proficiency students expressed difficulty with L2 speaking self-confidence, concentration and linguistic competence:

(SP3, Online) *Students' levels are very different, I did not learn Español before, but I suppose it is not the same for everyone.*

(SP56, Online) *Bien, mais tel que mentionné ci-dessus, il me manque toujours beaucoup de confiance en espagnole. (Good, but as mentioned above, I still lack a lot of confidence in Spanish.)*

(SP60, In-person) *It gets hard to focus sometimes because I don't understand*

(SP65, In-person) *I get the feeling that I don't know much as the language is new to me.*

(SP71, In-person) *Mieux, par contre je trouve qu'il est toujours difficile à avoir autant de confiance lorsqu'on apprend une nouvelle langue. (Better, although I find that it's always difficult to have that much confidence when you're learning a new language.)*

(SP78, Online) *J'ai des mots de base. La compréhension orale a été la plus difficile. (I know the basic words; Listening comprehension was the most difficult.)*

(SP80, In-person) *Listening to others is easier, speaking the language is difficult as I don't know many words.*

(SP83, In-person) *I can feel myself understanding when people talk. But it's hard for me to understand what I'm reading so far.*

On the contrary, students who have had prior experience with Spanish and had higher proficiency scores expressed joy taking the course as well as increasing their language skills:

(SP38, In-person) *Le cours est tout simplement magique car j'avais déjà fait 3 ans d'espagnol; et me retrouver à l'université pour le faire est un plaisir énorme pour moi. (The course is just magical; I'd already done 3 years of Spanish; and to find myself at university doing it is a huge pleasure for me...).*

(SP71, In-person) *Mes capacités linguistiques ont augmenté également puisque maintenant je parle 4 langues, dont l'espagnol (My language skills have also increased; I now speak 4 languages, including Spanish.).*

Accounts from instructor participants suggest that online learning is more suitable for HP students than LP learners. The reason is that HP learners have familiarity with the language whereas LP learners possess less prowess in the language. Several instructors opined that HP students are more likely to have flow-like and engaged learning outcomes in different learning environments unlike LP students who possess minimal skills in the language and hence can easily get confused in online lessons:

(IP9) *Higher proficiency students can adapt to different formats. And online format is one format of our reality right now. So you can have more positive outcomes from higher proficiency students in an online classroom.*

(IP5) *At low proficiency, you need your whole attention to get this input from the teacher, from the slides. You need to focus. However, when you are online, what you have in front of you is a computer with many different things that you can do at the same time without the teacher or other classmates knowing... I will say that the low-proficiency levels are more affected by the online environment because they need more attention due to their proficiency level. But if you have a higher proficiency, you can disconnect and connect more easily.*

From another angle, other instructors argue that for a language course, an in-person setting would meet the needs of higher proficiency students because of the interaction and communication requirement at that stage, an important piece diminished in the online environment:

(IP9) *I still feel that there is something missing in the online environment, regardless of the proficiency level. Yes. For something as specific as languages.*

(IP4) *I would say that the higher the proficiency, the more important it is to not only feel connected, but interact with others, not just the instructor, but with your other classmates. I feel like for the low proficiency, it's a lot of throwing grammar at them. You teach them how to write words, how to conjugate verbs, how to write a sentence. And of course, it helps to interact, but they're not at that level yet. To be able to speak more freely, they're always finding their words, how to write a sentence. And so I feel like the connection among the students is not as important for the low proficiency. For low proficiency, it's more important to get a grammatical base. And then when you're at a higher proficiency level, that's when you want to put all that grammar knowledge into application. And so you get them to speak about each other, exchange letters, whatever activity you can do to have them interact among themselves. At the same time, it's not to say that you're not going to organize interactive activities for the lower level, it's just that I don't think that it'll impact their language acquisition and their proficiency as much as the intermediate level or even the advanced level. I feel like there, we focus a little less on grammar and a little more on real-time communication. The interaction between the students, I feel, gets more and more important the higher the proficiency or the higher the level.*

4.5.1.9 Summary of Interplay between Proficiency Level and Student Engagement

The analysis in the previous subsections uncovered numerous patterns between variables related to proficiency level and flow. The reported findings on the Oral Task Engagement showed that the LP and HP learner groups did not differ significantly on the Oral Task. Both

proficiency groups reported spending a higher-than-average proportion of their class time in a state of flow. The 2.36% difference in Class Engagement between LP and HP groups did not display significance. The One-way ANOVA performed to detect the effects of proficiency and learning environment on flow experiences showed statistical significance for Class Engagement but not the Oral Task. A post-hoc Tukey analysis also revealed significant differences in CE between Low and Online and Low/High and In-person groups suggesting that the Low and Online group tended to experience shorter class time in flow than the Low/High and In-person groups. The qualitative findings on the relationship between the learning environment, proficiency level and flow revealed two aspects – (1) HP learners can thrive in both modalities, however, the in-person setting has a higher probability of meeting the interactional and communicative demands of that stage; (2) Online learning is more disruptive for LP learners.

In the next section, the results of the fourth and final research question related to instructors' insights on student engagement are described.

4.6. Instructor Perception of Engagement and Learning (RQ4)

In this section, the quantitative findings from instructor participants are reported. Data from instructors was obtained from two data collection sources – the Student Engagement Checklist and the Teacher Perception Questionnaire. First, results from the 1st and 2nd round instructor engagement checklists will be reported followed by a description of instructors' perspectives on the nature of engagement in the two modalities.

4.6.1 Results from the Student Engagement Checklist

Information on instructor perceptions concerning engagement in online and in-person courses was measured through observable characteristics of flow, listed here followed by the flow component they relate to – competence and self-confidence (linked to “challenge-skill

balance”); participation and focus (“concentration”); autonomy and proactivity (“control”) and body language cues (indicative of “interest”). The variables were measured via a 3-point rating scale (i.e., 1 = Low, 2 = Medium, 3 = High). As stated before, Instructors completed the engagement checklist at four weeks intervals (i.e., in the 7th and 11th weeks of the semester) for both online and in-person courses. The Wilcoxon Signed Ranks Test, a non-parametric test was conducted to examine the mean differences between modality groups. Table 33 shows the results of the Wilcoxon Signed Ranks Test between online and in-person classes for first and second round.

Table 33

Results of Wilcoxon Signed Ranks Test at First and Second Round Engagement Checklist

Round	Variable	Mean (M)			Sum of Rank		Wilcoxon		
		Online	In-person	ΔM	-Ve	+Ve	Z	p	Sig
		n = 6	n = 5		Rank ^a	Rank ^b			Diff.
Round# 1	Competence and confidence	1.67 (0.516)	2.80 (0.447)	1.13*	0.00	15.00	-2.121	0.0	Yes
	Participation and focus	1.50 (0.548)	2.80 (0.477)	1.30*	0.00	15.00	-2.070	0.0	Yes
	Autonomy and proactivity	1.83 (0.408)	2.40 (0.548)	0.57	0.00	6.00	-1.732	0.0	No
	Positive body language cues	1.50 (0.548)	2.20 (0.837)	0.70	0.00	3.00	-1.414	0.1	No
Round# 2		n = 7	n = 5						
	Competence and confidence	2.14 (0.69)	2.40 (0.894)	0.26	2.00	4.00	-0.577	0.5	No

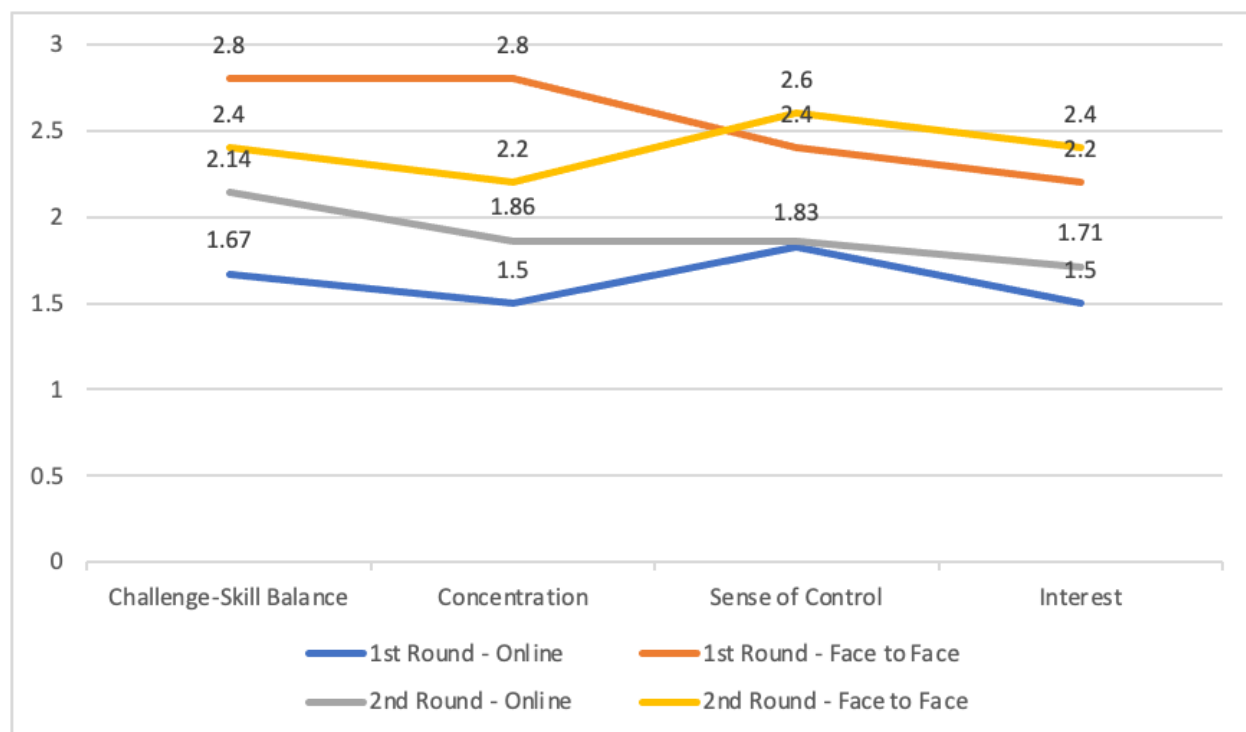
Participation and focused	1.86 (0.9)	2.20 (0.447)	0.34	3.00	3.00	0.000	1.0 00	No
Autonomy and proactivity	1.86 (0.9)	2.60 (0.548)	0.74	2.00	8.00	-1.134	0.2 57	No
Positive body language cues	1.71 (0.756)	2.40 (0.897)	0.69	1.50	4.50	-0.816	0.4 14	No

The findings of the teacher ratings of engagement in the two learning environments showed that in the first round Instructor Participants (IP) rated the online classes on the low level scale for all four variables (see Table 33 and Figure 21). The low level rating means that less than 1/3 (33.3%) of online students demonstrate competence and autonomy in class task realization, actively participate, show positive body language cues during Spanish classes. On the other hand, on average, the in-person classes obtained medium level ratings on all four variables. The results imply that 1/3 (33.3%) to 2/3 (66.7%) of the in-persons students demonstrate active participation, autonomy, competence and positive body language in class.

In the second round, the online group was rated on the low level on three variables (i.e. Participation and focus – 1.86, Autonomy and proactivity – 1.86 and Body language cues - 1.71) except the Competence and confidence variable (2.14) which obtained a medium level rating. Similar to the first round, teachers rated the in-person classes on a medium level on all four variables. The differences between the two groups were not significant except for the competence and participation variables in the first round.

Figure 21

Mean Values Reported for Online and In-person Classes at 1st and 2nd Rounds



4.6.2 Results from the Teacher Perception Questionnaire

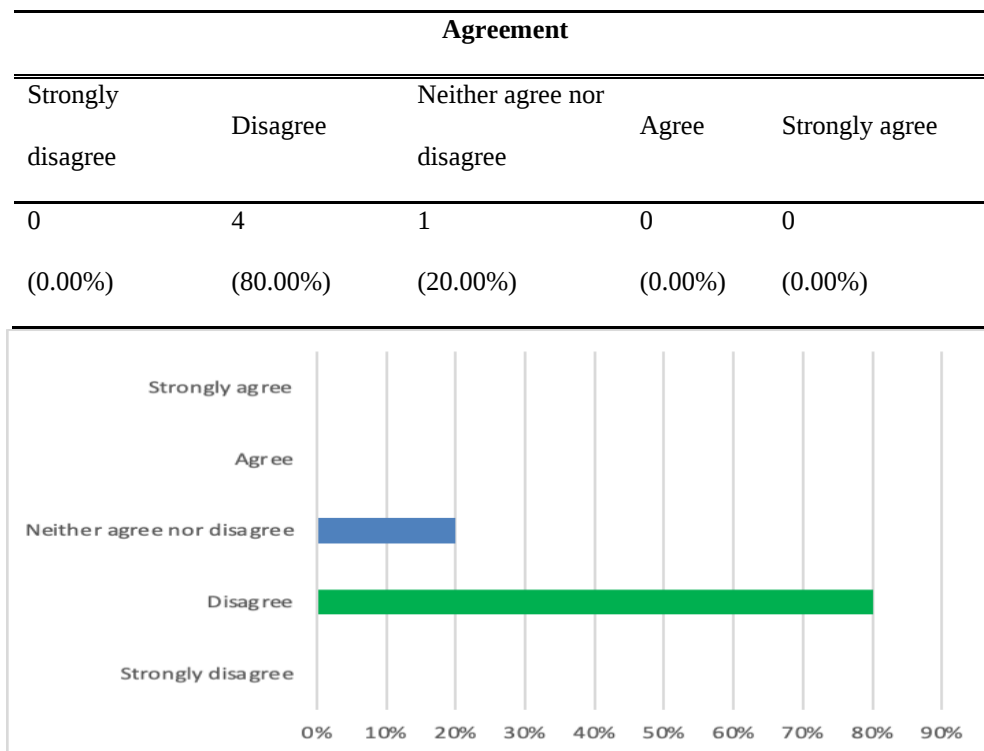
Instructor participants (IP) provided perception data on students' engagement and learning in online and in-person courses in the last week of classes. In response to four questions, participants indicated their degree of agreement on a 5-point Likert scale ranging from Strongly disagree (1) to strongly agree (5). The results for each question along with a summary of responses are presented next.

4.6.2.1 Perception of Students Language Competence

Figure 22 presents the results on teachers' viewpoint of students' observed competence in fulfilling meaningful language activities. Competence is applying abilities to achieve task demands (Reeve, 2015). As students gain linguistic knowledge, they build competence (Council of Europe CEFR, 2020) and they exhibit resilience and healthy responses to the demands of the tasks. How learners perform tasks will illustrate how well they have achieved competence (Di Pietro, 1970).

Figure 22

Responses to “Students appear more competent in handling class tasks in an online class compared to an in-person class”



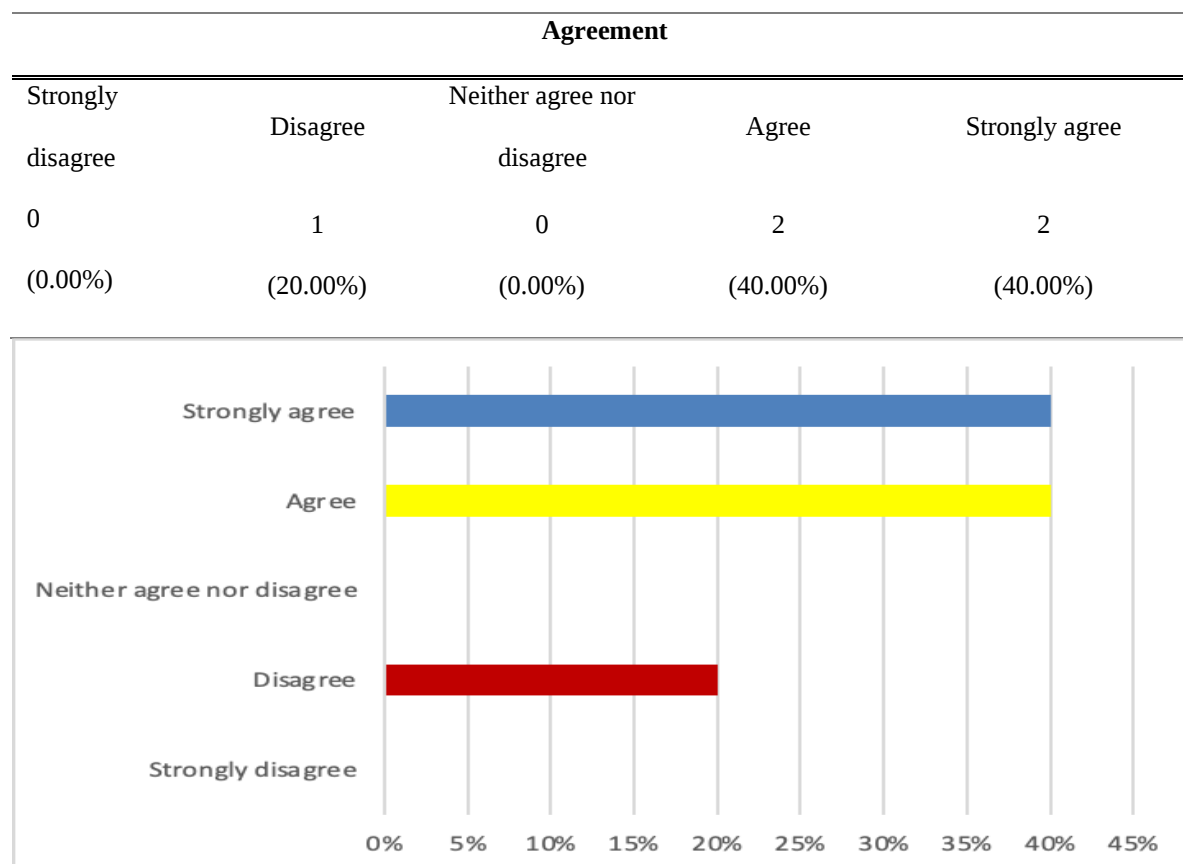
The results suggested that the majority of instructor-participants (80%) believe that learners in in-person courses demonstrate higher competence in accomplishing class tasks compared to online students. The remaining (20%) held a neutral position.

4.6.2.2 Perception of Student Participation

Regarding student participation and involvement in class activities, the vast majority (80%) agreed (40%) or strongly agreed (40.00%) that in-person learners demonstrate higher levels of participation during class time than their online counterparts. Only 20% disagreed with the statement (See Figure 23).

Figure 23

Responses to “Students actively participate in class activities and discussions more in a in-person class than in an online class”



The numerical finding that in-person students demonstrate higher participation in class than online learners is corroborated by the qualitative data:

(IP9) *I do think that the level of benefit and the level of how they get most of the classes is much better in person than online because their participation is not as frequent and as required when they are in the online environment as when they are in-person [...] But I think that there's a big difference in terms of participation and class engagement.*

(IP4) *In the class, I feel like maybe the students, they feel more pressure from those that are participating a lot. So they feel that they need to participate as well. Just because the professor is there, they see them, and they see the student raise their head. Whereas*

online, maybe they feel more disconnected from the rest of the group. I would say, even as a student myself, I felt that as well. In an online class, you feel more distanced, not just with the instructor, but with your colleagues, your classmates. So I would feel that based on that face-to-face, there's probably more engagement. In an online class, you have your three, four students who always raise their hand. They always try to answer your questions.

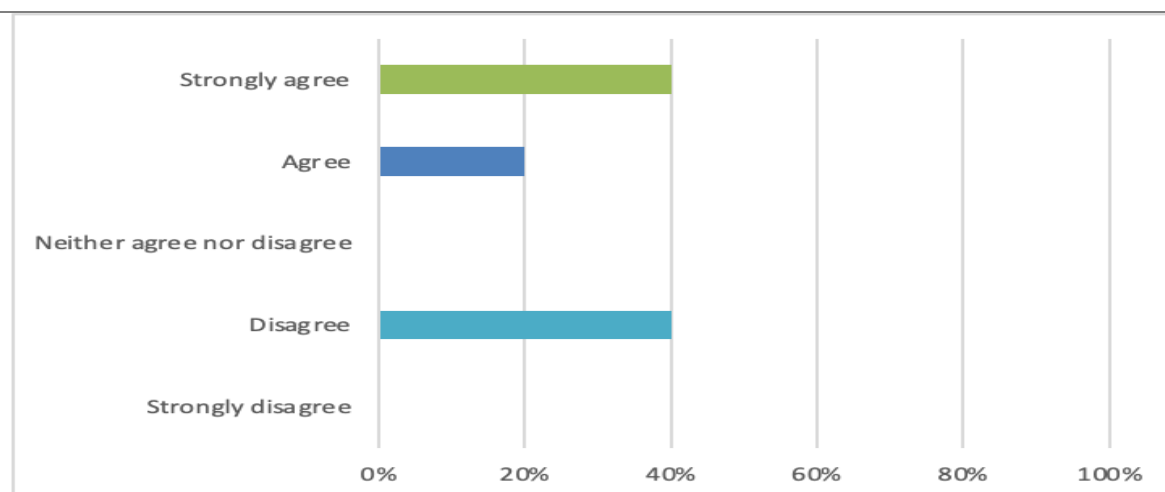
4.6.2.3 Perception of Student Interest and Enthusiasm

The third statement enquired about students' interest in class tasks, the findings are shown in Figure 24. When presented with the statement “Students appear more interested or enthusiastic in an online class compared to an in-person class”, more than half of respondents (60%) agreed (20%) or strongly agreed (40%) with the statement. 40% of respondents disagree indicating that they believe otherwise.

Figure 24

Responses to “Students appear more interested or enthusiastic in an online class compared to an In-person class”

Agreement				
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
0	2	0	1	2
(0.00%)	(40.00%)	(0.00%)	(20.00%)	(40.00%)



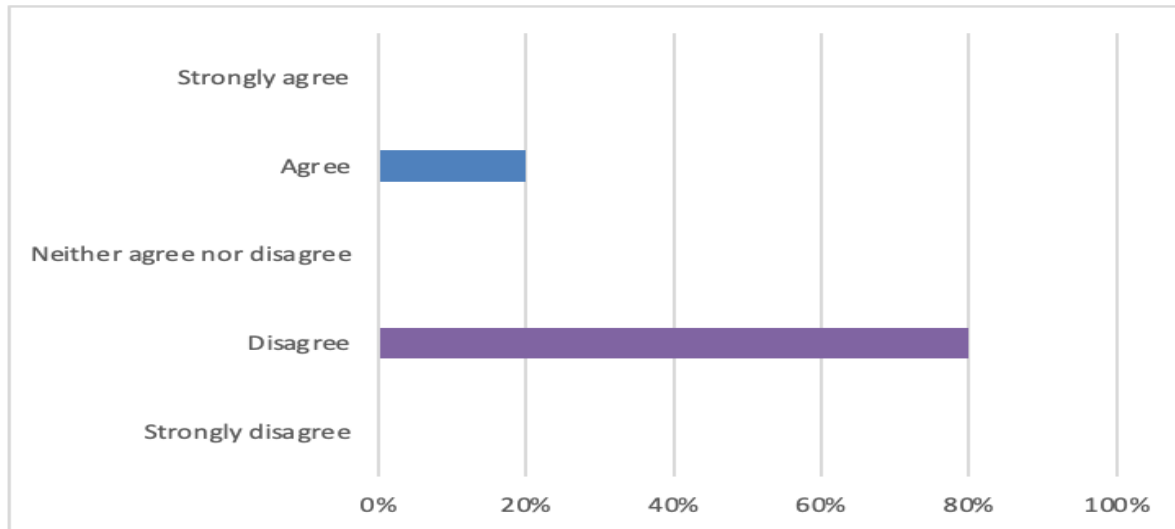
4.6.2.4 Perception of Students' Autonomy and Proactivity

This section addressed the statement about instructors' perception of the extent to which students take ownership of the task completion process. The findings are described in the Figure 25.

Figure 25

Response to "Students tend to demonstrate more sense of control when fulfilling class tasks in an online class compared to an in-person class"

Agreement				
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
0 (0.00%)	4 (80.00%)	0 (0.00%)	1 (20.00%)	0 (0.00%)



As shown in Figure 25, instructor-participants were asked whether they agreed that students in online learning environments exhibit more sense of autonomy than those in the in-person courses. Only 20% agreed while the vast majority disagreed (80%) with the statement suggesting that most instructors believe that the in-person learning environment reinforces an increased sense of control than the online environment.

4.6.3 Summary of Instructor Perception of Engagement and Learning

The engagement ratings of instructors in the first and second rounds suggest that less than 1/3 of online students exhibit competence, autonomy, active participation and positive body language during class (with exception) while the ratings suggest that more than 1/3 to 2/3 of in-person learners show all the observable variables of engagement. The findings of the perception questionnaires revealed that the majority of Instructor Participants believe that in-person learners demonstrate higher language competence, participation and proactivity (except interest) than online learners.

4.7 Key Themes and Patterns from Qualitative Data Analysis

In addition to quantitative findings, qualitative results were collected for study to enrich the interpretation of the numerical results, permitting a more nuanced comprehension of the

underlying elements determining students' flow experiences. Thematic analysis was conducted on the qualitative data from student and instructor participants to unearth elements associated with engagement, flow experiences and the instructional format. The presentation started with findings from instructors, followed by students' perspectives. Then, recommendations for improving engagement in the two modalities concluded the section.

4.7.1 Thematic Analysis of Instructor Written Responses and Follow-up Interview

In this section, important findings from the qualitative responses of course instructors will be explored and presented. The findings shed light on several key factors that facilitate flow as well as those that diminish flow experiences in both learning environments. The results reveal notable patterns between the learning environment and engagement. The information will be presented under common themes uncovered in the responses.

4.7.1.1 Camera Control and Multi-tasking

In online learning, one problem that has surfaced repeatedly is the difficulty with camera and microphone control. Numerous instructors stated that online students rarely keep their cameras on, making it challenging to gauge students' engagement. This confirmed in comments from instructors:

(IP6) *Unfortunately, most students don't turn on their cameras in an online class, so I cannot confirm if most are actively engaged throughout the class.*

(IP5) *From my experience, when you are in online classes, most of the time, 100% of students, they don't have the cameras on. So you don't know what they are doing.*

Many instructors have discussed the importance of keeping cameras active and are of the view that non-verbal communication which is vital during instruction is lost in online education, if students have their cameras turned off. This point is elaborated in the following extracts:

- (IP4)** *When you're in-person, you can kind of tell on their faces, right after you've explained, I don't know a grammatical concept, and they look at you like, you know, without saying anything, without raising their hands. You're like, okay, I can see that maybe that wasn't as clear. I'll try to explain it another way. And that helps with the learning process. Whereas online, you don't have that. It's harder to tell. So you might just go on with your lecture without knowing that the students didn't quite capture the message or 100% of the message. You can say something and we can't tell looking at their faces, oh, did they understand? Do they look confused? Was it funny? You know, we can't tell because they're muted and they have a blank screen.*
- (IP5)** *In in-person classes you reach a certain point with your students. You can see them in the eyes. You can feel if they are paying attention or not. And these cues are telling you, OK, this activity is not working. I'm going to switch. No, as an online teacher, you just go with the flow, go with the plan, go with your slides, and expect that most of them are paying attention. So you are sometimes clueless as a teacher. You can't help them because you don't know what is going on. However, you have these cues in person. So you can get them if you are losing them. So this also affects performance.*
- (IP6)** *it's harder to know in an online class just because a lot of students don't activate their cameras. So I don't really know if they're paying attention or if they're on their smartphone or watching something else on their screen. But, for in-person, I feel like most students are engaged at a sufficient level to succeed in the class. Maybe if it's because of the face to face that they can't get away with looking at their cell phone because the instructor is right there in front of them. But even then, even in face-to-face, students, some of them do disconnect sometimes. They'll look at their cell phones. They'll*

do something else on their computer. But at least we know. We see it. We see how engaged or disengaged they are. But when it comes to online, it's hard to say.

One instructor also elaborated that the technological resources in online teaching can make a fun and interactive class. However, the camera and microphone controls are not only an impediment in tracking engaged learning, but it also prevents instructors from giving off their best teaching efforts:

(IP3) *Online teaching is easier, because you have a lot of activities that you can engage the students, gamification. There's a lot of flashy stuff that you can use online. And you get familiarized with the technology. And this is just time. You get familiarized with it. At the very beginning, you're overwhelmed. I don't know what to do. What happens if I click this? But you get used to it. And you dominate it. And you can make a fun class. Oh, they had fun. But did they learn something? I'm not sure. However, in person, you feel your audience. You communicate. As human beings, we are much better communicators in person with all the nonverbal communication, which is lost in an online environment. You feel the audience. You see them. So something that's intrinsically connected with languages, which is communication itself, is much better in person than online. So I must say that I'm partially biased towards in-person classes. So this is something that I want you to know, because there's one side of me that's passionate about teaching and tells me that the best me, the best teacher I can be is in person. Online is just 70% of me.*

When cameras are shutdown, there is a greater possibility that students would be multitasking or engaged in some other activity that diverts their attention from class activities. For this reason instructors feel that the online learning platform presents room for distractions:

(IP9) *It is true that not all students have their cameras on. And I do think that the tendency is to get distracted more often. And so I think that the online environment allows for more distractions than the in-person environment where we are all looking at each other.*

(IP5) *I believe they are more engaged in-person. I will say that being in-person creates, per se, an environment for learning, for paying attention. However, if you are online, you can be either at the cafeteria, the university or at your home. So many places where it's a mixture of things that you can do there. So from the very beginning, it's very difficult for the students to focus on the class due to the environment. That's one reason. The second reason that prevents them from focusing on the class is the device itself. When you are in-person, especially at low proficiency, you need your whole attention to get this input from the teacher, from the slides. You need to focus. However, when you are online, what you have in front of you is a computer with many different things that you can do at the same time without the teacher or other classmates knowing. It can be something as simple as, I don't know, I forgot to check something in my email. I disconnect from the class, I check the email, and I come back, oh, the phone. There are so many distractions that prevent you from being focused on that input in the classroom.*

The circumstance described so far has led to a major shift in learning responsibility from the teacher to the student, according to one instructor:

(IP6) *I feel like in online classes there was more responsibility transferred from the instructor to the students. And I don't think that all the students know that. I don't even think all the instructors have thought of that either... And so we just hope that they raise their hands if they don't understand.*

The following sections detail the barriers and facilitative dynamics of flow experiences in online and in-person modalities.

4.7.1.2 Flow Inhibiting Factors in In-person Classes.

Even though research has shown that the presence of flow conditions can lead to flow experiences and engagement in language classes, several barriers exist in learning settings that prevent the frequent and sustained occurrence of flow (Egbert, 2003). The majority of instructor respondents mentioned that one factor that potentially diminishes flow in in-person classes is individual differences or personalities. Extroverted students are more likely to thrive in in-person environments than introverts. Students who are not assertive may feel anxious to interact and ask questions in an in-person setting:

(IP7) The fact that, in most cases, they are shy and prefer not to talk in public. Those who still want to participate can do so in an online class, via chat.

(IP5) Their own personalities, an introverted person would have more issues to engage in in-person classes.

(IP6) Shyness, or they don't want to make an obvious mistake and be judged by others.

Other flow reducing factors cited by respondents stem from the size of the class, teacher factors, student interests and nature of class tasks as described in the following extracts:

(IP3) Large number of students in class, lack of interest in the topics, lack of pedagogical tools of the teacher.

(IP5) An unprepared teacher, poor material, extreme difficulty or lack of clarity on the tasks, boring activities.

(IP2) Chatting-distraction from peers, tiredness from commuting to campus.

4.7.1.3 Flow Inhibiting Factors in Online Classes

Qualitative findings from instructor-participants identified accountability challenges, multiple external distractions, personality and screen fatigue as the major inhibitors of flow in online learning. The most cited flow barrier is lack of accountability related to camera and microphone control (for more details, see section 4.7.1.1), the following excerpts from additional instructors bolster the finding:

(IP5) *Lack of accountability, in the sense that teachers cannot make students turn on their cameras, so, as a teacher, you never know if they are paying any attention (much more, engaged)*

(IP2) *Too much control over camera and audio functions (students can be doing something else while in class)*

(IP7) *The fact that there is no control. They are allowed to shut down both camera and mic.*

Flow experiences in online settings are also impeded by multiple distractions emanating from external sources. Many instructors noted that the distraction sources include software and connectivity issues and background noise:

(IP3) *Lack of knowledge of platform's features, software limitations (i.e. allow breaking rooms or not, shared board options, etc.), where they decide to take the class (a noisy room, public cafe, etc.), wi-fi connection quality*

(IP5) *Technical problems with software and wifi, I would add multiple distractions and multitasking on the side of the student*

(IP6) *Bad wifi connection, distractions (internet, their smartphone, etc.).*

Screen fatigue, caused by prolonged exposure to the computer screen, is the third barrier that reduces the possibility of experiencing flow in online classes:

(IP5) *Larger hours in front of the computer (I have been told by my students that TLB sessions should be shorter, they are 2 hours and 50 minutes)*

(IP2) *Eyestrain from steering in the screen*

4.7.1.4 Flow Facilitators in Online Classes

As many potential barriers as there are in online courses, there are also certain features that encourage and enhance the existence of flow. Instructors mentioned several elements that drive flow formation in Spanish online classes. The first flow facilitator is a learner's internal characteristic, linked to the personality of individual students. Instructors stated that online classes are beneficial for introverted students who tend to be shy and may encounter interactional challenges in in-person classes. Not only does the online format shield such students against anxiety but it also offers options of participation — verbally or through the chat function. It thus allows personalized learning experiences that can stimulate flow. This was confirmed in statements by two instructors:

(IP5) *Some nuances in relation to personality (shy people can feel more comfortable in online classes)*

(IP2) *Shy and timid students can participate without too much self-conscious and anxiety*

Task design features is another aspect that contributes to creating the appropriate synergy that promotes flow and engaged learning outcomes. Online teaching provides easy access to technology that allows instructors to design an increased variety of tasks, use visual support during lessons and switch tasks rapidly to avoid boredom. One instructor commented on this by saying that online learners can be engaged through:

(IP5) *A quick change on activities, grading their participation, a special emphasis on gamification, surveys, polls, and visual interactive activities (i.e., Wooclap, interactive whiteboard...)*

Instructors mentioned convenience and flexibility as an important facet of online learning that promotes flow and increased engagement. Online learners are not required to travel to campus on specific days and times to attend class; therefore, they are able to take the class at any place of their choice which saves time and reduces stress. This factor is evidenced in the following statements:

(IP2) *it's easy to attend class*

(IP6) *They learn in the comfort of their home.*

(IP3) *choosing a quiet environment with good internet connection for having class.*

Other factors include “*having cameras on, knowing the platform's features (both students and teachers)* **(IP3)**”. As earlier mentioned, keeping cameras on helps students to gel with each other and creates a sense of community. Familiarity with the online program’s usage also gives both teachers and instructors control over the class, thereby maximizing the benefits of the teaching-learning process.

4.7.1.5 Flow Facilitators in In-person Classes

According to instructors, in in-person classes, flow is facilitated by the social interaction and connectedness that learners feel in the classroom. The opportunity to interact with peers and instructors can raise students’ interest level, enthusiasm and deep involvement in tasks; thereby creating a sense of control, belongingness and engagement. Moreover, in-person interaction allows instructors to take full advantage of non-verbal communication cues necessary for tracking students' understanding and learning progress:

(IP2) *Being physically present with peers, direct access to instructor.*

(IP7) *Live, immediate communication. Gestures.*

(IP6) *Physical human contact; the student feels that they are not alone throughout the learning process.*

Aside from social interaction, the teacher's characteristics and methods play a role in enhancing all components of flow. One instructor mentioned that flow in in-person classes is boosted by “*good pedagogical skills of the teacher, (IP3)*”, while another stated having “*an enthusiastic teacher (IP5)*”. Flow theory recommends that students should be given the right opportunities that provide attentive engagement with class activities (Egbert, 2003). In language classes, the teacher is an instrument that creates fertile grounds for learners to participate, feel welcomed and in control, and have minimal interruptions that will translate into enhanced flow conditions.

In addition, for flow to occur in the language classroom there need to be a challenge (i.e. a task) present that must be fulfilled. Well-thought-out tasks that meet the criteria for flow will increase the frequency of flow and this was noted by one instructor who commented that engagement is facilitated when there are “*challenging and purposeful activities, knowing that a particular activity provides bonus points or is useful for some of their graded assignments*” **(IP5)**.

Other promoters of flow cited include “small classes” **(IP5)** and “shared interest in the topics” **(IP3)**. Small class sizes allow the teacher to provide immediate feedback to individual students which is necessary for flow to occur (Csikszentmihalyi, 1990). The same goes for class topics that are of interest to students – they tend to incite joy and excite students' interest level thereby inducing flow.

4.7.2 Thematic Analysis of Student Qualitative Data

Analysis and findings of the student participants' open-ended responses are presented in this section. The responses have been organized under themes related to the impact of the learning environment and proficiency on flow experiences. If educational stakeholders have a broadened understanding of factors linked to flow, they can find solutions and develop strategies to enhance the overall learning experience for students in various academic settings. The 12 themes uncovered in the data are listed as follows, with supporting quotes.

1. Class structure and size

Student respondents have cited class size as a factor that influenced their focus and interest during Spanish classes. Many students, in-person learners in particular, stated that their level of interest and concentration were negatively affected by the large size of the lecture, consequently affecting the frequency of flow experiences and engagement on class tasks. On the other hand, the smaller nature of TLB sessions contributed positively to students' interest and concentration in class:

(SP2, In-person) *It's sometimes hard to concentrate because it's a large lecture hall*

(SP8, In-person) *it increased my concentration since it was difficult to lose focus in the small class setting of the dgd.*

(SP23, In-person) *I was able to concentrate in TLB sessions 100% of the time, while on the lecture because of the size I got distracted sometimes.*

(SP40, In-person) *The dgd session was interesting because the class was small.*

(SP69, In-person) *The TLB kept my interest going, but the lecture was unnecessary.*

(SP82 In-person) *This class is good, but could be a lot better in a smaller group*

The larger class size not only reduced interest and focus but also diminished the possibilities of interacting and building a sense of closeness among class attendees. Two students commented that:

(SP19, In-person) *The lecture had a lot of students... Unlike the lecture class, I was excited to attend dgd class.*

(SP25, In-person) *On the lecture part of the course, the class was large and that did not keep me very interested as there wasn't a lot of interaction. However, the TLB portion was absolutely incredible and kept me interested 100% of the time.*

(SP50, In-person) *It could be better in a smaller class size with more opportunities to speak with other students outside of the TLBs.*

The above extracts are an indication that the number of students in a class can be a barrier or facilitator for the formation of flow in language classes.

2. Distractions in online learning

A common theme that emerged particularly from online students is distractions that impair their focused attention. Many online learners have cited that distractions from multiple sources mar their engagement in lessons and task completion:

(SP79, Online) *I think since it was online I had more opportunity for distraction so I would say it played a largely negative role in my concentration level.*

(SP86, Online) *Our dog loves to be close, he diverts my attention when he jumps on me. I am well focused when I put him in the other room during class.*

Another extensively cited type of distraction is linked with isolation and passiveness of online learning. Some students experience loneliness and extreme relaxation in online classes

which affect their engagement as well as performance. In such instances, they have difficulty striving, avoiding mind-wandering and focusing on class activities. The following excerpts evidence this type of distraction:

(SP10, Online) *I sleep more, I wake up well-rested and ready for the class. Though it's relaxing, I find it hard not to get distracted and finish assignments on time.*

(SP18, Online) *Well, I get a bit cozy in online classes, an in-person class could have enabled me to concentrate attention on the lessons.*

(SP73, In-person) *I see the campus environment as a workplace. When am there, I get away from distractions and focus on coursework.*

While many stated that isolation was a deterrent to concentration — one student commented that not having his peers close aided in attentive focus — “*No side chats with other students, so concentration was good*” (SP27, Online).

The final source of distraction mentioned by student respondents stem from the use of digital devices in online lessons. A major challenge of online learning is computer vision syndrome known as screen fatigue. Multiple students stated that they struggled with screen fatigue during their language classes that led to concentration problems:

(SP9, Online) *Now I spend more time on the computer than I used to. I suffer from computer fatigue daily. Yep, it's exhausting to keep my mind on lessons!*

(SP56, Online) *I get screen fatigued which can be a distraction. I would have preferred more frequent short breaks.*

Concentration is a key element to experiencing flow. When numerous factors in the learning environment cause interruptions or breaks in focused attention, it impedes the occurrence of flow.

3. Social and Emotional Aspects

Social interaction is a top factor that has a strong connection with learner engagement and learning. The findings indicated that in-person students perceived that their learning environment afforded them higher levels of interaction leaving a positive impact on their concentration level:

(SP17, In-person) *I hardly ever get lost in my thoughts. I feel the presence of class members.*

(SP66, In-person) *In a classroom, there are other students with you. I felt obliged to go with the flow of things. It's like when others around me are active, it encourages me to pay attention and ask questions.*

(SP70, In-person) *If I lose focus because I didn't catch a part of the lesson, I could ask the next person for clarification.*

(SP77, In-person) *My concentration was high, and being around fellow students made me want to improve in Spanish.*

Furthermore, the findings indicated that in-person learners felt that social interaction in the in-person setting fostered a sense of belonging and social connectedness with peers and instructors:

(SP9, In-person) *It's quite nice to have a professor answer my questions face-to-face. It kept me interested and I felt connected to the class.*

(SP28, In-person) *It felt good to be back on campus. I truly missed sitting in a class in the company of a professor and course mates.*

(SP48, In-person) *I liked the feeling of being surrounded by others with similar intentions to improve their speaking.*

Students also considered that the level of social interaction among teachers and learners determined the level of interest they developed while learning Spanish. In-person learners

considered that their learning setting created a conducive environment for social exchanges, direct communication and interaction that enhanced the interest they had in the course:

(SP4, In-person) *It was interesting and everyone did their best to participate.*

(SP17, In-person) *I am interested in learning Spanish so I can speak with my Dominican family. This class gave me the space to get a good foundation. I chatted with the teacher and colleagues, but I need to master the tenses.*

(SP480, In-person) *My level of interest was high since I had in-person contact with the teacher.*

(SP63, In-person) *The interaction with classmates is a factor in the interest I have in this class.*

On the contrary, online learners felt that the learning environment reduced their ability to interact with classmates and teachers. Although they expressed interest in their courses, they also perceived that the reduced social relationship and interaction decreased interest levels to some extent:

(SP56, Online) *It is interesting but you don't get to know each other well in an online class.*

(SP62, Online) *The TLB class works were interesting. However, I didn't interact as much as I would have wanted because of the online format.*

(SP85, Online) *I was always interested in learning Spanish but perhaps was a little less invested and interested since I wasn't able to interact with the professor and other students as much.*

Students have also linked their academic self-confidence with the extent of social interaction they were exposed to. In-person learners have expressed that face-to-face interaction has helped them to build resilience and confidence in their language skills:

(SP3, In-person) *Because it's in-person, building relationships and engaging with others is faster.*

(SP67, In-person) *It was not difficult to approach the professor and some classmates.*

(SP73, In-person) *Talking with class members helped in improving my Spanish skills.*

In contrast, it appears that online learners felt their self-confidence was diminished by less frequent interaction as affirmed by one student “*It increased but could have been better with more interaction in the class*” (SP33, Online).

4. Control: Attendance and Participation

Sense of control is a crucial condition for flow-like experiences. The sense of control that learners perceive can enhance or interfere with how learners take ownership of their learning thus influencing the dynamics of engagement and learning. The sense of control reported by online learners came from control over webcam, ability to multitask, opportunities to participate and ease of attendance:

(SP5, Online) *I chose when to put the video on or off. I'm able to cook lunch and attend class.*

(SP12, Online) *I believe am more confident to participate in class.*

(SP13, Online) *I find the chat convenient.*

(SP20, Online) *I had a choice to write answers in the chat or speak up. I didn't feel embarrassed when I joined the class late for a reasonable excuse.*

(SP56, Online) *It allowed me to choose when to go to class. I attended class when I was interested.*

However, the sense of control expressed above was not shared by all online students as some felt that the class format impeded their ability to participate in class. One student affirmed this stating that, *“I wasn't able to interact or ask questions in class as easily which meant I often didn't ask them until the TLB or at all”* (SP42, Online).

In-person learners also considered that their class modality provided avenues that fostered some sense of control. While some expressed that they perceived little control over the learning, others expressed that the in-person nature of the class facilitated control over their interaction, attendance and the amount of time they invested in their studies:

(SP33, In-person) *Not too much. You choose where you sit in the class and with whom you sit with.*

(SP37, In-person) *Few choices, the class is guided by the syllabus and the teacher.*

(SP41, In-person) *Comme tout cours universitaire, il n'existe pas un grand contrôle...Mais c'est un choix que j'ai eu la chance de prendre d'étudier l'espagnole :)) (Like any university course, there isn't much control...But it's a choice I was lucky enough to make to study Spanish :))]*

(SP52, In-person) *The TLB was incredible, the students were given quite a bit of choice and control. There weren't many choices given in the lecture.*

(SP61, Online) *Missing an in-person class for a legitimate reason had more consequences than missing an online class.*

(SP63, In-person) *I feel you have a choice to approach members of the class and initiate a dialogue in Spanish.*

(SP70, In-person) *I had control over my efforts to speak Spanish and how to complete class assignments.*

5. Personal Interest

Interest is an important component that determines flow experiences on tasks and proportion of time learners remain in flow. There are many factors that excite students' interests and induce flow. Some learners developed an interest in the Spanish classes by virtue of its format. As one student wrote “*I was interested simply because of the in-person format*” (SP12, In-person), others also added, “*the format of the in-person class piqued my interest*” (SP37, In-person) and “*It influenced my interest to take the class. I would have had to take it next semester if it were not online*” (SP3, Online)

Other learners regardless of their course format had high interest in the classes due to the personal interest in the Spanish language and the motivation for taking the course:

(SP1, Online) *Am interested in the language*

(SP5, Online) *J'ai toujours été intéressé. Je veux apprendre l'espagnol parce que je suis un grand fan de football. (I've always been interested. I want to learn Spanish because I'm a big football fan).*

(SP86, In-person) *This is my first Spanish class, I was interested from the beginning.*

(SP32, In-person) *Mon niveau d'intérêt est évidemment très élevé au sein de ce cours en raison de son contenu et les avantages qui en découlent...(My level of interest is obviously very high in this course because of its content and the benefits that come with it...).*

Students' inherent interest and intrinsic desire to learn the Spanish language has had a spill-over effect in the involvement and attention to learning:

(SP4, In-person) *Ma confiance en moi a beaucoup évolué surtout dans ce cours car c'est un cours que j'aime et qui m'intéresse et je me sens en confiance quand je suis en train de pratiquer. La concentration a augmenté également car avant j'avais des problèmes de concentration et je pense que c'est parce que je suivais des cours qui ne m'intéressaient pas pour autant. (My self-confidence has evolved a lot in this course, because it's a course that I like and that interests me, and I feel confident practising. Concentration has also improved because I used to have concentration problems and I think it's because I was taking courses that didn't interest me).*

6. Feedback

As stated earlier, Flow Theory posits that receiving immediate feedback is a necessary and important part of skill development and flow experiences. Regardless of the instructional modality feedback helps learners to track their progress and identify potential areas of self-improvement. In-person learners have commented that the in-person learning modality allowed them to seek direct feedback in a meaningful and timely manner that has been instrumental for the evolution of their self-confidence:

(SP43, In-person) *Getting face-to-face feedback on coursework helped my confidence and progress in the course.*

(SP8, In-person) *You get more confident when attending in-person class since you can get live feedback on your work.*

(SP49, In-person) *Improved because of the format of the class and the teacher's feedback.*

7. Collaborative Learning

Flow is an individual experience but does not occur in isolation (Egbert, 2003).

Collaborative learning is a necessary contributor to engagement and learning by fostering knowledge co-construction and information sharing among peers (Kieser & Golden, 2009). Both online and in-person learners reported that their learning modality provided opportunities for collaboration with peers:

(SP8, In-person) *I was serious with the assignments when I had to do them with other classmates.*

(SP9, Online) *It allowed me to collaborate on assignments.*

(SP39, Online) *It is easier to work with other students.*

(SP50, In-person) *My friends and I practise what we learn in class.*

(SP68, In-person) *I liked the peer-to-peer discussions and group presentations. They are pivotal for studying the language.*

8. Selection Effect: Reasons for Choosing the Course Modality

The analysis revealed that learners' reported reasons for selecting online or in-person class options influenced involvement, engagement and learning outcome. The major reason cited by online students is the need for flexibility and convenience. The benefit in terms of convenience include the ability to attend classes anywhere, rewatch lecture videos, access a variety of digital resources, multitask, fit the course into busy schedules and the need for academic accommodations:

(SP6, Online) *It's nice to attend class lounging in my pyjamas. The online format reduces the stress I feel on campus moving from one class venue to another.*

(SP13, Online) *It's less stressful and I get to work at my pace. I get to rewatch the class recordings.*

(SP35, Online) *L'apprentissage en ligne me permet d'accéder à une grande variété (E-learning gives me access to a wide variety)*

(SP36, Online) *I was hoping for a less demanding class time that would allow me to take care of other business.*

(SP44, Online) *à cause du travail (because of work)*

(SP47, Online) *If the online course were not available I wouldn't know all that I have learned now.*

(SP53, Online) *I chose online class because I was not available for the in-person classes. I work full-time.*

(SP65, Online) *Is good to have this option to learn even if you can't go to the classroom.*

Beyond the above reasons, others also indicated that they did not have a choice as “it was the only class available” (SP19, Online) and “I registered late; the other classes were full” (SP82, Online).

Students who chose in-person courses said they did so primarily because of learning preferences, the higher participation and interactional quality they expect from the in-person course:

(SP10, In-person) *It's easier to participate and a more engaging way to learn*

(SP14, In-person) *I chose in-person because I believe it is more effective to learn a language when you are fully immersed in it in an environment.*

(SP27, In-person) *I chose an in-person class because I thought it would lead to better engagement between the students and the teachers, creating a better learning environment for everyone. It's also easier to access the professor and ask questions in person.*

(SP42, In-person) *J'ai choisi un cours en personne car c'est en personne où je peux suivre le cours correctement. (I chose an in-person course because it's in person where I can follow the course properly.)*

(SP49, In-person) *I don't have to worry about wifi connection.*

(SP50, In-person) *I chose an in-person class because it fits my personality*

(SP70, In-person) *It is a lot easier to learn this way and you can interact more*

Few students stated that they were obligated to take the in-person course due to scheduling conflict and program requirements:

(SP9, In-person) *My calendar is crammed, this is the only time I am available to attend this course.*

(SP30, In-person) *Il était obligatoire de suivre mon cours en personne, en raison de la participation et tout... (it was compulsory to follow my course in person, because of participation and everything...)*

9. Technical Difficulties

Aside from needing a computer or smartphone, having a robust and reliable internet connection is essential to log in for online classes. Low internet bandwidth and slower internet connection speed have been reported by online students as technical challenges that disrupt engagement and makes the learning process tedious:

(SP40, Online) *Group debates were less interesting... I missed out on information when the connection got bad.*

(SP20, Online) *On two occasions I lost connection while completing a timed quiz. Goodness! I lost points because I didn't know how to type some Spanish characters...*

(SP57, In-person) *I can focus on the face-to-face class. I often felt anxious in online classes due to unstable internet and WIFI access in my neighbourhood.*

10. Activity types

In a language class, different types of learning activities add colour to instruction and provide a great way for students to build language abilities while having fun. Well-planned flow-inducing activities will keep students engaged and learning. Students in both modalities have mentioned that technology-based activities (e.g. polls) and interactive tasks (e.g. speaking activities) were some of the learning tasks they found engaging:

(SP23, Online) *I found the website and whiteboard activities fun!*

(SP28, Online) *Some class topics and discussions in the breakout room were interesting.*

(SP36, In-person) *We did fun activities that would not be exciting in an online class.*

(SP45, In-person) *The speaking practice activities were fun, I really needed them.*

(SP53, Online) *It's fun to use whiteboards and polls during classes.*

(SP85, In-person) *I liked it when we introduced ourselves and conversed in Spanish.*

11. Grades and Performance

In general, many students are attached to their course grades since they determine the advancement they make in the respective programs. Moreover, obtaining good grades is a source of encouragement for many learners. Multiple online students have reported that the course

format brought them challenges with their grades that resulted in anxiety and anti-flow sentiments:

(SP42, Online) *It made me anxious as to whether I would pass this course. -O*

(SP20, Online) *I felt anxious about my grades... I feel my grade would have been better if I had taken the written quizzes in person.*

(SP14, Online) *Am losing confidence and I hope to get at least a passing grade.*

(SP38, Online) *My quiz scores have been poor, I don't know how to do well in this class.*

On the other hand, multiple in-person learners expressed contentment with the outcome of their grades and performance:

(SP21, In-person) *I was involved; I was happy that I could talk to the teacher about the readings and my grades after class.*

(SP45, In-person) *le cours en personne a aidé pour cela, car j'ai eu de bons résultats (The face-to-face course helped because I've had good results).*

(SP47, In-person) *ça aide à faire un examen sur papier (it helps to do an exam on paper).*

(SP67, In-person) *I came in this semester energized. I want to make this last year of studying count. I believe am more confident and aware.*

12. Self-Discipline and Dedication

Findings suggest that self-discipline is an indispensable skill particularly essential in online language classes as students spend time learning alone without the proper gaze and supervision of the teacher. It involves self-directed learning and time management skills as expressed by learners in the following quotes:

(SP19, Online) *I manage my time and plan the day around it. That way I stay concentrated.*

(SP39, Online) *Taking classes online requires more work. I liked that I worked on my own to pass this class. You learn when you put in the effort.*

(SP55, In-person) *It's not a difficult language to learn after all; it takes time, focus and dedication.*

4.7.3 Instructor Suggestions for Improving Online and In-person Classes

Based on the findings above, many reasons can impede meeting the criteria for flow. However, several measures can be implemented in both formats to reduce barriers while enhancing flow-facilitating elements. Such measures ought to lead to increased frequency and proportion of flow that learners experience in the language classroom. This is crucial as experiencing flow in L2 learning leads to higher performance and accelerated learning outcomes. In addressing potential avenues that can be explored to boost flow in the two modalities, instructor respondents proposed many factors which are covered in the next paragraphs.

1. Adopting Blended Instructional Format

As stated previously, blended instructional modality is a method where a course combines components of traditional in-person, synchronous instruction with web-based pedagogies and technology-enhanced resources. Instructor participants suggested that the combination of the best characteristics of both formats will create opportunities for flow while providing a wide array of resolutions to the problems encountered in both modalities. One instructor commented:

(IP9) *Yeah, I think that my key point would be in two ways. One, allowing for making the sense of community within the course by blending the format. So if you are in-person, give students the*

chance to work on their own, to work from home, to have some sessions, some weeks, or some moments in the semester where they can work on their own at home. And virtually where you can meet virtually and you can make breakout rooms and you work on digital projects. If you are in the online format, have periodic in-person meetings where students can sit down and have a cup of coffee with each other and work on projects, physical projects or work together in a physical environment. I will have that combination in either format.

Another instructor substantiated the need for the balance of the good in both modalities stating that:

(IP6) *I prefer the in-person format with an online component. I think that it is good, if we find a way to balance both, we can benefit a lot from them. Maybe not all the classes in the semester in-person but having periodic online meetings when students can have that flexibility too, you know, not having to go on campus or to be themselves in their own space working. So if I had to choose one, I would choose in-person with the possibility to have online components where students can work on their own, can work from home, and benefit from that experience too.*

Blended teaching does not merely mean combining online and in-person sessions but refers to mixing the best of both worlds via a well-planned mixture of meaningful tasks. For instance, learning tasks that require individual attention may fit well in online environments while TL tasks that thrive on social interaction may be most effective in in-person settings.

2. Varied Task Types

In order to create an ambience that is facilitative of flow and engagement; thereby improving the quality of in-person as well as online teaching and learning. Instructors recommended diversifying the types of tasks that are used in the language courses. One teacher affirmed it:

(IP9) *the second way would be to try and vary the types of tasks we conduct in class, both in person and online. And in person, maybe we are trying to lean back on the paper format, but I think we cannot forget that, in my opinion, we live in a digital age. And obviously, pen and paper exist and will persist for many years. But, we also have to understand that students are communicating in a different way now, and we have to find room for that, both in person and online. So it would [...] to vary the types of tasks to accommodate different students' needs, different learning preferences, and different types of performance that we're looking for in students.*

Flow occurrence depends on a meaningful challenge (i.e. a TL task) to be realized (Csikszentmihalyi, 1990). The importance of TL task is that they direct learners to “focus on purposeful use of language in diverse contexts and ensure that students experience a comprehensive range of learning experiences” (Scarino and Liddicoat, 2009, p. 45). Since tasks are a must in any language learning setting they are valuable tools that can be used to create flow inducing conditions if they are well-planned and assorted.

3. Try options to see what works for you

Instructors have also stated that in order for students to identify which course format best suits their individual needs, they should try out different learning formats before signing up to one:

(IP6) *I feel like it's always better to learn in different environments. So I would, first of all, I would encourage all students to try both. Right. You know, throughout your language learning process, you do at least one course online and at least one course face to face. Right. You see the difference. You see what works for you. Maybe some people, they work better online and in*

the comfort of their home and some other people work better in the class. Right. In the end, it's all about what you work with best.

This suggestion is in line with the fact that depending on individual characteristics such as personality and temperament, different instructional formats may appeal to different students' learning style.

4. Reduce discomfort

Furthermore, it has been suggested that to improve learner flow experiences and ensure better engagement and learning outcomes, LP students should have their language classes in-person and conduct the Oral Task online. This recommendation is elaborated in the following extract:

(IP6) *I would go back to not adding more discomfort or difficulty to lower-level proficiency students.*

So, for example, I would probably, like, let's say for the lowest proficiency, I would probably have them in-person. And maybe the oral task you do online. Yeah. Something like that, maybe like a hybrid form, but most of the time you do it, you do it in person. And maybe the further you go, right, maybe the more you can do it online, because for low proficiency students, sometimes it depends on their motivation, the reason why they're learning. Are they only learning Spanish because it's required in their program or are they learning Spanish because they want to live in a Spanish speaking country? Right. So when you're at a higher proficiency level, you know that the student is more serious about it. You know that they have to be engaged in the learning process. So you don't really have to worry so much in an online course if they're there or not. Right. Because you assume that, you know, they' So you don't need to worry about whether they're engaged or not. You assume that they are because they're there. Right. However, for the lower proficiency, sometimes they're there because they have to, not

because they want to. And so if you're going to do online courses for lower proficiency, that's more of a risk because maybe some students don't even want to be there. And so if you give them the chance to be signed in, but not really there, they might take it. You know what I mean? So I mean, if we want to be responsible in their learning process, I would probably encourage some online format later on. Right. In higher proficiency levels and in the lower proficiency, you start off more face to face.

From the above, it is understood that to ascertain that low proficiency learners get the most benefit out of their language classes, they could attend the course in-person and complete the Oral Task online. As the students acquire further language skills then they take the Oral Task in-person.

5. Mandate Camera-on Policy

One digital barricade that emerged in online teaching and learning is the camera dilemma. Instructor respondents have made a case that having cameras on during online classes helps in monitoring students' involvement and learning progress, creates a sense of community and improves engagement. For these reasons, many instructors have advocated that a policy should be enacted to compel students to have their webcams on. Two instructors stated that:

(IP6) *Another point that I wanted to say on how to improve the course. You have to have your camera on. Right. You have to, as an instructor, it helps the instructor. Like I said, it kind of gives you feedback. The real time feedback on what you're doing. You see the faces. Are they naughty? Are they smiling? Do they look confused? Right. And also for the students themselves. Students, they see other students, right? They see their faces. Maybe they feel a little more involved, feel more connected, right? Instead of just black screens, because if it's all black screens, that maybe maybe once again, it's just you and the prof. And you don't see*

anybody else. Right. Maybe that changes mentally your level of comfort while you're learning. Right. And so I feel like that would benefit everybody. I still don't know why we don't impose it. [...] It should be imposed not just for language, all classes, all classes. If you're signed up to take a class and be with classmates and an instructor, what are you fighting? I think it would help. It would be beneficial for everybody.

(IP3) *I worked at an institution where it was possible to make it mandatory, and I did it mandatory. And I felt that it helped create the community sense I was talking about because we knew each other. And I knew that when students crossed each other on campus, they recognized each other from the course. Whereas if you don't have your camera on, you have no idea who the other person is. So that was something that was helpful.*

While obligating learners to keep cameras on can have its benefits, it may reduce students' willingness and sense of ownership of their learning, if they feel compelled to do that. As approach is important for outcome of any situation, one instructor suggests not making it mandatory but rather recommends a student-centred approach that involves learners in pedagogic decisions:

(IP6) *I do not disagree with the policy. I used it in the past, I think it was good. But I prefer that students don't feel forced to do this because of the class. I do prefer that we find a common ground where we understand the importance of nonverbal communication gestures and the fact that we can see each other. Recently, I saw that there was one possibility and is asking students from the very beginning if they have access to cameras. Like filling out a survey, and if they think it is important to have their cameras on, and then the first day of class having a conversation, a general conversation with a group and agree on this on one or the other. So maybe that's something that can help, we'll see.*

6. Smaller Class Sizes

Larger class sizes can present barriers to flow as it is much harder to keep language students engaged and provide continuous feedback for individual students. In language classes where speaking is an important skill to practise, it can be challenging for teachers to provide speaking opportunities for all students in large class sizes. Instructors stated that, “speaking is the one that suffers the most in an online environment; yet writing can be highly promoted in an online environment” (IP3); hence small class size is highly recommended for both online and in-person language students to harness the overall benefits of the instruction. This suggestion is backed by one other instructor who commented that:

(IP5) *I will suggest cameras on and smaller groups. Because having a class of 20 people with all cameras on is also-- it's not realistic. It's also quite distracting and overwhelming for the teacher. Seeing a lot of faces because I don't know what is going on. However, if you go to these small groups, and you can say, OK, you have the small rooms for the Zoom app and all that, but when you go into those small rooms in Zoom, all of them have their cameras off, for example. So if you, from the very beginning, established these cameras on policy in small groups where you create-- where students know each other, they feel confident to make mistakes because in the classes to make mistakes is how they learn. And so the anonymity of online classes, especially for shy students in terms of personality, has helped some of these students to have a higher performance. This I can't doubt. But I believe that this policy of small groups with the cameras on could be positive for the students and for the teacher as well.*

(IP4) *A bigger group is more difficult to engage regardless of the class environment, (especially, online).*

7. Design the Online Course Differently

The emergency transition from in-person to online courses during the pandemic did not leave many instructors with any choice but to carry forward the in-person design and instructional style to the online platform. As a result, multiple instructor respondents are of the view that the online language course needs to be revamped and renovated bearing in mind its peculiarities and netty-gritty:

(IP5) *I would recommend designing the class in a completely different way if it's online. I mean, we were trying to copy the in-person style to an online environment and that was very rough because it's more anachronic than synchronic. So students tend to do the tasks in the time they can. And especially if they engage online, if they enrol in an online class, it's because they have some time problems or they're working probably or they're having another class at the same time. So we need to design a class that works not necessarily in a synchronous way and with more integrated tasks.*

(IP3) *I think a very important difference between online and in-person classes is that we have developed techniques, practices and theories for the second for centuries, but we are still doing this for online options. Also, I think we cannot see online/in-person as unrelated areas: we must develop pedagogical practices and theories taking into account how the virtual world relates with "reality".*

5.7.4 Summary of Qualitative Analysis

Flow is a state that is experienced when certain preconditions are met. With that said, flow experiences can also be hindered by barriers within the learning environment. The previous subsection highlighted factors that impede and or facilitate the existence of flow in online and in-person conditions from teacher and instructor perspectives. According to the factors outlined by

instructors, individual differences; class size and task design features are common aspects that influence engagement in both formats. Other variables unique to each modality include accountability issues, distractions, screen fatigue and interactional advantage. In addition to the factors mentioned by instructors, students mentioned technical difficulties, grades, feedback, collaborative learning opportunities and self-discipline as other flow-inducing and inhibiting factors that impact successful flow experiences. Based on the anti-flow characteristics identified in online and in-person modalities, instructors outlined seven interventions that can be implemented to boost student engagement in the two learning environments.

5.8. Summary of Chapter 4

The first section presented findings of the validation conducted to assess and provide validity and reliability evidence for the questionnaires used. The results indicated that the engagement questionnaire obtained internal consistency levels deemed acceptable for use in this study. The TA data gathered revealed informants' comprehension of the questionnaire items aligned with the intended interpretation. Four items were deleted from the task engagement questionnaire while four other items were revised for clarity. The results of research questions 1 and 3 were based on 12 questionnaire items.

In the second section, the findings of RQ1 were reported. The in-person group reported higher engagement scores than the online group, but the difference was not significant. Both groups did not reach flow on the Oral Task, however, individual students in each group reported flow experiences with the in-person group recording a higher number of students in flow. While the quantitative results did not confirm differences in flow components, the qualitative results suggested the groups experienced the four flow elements in different ways.

The results of Class Engagement were described in section three. The in-person student group reported spending longer periods of class time in flow than the online group. A vast majority of in-person students experienced higher than average flow state while fewer students in the online group reported longer durations of flow. The observed overall Class Engagement differences were statistically significant with a large effect size. Item CE7 on students' impressions about their learning had the primary contribution to the overall flow states in both groups. The quantitative results showed no differences between the two groups on the level of distractions in the learning environment, but this contradicts the results of the qualitative data which revealed it was a major flow-reducing factor in online classes.

The fourth section reported the findings of RQ3. It analyzed the association between proficiency level and flow. The descriptive findings on the Oral Task and Class Engagement showed that the HP group outperformed the LP group, but these differences were not significant. The One-way ANOVA/Welch analysis demonstrated that proficiency level paired with the learning environment factor had a statistically significant impact on flow states or Class Engagement. A post-hoc analysis also revealed that the Low and Online group experienced shorter flow states than the Low/High and In-person groups and the difference was statistically significant.

In the fifth section, findings related to RQ4 were reported. The results of the analysis of instructor checklists and perceptions of student engagement in the two formats were presented. The results of the engagement checklist showed that instructors generally rated online classes on the low-level scale for the observable characteristics of engagement while in-person classes received average ratings on the medium level for all variables in all rounds. The perception

survey revealed that instructors believed in-person learners were proactive, interested, competent and participated more than their online peers.

The sixth and final section reported findings of the qualitative data from instructors and students. The findings revealed an association between engagement level and the instructional modality. Both instructor and student respondents cited individual differences; class size and task design features as flow factors in the two modalities. Accountability issues, distractions, screen fatigue and interactional avenues, technical difficulties, grades and feedback among others were factors that differed between groups. Instructors provided insights into solutions that can be implemented to boost student engagement in the two environments.

In the following chapter, the main findings from the presented data are discussed in relation to the relevant literature reviewed in Chapter 2. It also highlights and conveys the future academic and social implications of the findings.

Chapter 5: Discussion

5.1 Overview

This thesis explored the influence of the instructional format and proficiency on students' Oral Task and Class Engagement. As stated in Chapter 1, the objectives of the study were to: (i) Assess what differential effect speaking tasks (Oral Task) have on in-person and online Spanish students' level of flow; (ii) Compare the level of Class Engagement of in-person and online Spanish students; (iii) Determine whether the level of proficiency impacts engagement level in the two learning environments. This chapter will present a summary of the key findings and a detailed discussion of each research question proposed for the study.

5.2 Students' Flow Experiences on the Oral Task (RQ1)

Concerning flow experiences on the Oral Task, the collected data in this study produced intriguing findings. First, the overall flow and component averages obtained by both instructional groups were higher than the mid-point of the flow scale indicating that both groups experienced high engagement. The two groups were approximately 0.1 points shy of attaining the designated average for flow experiences. This means that both groups did not necessarily reach flow on the Oral Task. However, the engagement experienced in both modalities transferred into flow experiences for some students in each group. 57% of in-person and 35% of online students reported flow experiences. That individual students in both groups reached flow levels on the Oral Task implies that flow can emerge with the right cohesion of flow conditions in different language classrooms. The overall flow and component differences between instructional groups were not statistically significant indicating that online and in-person learners were not different in their flow experiences on the Oral Task. The lack of significance and attainment of flow by

groups aligns with previous studies that examined flow in speaking tasks with similar measurement scales – Cox (2014) and Cox and Montgomery (2019).

The finding that the quantitative results revealed no significant differences in the four flow components between online and in-person groups is inconsistent with qualitative results. The latter suggested that the two groups had similarities but also differed in how they related to the flow components.

Throughout the completion of the Oral Task, students' reports depicted high levels of all three types of engagement – behavioural, emotional, and cognitive. Despite the challenges in measuring the four components of flow, the findings suggest that experiences on the flow components of the Oral Task stimulated and encompassed three different types of engagement indicating a linkage between Flow Theory and the three-dimensional engagement construct. Put differently, it appears that flow is the three types of student engagement at the highest levels. The results confirm Friedrich's (2004) recommendation that examining the combined impact of behavioural, cognitive and emotional engagement could present an increasingly accurate view of the student engagement construct. The next sections discuss the findings of the four components and how they translate into the types of engagement.

5.2.1 Challenge-Skill Balance and Behavioural Engagement

Students had a challenge or task to complete – both groups of learners reported prominent levels of “challenge-skill” balance, indicating that their participation in the Oral Task to its completion was a catalyst for behavioural engagement (Fredrick, 2004). This suggests that students had to adopt meaningful attitudes that aided them in successfully applying their skills to resolve the oral activity. Although the Oral Task created avenues for increased confidence in abilities for both groups, they had slightly distinct behavioural engagement because the

instructional and delivery format of the Oral Task affected them in dissimilar ways. The in-person group observed enhancement in skills linked to direct instructor feedback and interpersonal speaking opportunities. On the other hand, online learners reported a reduction in skills associated with lower participation avenues and passiveness that catalyzed reduced behavioural engagement. This finding is in line with previous studies asserting that individuals can have different experiences on a flow of tasks (Egbert, 2003) and that the online setting while beneficial can promote passivity that diminishes learner skills and emotions (Dewaele et al., 2022).

5.2.2 Concentration and Cognitive Engagement

The identification of optimal concentration on the Oral Task suggests that L2 speaking tasks are complex and require greater allocation of cognitive resources to access spontaneous language and declarative knowledge (Dekeyser, 2018; Ellis, 2003; Levelt, 1999). Students in both groups commented that they were “focused” and “concentrated” on the Oral Task thus suggesting cognitive engagement. The break in concentration as a result of disruption in internet connection thus diverted cognitive resources and encouraged off-task behaviours (i.e. behavioural disengagement). The findings confirm that increased focus is crucial for students to achieve communicative objectives in oral production tasks (Kormos, 2006; Schmidt, 2001). From a Flow Theory perspective, the considerable balance of task challenge and learners’ skills is necessary to maintain focused attention (Csikszentmihalyi, 2008) – because exceeding challenge vs low skills trigger anxiety thereby restricting and shifting cognitive resources to manage the anxiety-inducing problem (Fredrickson, 2001; Fredrickson & Branigan, 2005). Similarly, the reverse – low challenge vs. high skills induces behavioural and cognitive disengagement as well as dispersal of attentional efforts leading to off-task mind-wondering.

This explanation is confirmed by the high challenge-skill and concentration levels reported by both groups.

5.2.3 Sense of Control and Cognitive Engagement

The above-average “control” component in both groups is an indication of the substantial level of psychological investment and decision-making processes of learners in the resolution of the Oral Task. It suggests that the Oral Task stimulated cognitive engagement. Deciding to make efforts to speak and complete tasks and choosing how to respond to questions were factors cited by students that indicated control and cognitive engagement. Relating to the low score on item Q9, some students commented that they did not have the choice to decide on the materials (including themes of the Oral Task) or how to study them. Others stated that they did not anticipate having that choice since the course was already decided and planned. It seems that this lack of choice translated into reduced autonomous learning and students’ interest, thus affecting cognitive and emotional engagement. However, Csikszentmihalyi (2014) emphasizes that, when learners fulfill an intellectually demanding yet manageable task, the opportunity to exercise control comes from challenges (via tasks) that require them to push limits and expand their skills. Consequently, it seems that if learners have the choice to choose their preferred topics and how they study them, they may not feel challenged by the Oral Task. This suggests that including some “student-generated topics and ideas as a basis for activities” is necessary (Egbert, 2003, p. 505), but too many choices over the topics could be counterproductive – leading to apathy, relaxation and challenge-skill imbalance.

5.2.4 Interest and Emotional Engagement

Csikszentmihalyi (2014) argues that “interest” in an activity is one precondition for finding flow in it” (p. 244). The above-average “interest” (4.4 or more on a 7-point scale) on the

Oral Task indicates that carrying out the activity created emotions and thus learners were emotionally engaged. It can be deduced from qualitative findings that learners found the Oral Task challenging yet “fun” and “interesting” in itself. This means some learners while completing the task felt intrinsic motivation, that is “doing something because it is inherently interesting or enjoyable” (Ryan & Deci, 2000, p. 55), thus catalyzing emotional engagement.

Learners expressed moments of interest were attributed to different factors in the learning environment that influenced emotional engagement with the Oral Task. For some in-person learners, the speaking activities themselves stimulated interest levels. Meanwhile, in the online setting, students expressed mixed feelings. Some felt the learning environment was comforting during the Oral Task and they liked the flexibility and personal learning drive it provided (emotional engagement). Others felt it triggered anxiety over their performance on the task due to an unstable connection – such instances diminished interest and ability to emotionally engage.

Table 34 summarizes the relationship among Flow Theory, the three types of engagement and students’ experiences in the learning environment that increased or decreased flow and engagement on the Oral Task.

Table 34

Components of Flow Theory and the Three Types of Student Engagement

Flow Theory	Types of Engagement	Students’ Experiences
• Matching challenge-skills • Sense of Control	• Behavioural	• High challenge-skill • Participation • Enhanced/Decreased speaking Confidence • Convenient to attend
• Interest	• Emotional	• Anxiety over grades • Comfort in the learning environment • Fun activity

		• Flexibility is good, liked • Self-inspiration • Interesting itself
• Deep concentration • Sense of control • Interest	• Cognitive	• Optimal concentration • Focused most of the time • Disruptive technical challenges • Spanish speaking and task completion efforts • Choices in answering questions • Lack of choice on task topics

In summary, while the groups did not experience flow on the Oral Task, individual learners within each group reached flow indicating the possibility of flow formation in Spanish Oral Tasks. The parametric t-test did not confirm differences between groups, but qualitative findings revealed similar as well as distinct experiences on flow components between online and in-person groups. The contradiction in findings of direct and indirect flow scales raises questions about conceptual overlap and the capacity to capture all flow experiences. The findings of the flow components indicate that flow encompasses and translates into the three types of engagement. Learners in both groups experienced behavioural (participation, challenge-skill), cognitive (focus, control of attentional resources) and emotional engagement (interest, fun, anxiety, comfort) at different levels.

5.3 Proportion of Flow State in Spanish Classes (RQ2)

The second research question addressed whether online and in-person students differed in the state of flow experienced during Spanish class time. Overall, the in-person group reported spending a higher proportion of class time in a state of flow than the online group. The 8% average flow state difference between the two groups displayed statistical significance with a large effect size. Instructor comments were insightful in the interpretation of differences observed – they stated that fewer interactions, multitasking and modest participation in the online

environment generated shorter flow states in the online classes. This implies that it is slightly difficult for online learners to enter flow because the physical distance between class members reduces social interdependence (Johnson & Johnson, 2015; Walker, 2010), worsened by shut cameras, thus resulting in the factors cited by instructors.

The reported 57% (in-person) and 49% (online) average times in flow state align closely with values reported in previous studies using similar measurement techniques. Participants in Dewaele et al. (2022) reported spending an average of 58% in their in-person classes and 46% during their emergency remote classes. Dewaele and McIntyre (2022) reported that FL participants reached a flow state of 59%. Other studies using different flow measuring instruments also arrived at broadly similar average times (Egbert, 2003; Rubio, 2011; Dewaele et al., 2018).

Approximately 70% of individual students within the in-person group had an average or longer duration of flow state compared to the 42% in the online group. This finding coupled with the higher overall average flow in the in-person group was supported by qualitative results – Students' and instructors' comments implied that co-existing in the same space permitted total physical immersion in the language and the development of social connectedness through sharing knowledge, struggles and joyous class moments – all under the vigilant supervision of the instructor and other classmates. These findings are consistent with similar studies (Dewaele et al, 2022; Maican & Cocorada, 2021; Pawlak et al., 2022).

The finding that the in-person group obtained statistically significant higher values on 5 out of 7 items in the Class Engagement scale is not surprising based on trends in the qualitative data and previous findings (Dewaele et al., 2023). For instance, that the in-person group reported significantly higher score (9%) on item CE1 (*I'm totally absorbed*) suggests that compared to in-

person classes, online courses have plentiful distraction sources that potentially impair students' focus. Looking closely at qualitative findings, it can be explained that the physical presence of the course instructor is a factor in the level of distraction-concentration intensity spotted in the numerical findings. This means that in in-person classes, the instructor can engage in continuous monitoring of students and promptly address actions and unforeseen circumstances that could interrupt joint attention on class activities and sustained flow. On the contrary, the online class is limited to the computer screen with microphones muted and probably cameras shut as well. The student could be multi-tasking either completing another class assignment, responding to chats and calls, playing with pets, or talking to family members. Moreover, amusing shared classroom incidences become isolated disruptions rather than experiences that enhance group cohesion and social capital (Dewaele et al, 2023). It seems that in the instances described, online learners would have some difficulty “blinking out” and “having the touch” on class tasks.

It is also unsurprising that the online learners reported significantly lower average values on the two positive emotion items than the in-person group did – happiness (16% lower) and enthusiasm (17.2 % lower). The findings are consistent with previous studies on learner emotions in the two settings and affirm that a decline in positive emotions and social connection is observed in online learning (Dewaele et al., 2022; El-Dakhs et al., 2022; Larson & Csikszentmihalyi, 2014; Resnik & Dewaele, 2021; Resnik et al., 2022). The findings also confirm the assertion by SLA studies that the proportion of flow experiences is associated with positive emotionality (Dewaele & McIntyre, 2021; Dewaele et al., 2022; Ibrahim, 2020). It is striking that no statistically significant differences were obtained between groups on the two negative items (CE4 – *I'm distracted* and CE5 – *I'm frustrated*), although qualitative findings and opposite items (Item CE1 – *I'm totally absorbed*) revealed significant differences.

The item with the highest influence on reported flow states in both groups is item CE7 (I feel am learning and improving...%). It is exciting that both groups of learners felt that the instructional format played a crucial role in not only the language skills they developed but also in the confidence and communicative competence gained, albeit significantly higher scores for the in-person group. This finding of CE7 corroborates the tenets of Flow Theory stated earlier – being in a flow state drives individuals to higher levels of performance, [...] transforming the self to become more complex” (Csikszentmihalyi, 1999, p. 74). In other words, reaching a flow state does not only promote high engagement and classroom satisfaction; it also stimulates motivation and the likelihood of higher performance and accelerated learning outcomes (Dewaele & McIntyre, 2022; Piniel & Albert, 2017, 2019).

The result that students in both groups spend about half or more of their in-person or online class time in flow is encouraging for instructor efforts and instructed SLA. It is important to look closely into the differences observed to mitigate the detractors and accentuate the contributors to flow states in both settings. Students' qualitative results identified 12 key factors relating to flow occurrence in the learning environment. In Table 35, the factors have been summarized and organized according to their impact on each learning setting. These categories influenced students' emotions, concentration intensity, self-belief, confidence and learning experience. The results that the in-person environment has many more flow-promoting factors and very few anti-flow sources while the online setting has several anti-flow aspects confirm previous findings using similar measurements (Dewaele et al., 2022; Dewaele et al., 2021; Liu & Song, 2021; Resnik & Dewaele, 2022). For instance, Dewaele et al. (2022) also discovered that many online learners were afraid of missing out on lessons due to the instability of internet connection. Dewaele and McIntyre (2022) and Dewaele et. (2022) found that the teacher's

presence is crucial in guiding learners to flow – because teachers can have immediate intervention and feedback in events in in-person classes, but not as immediate or not at all with online courses. Finally, purposeful task design is vital for inducing a positive emotional state that allows the harmonious co-occurrence of flow elements (Egbert, 2003; Piniel & Albert, 2017).

Table 35

Flow State Promoters and Detractors in the Learning Environment from Students' Perspective

Modality	Flow Promoters	Flow Detractors
In-person	• Personal Interest (format and inherent) • Social and Emotional Advantage • Teacher Presence and Accessibility • Feedback (easy access and live) • Collaborative Learning (pair work, practice with friends) • Higher participation and interactional quality • Grades and Performance (confidence)	
Both	• Class size • Activity types	
Online	• Control: Attendance and Participation • Personal Interest (inherent) • Collaborative Learning (easy to meet) • Convenience and Flexibility • Self-Discipline and Dedication	• Social and Emotional Detachment • Multiple Distractions • Control: Attendance and Participation • Technical Difficulties • Grades and Performance (anxiety)

In conclusion, the findings suggest that in-person students experienced longer periods of flow in class than online learners. The statistically significant differences in overall Class Engagement and the large effect size both confirm that the differences in Class Engagement (i.e. the proportion of class time in a flow state) between in-person and online student groups represent a meaningful contrast. This, in conjunction with the flow and anti-flow sources

uncovered in the qualitative results, confirms that the instructional modality has a notable impact on students' engagement and therefore perceived learning. The interpretation of the findings depends on whether one perceives the glass as half full, half empty or fillable. From an optimistic standpoint, it is worthy of attention that on average, learners in both conditions spend about half of their class time in a state of flow. This suggests that it is possible to experience flow in the Spanish language classroom irrespective of the modality, even via a computer screen. The findings also reveal the existing flow and anti-flow state factors specific to each modality that can direct intervention strategies to improve learning experiences.

5.4 The Connection Between Proficiency and Flow (RQ3)

The third research question addressed whether the level of proficiency interacts with overall flow levels (on the Oral Task and Class Engagement) and if the relationship is the same for online and in-person conditions. The analysis revealed a complex picture between proficiency level and flow. First of all, both proficiency groups reported high behavioural (challenge-skill balance), cognitive (concentration and control) and emotional engagement (interest) on the Oral Task, but it was not high enough to reach flow. The result that individual participants in each group (47% or higher) reported a pattern of experiences that indicate flow on the Oral Task suggests that with the right preconditions of a task, students can experience flow on Oral Tasks regardless of their proficiency level (Egbert, 2003; Csikszentmihalyi, 1990).

At the Class Engagement level, both LP and HP groups reported spending more than half of Spanish class time in a flow state. The modest mean differences between HP and LP groups on the Oral Task and Class Engagement were not statistically significant suggesting that the proficiency groups did not differ in their flow experiences. The finding is in contrast with Botes et al. (2020) who found that proficiency impacted learner flow experiences. Moreover, accounts

from LP and HP students seem to suggest that HP learners had favourable learning experiences due to previous exposure and prowess in the language. Instructor participants also seem to strongly believe that proficiency did make a difference in students' engagement.

Further analysis via the One-Way ANOVA investigating the influence of both proficiency and the learning environment on flow revealed significant results for only Class Engagement. This finding coupled with the results of the post-hoc Tukey analysis confirmed that the Low and Online group noted significantly lower Class Engagement than the Low and In-person and High and In-person groups. This suggests that having low proficiency paired with studying online diminished the amount of class time learners spent in a flow state. The finding that low proficiency and online learning make it slightly harder for learners to sustain longer flow states aligns with instructor comments that the online environment is more disruptive for LP learners. As instructors explained, at a low proficiency level, learners need to pay rapt attention to benefit from the class input. However, without the watchful gaze of the instructor and the presence of classmates, online learners are exposed to multiple factors that divert their cognitive resources from class activities.

In summary, examining the direct impact of proficiency on flow without considering the learning environment revealed that LP and HP learners stand the same chance to flow experiences due to a lack of significant differences. However, a closer look at the interaction among proficiency, learning environment and flow revealed findings that aligned with qualitative findings to some extent – that the flow state of LP learners is negatively influenced by factors in the online setting while LP and HP learners in in-person settings have significantly greater opportunity to longer flow state. Thus, online learning has many sources of distraction with minimal instructor supervision which is detrimental for LP learners' engagement.

5.5 Instructors' Perceptions of Flow and Engagement (RQ4)

The results revealed several insights into the nature of student engagement and perceived learning. First, according to instructors, more than 33.3% - 66.7% of in-person learners demonstrate engaged behaviours in class compared to less than 33.3% rating the online classes received. The differences in ratings were significant for the competence-confidence and participation variables in the first round. The results of the perception questionnaires also revealed that most instructors agreed that online learners exhibited less competence, participation, and sense of autonomy in class activities (except the interest variable). The findings suggest that in-person learners tend to demonstrate slightly higher levels of engaged behaviours than online learners.

Furthermore, the qualitative findings showed that the in-person environment supports higher engagement than the online setting. The differences were attributed to certain characteristics that underscore language instruction in online and in-person settings. For instance, instructors explained that students' willingness to participate and get involved in class activities is quite low. The finding aligns with Moorhouse et al. (2022), who found that online students did not participate voluntarily, and that participation and interaction depended heavily on instructor prompts and initiative.

The overwhelmingly high mention of the camera usage problem in the data signals a consensus among instructors that there is value in switching cameras on during online lessons. This, according to instructors, will diminish social detachment, increase a feeling of community, help instructors track engagement and consequently aid learners to reach flow on activities. Csikszentmihalyi (1996) indicates that peak flow moments (involving high concentration, interest, and sense of control among others) motivate instructors and they are critical in shaping

the classroom experience. This recommendation is confirmed by instructors in this study, who stated that the camera accountability issues coupled with lower participation and interaction make it difficult for them to give off their best instructional efforts.

Remarkably, that the student qualitative findings revealed that the in-person learning environment created more flow-inducing factors that helped learners to flourish and get engaged with class activities than the online environment which triggered higher anti-flow avenues considerably aligned with instructor qualitative findings. The alignment suggests that the qualitative data-gathering instruments reveal something real in terms of flow that manifests in different conditions and can be observed from different angles. It is striking that while the qualitative instruments from both perspectives showed considerable differences between groups, many of the findings of the quantitative flow questionnaires demonstrated no differences in the modality groups. This might be an indication of the limitations of the self-report nature of the instruments and the inability of quantitative data to provide a detailed picture of a phenomenon. The finding thus affirms Mackay and Bryfonski's (2018) suggestion that employing mixed method approaches might provide a broader and more accurate portrait of concepts such as flow and engagement

Table 36 summarizes key conditions in the instructional environment that promote or hinder flow, along with instructor proposed strategies for enhancing flow experiences in the two formats.

Table 36

Flow Facilitators and Barriers in Online and In-person Classes from Instructor Perspective

Modality	Flow Facilitators	Flow Barriers
In-person	Increased student-student interaction	Individual difference (Introvert, shy, timid)

Both	• Physical contact with the instructor • Non-verbal communication cues • Joint Interest in topics	• Travelling stress
	• Class size • Task type and features • Instructor teaching style	
	• Individual differences (Introvert etc.) • Participation options • Digital resources • Easy attendance and comfort	• Lack of accountability • Multitasking • Distractions • Connectivity challenges • Screen fatigue
Recommended Interventions		
	• Adopting Blended Instructional Format • Increased variety in Task Types • Try options to see what works for you • Reduce discomfort for LP learners • Mandate camera-on policy • Smaller Class Sizes • Design the Online Course Differently	

In summary, instructors revealed invaluable insights about the nature and sources of flow in the two learning environments – The in-person environment creates more favourable opportunities that lead to higher engagement and perceived language learning. The online environment on the other hand is fraught with more challenges that affect instructional effectiveness and make it slightly harder to achieve flow. However, instructors are hopeful and have outlined intervention strategies to mitigate flow barriers while enhancing the overall quality of engagement and student experience in both sites.

The next and concluding chapter presents the conclusions of the study including general findings, implications, limitations, and research ideas to advance future studies.

Chapter 6: Conclusion

6.1 Thesis Summary

This study investigated the impact of the learning environment on student engagement through Flow Theory. Additionally, it explored whether proficiency level interacts with flow experiences. The study had three main objectives previously outlined in Chapters 1 and 5 which were addressed by gathering data through a mixed method approach – including student perception questionnaires, instructor perception questionnaires, engagement checklists and follow-up interviews.

A substantial amount of qualitative and quantitative data was collected from 87 student participants (SP), 10 instructor participants (IP) and 7 think-aloud informants (TAI). A combination of quantitative results and thematic analysis of qualitative data were used to answer the research questions. Quantitative data was used to determine overall flow levels for groups. Results of thematic analysis of the qualitative data were used to support and enrich understanding of numerical results as well as complement the findings with additional information from participants.

Based on the objectives, four research questions were addressed in the study. To the first research question, it was suggested that experiences reported by the two modality groups did not yield flow on the Oral Task, but students did report behavioural, cognitive, and emotional engagement at different levels. The overall quantitative flow differences were not significant. However, the qualitative results revealed that the in-person environment induced considerable flow-promoting avenues than the online setting and the modality groups experienced the four flow components differently.

Concerning research question 2, it was found that the in-person group spent significantly longer class time in a flow state (i.e. Class Engagement) than the online group did. It was confirmed that flow occurrence is possible in the Spanish language classroom and that the sources that foster it or hinder it differ by modality group. Specific to language instruction, the online environment triggered more anti-flow factors that could be resolved by leveraging affordances of online learning to enhance flow formation.

The results of research question 3 suggested that HP and LP learners were not significantly different in their flow experiences although qualitative findings showed that the higher linguistic abilities of HP learners are facilitative of engagement. Introducing the interactional effect of the learning environment confirmed that proficiency level influenced online and in-person learners' Class Engagement. Specifically, LP learners in online classes experienced a significantly lower flow state compared to LP and HP learners in in-person classes. This suggested that proficiency level has a negative influence on the flow state of Online LP learners.

Instructors' perceptions primarily corroborated findings in students' qualitative reports. It was found that lower engagement levels with higher flow-inhibiting avenues were observed in online classes and vice versa. Moreover, instructors believe that both instructional formats are beneficial in accommodating different students' learning needs. Therefore, they proposed that to increase engagement and maximize the benefits of classroom instruction and L2 development, important interventions and continuous improvements are needed in both environments.

The finding that all modality and proficiency groups did not experience flow on the Oral Task but did experience approximately half of their class time in a state of flow could be because the Oral Task is timed while most classroom tasks are not timed. Moreover, the Oral Task is

graded but many of the classroom tasks are done for practice and not graded. The issue of grades and the anxiety it can trigger in students when they feel they have to talk to be assigned a grade could be a reason why the groups did not attain flow on the Oral Task.

It is worth mentioning that in university programs, the Spanish course is often an optional course for some students and a requirement for others. Some of the students in this study took the Spanish course to fulfil graduation requirements while others studied the course as an elective. Engagement and flow in teaching Spanish as a second language may differ when students have to learn in a language for which they have limited choice (for example, when second language courses are required or when the languages of instruction are English or French). This may affect the components of control, challenge-skill, and interest from a cognitive, behavioural and emotional perspective, regardless of the task or modality.

In terms of control, elective students can choose the electives they want based on their personal interests or passions. This autonomy can enhance their engagement and flow. On the other hand, students taking the Spanish course to fulfil a requirement may find it difficult to find personal relevance and enjoyment in the subject matter. The control exercised by elective students can enhance intrinsic motivation in the course, which can be a source of emotional engagement. However, required courses may rely more on extrinsic motivation, such as grades or graduation requirements, which can diminish engagement and make it harder to achieve flow. Finally, elective courses are more likely to attract students with similar challenge-skill levels and interests. This can foster group cohesion and stimulate learning, leading to higher concentration, engagement and flow. Students are more likely to have mixed interests and challenge-skill levels in required courses. Some might find unexpected joy in the material, while others may struggle to engage and enter flow. Consequently, in this study the mixtures of students taking the Spanish

course as a requirement and an elective could have significantly influenced flow experiences and engagement at the group level.

6.2 Best Practices in Online and In-person Spanish Classes

Both Instructors and students reported flow-promoting and anti-flow elements in online and in-person environments. Mitigating flow barriers in online and in-person Spanish courses require a strategic approach that ensures students remain engaged, adequately challenged, and interest, control and concentration are sustained throughout their language-learning journey. Experiencing flow is a crucial condition for effective learning. The following are recommended practices for addressing some flow barriers in online and in-person learning.

1. Online Classes Must Not Just Be a Transfer of In-Person Learning

Flow Barrier: Passive, disengaged learning experiences can hinder flow, especially since some students feel isolated and lonely in online learning without the benefits of interactivity to keep them engaged.

Best Practices:

- *Redesign Courses for the Online Context:* Instead of just transferring in-person lectures to an online format (e.g., recorded videos or PowerPoint slides), it is suggested that engaging and interactive materials designed specifically for online learning can be created. This might include interactive grammar exercises, real-time quizzes, or collaborative projects using platforms like Google Docs or Zoom breakout rooms.
- *Active Participation:* Encourage active learning strategies like peer discussions, role-play activities, and collaborative projects that require students to engage with one another and the material directly.

2. Encouraging Camera Usage in Online Classes

Flow Barrier: Instructors have unanimously indicated that lack of camera usage in online learning reduces the sense of community and instructional effectiveness. It is hard for instructors to track learners' engagement without seeing their nonverbal cues. Lack of visual interaction can make online learning feel impersonal or disconnected, hindering engagement, participation and flow.

Best Practices for Online Classes:

- *Encourage Camera Use for Active Participation:* Instructors could encourage students to turn on their cameras during synchronous online classes and have discussions about camera usage to enlighten students about how it fosters a sense of connection and engagement. Visual cues (like facial expressions and body language) play a critical role in communication, especially in language learning. When students are visible, they're more likely to actively engage and be willing to participate in discussions, activities, and speaking practice.
- *Foster a Comfortable Environment:* Some students may feel self-conscious about being on camera. To mitigate this, clear expectations must be set around camera usage right from the beginning, but also understand students' comfort levels. Let them know they can keep their cameras off if they feel it might hinder their learning but that participation will be expected in other ways, such as through chat or audio.
- *Create Small Group Interactions:* Using breakout rooms for group discussions or role-plays where students can practice speaking and listening in smaller, more intimate settings. This can be particularly helpful for language practice, as students may feel more comfortable speaking in smaller groups rather than in front of the whole class.

- *Encourage Face-to-Face Conversations:* For speaking practice, encourage students to use their cameras during activities like discussions, debates, or informal conversations. This adds a layer of accountability and social interaction, making the online environment feel less isolated.
- *Video Assignments:* Encourage students to record short videos as part of their assignments. For example, they could introduce themselves, present a cultural topic, or narrate a short story in Spanish. This not only helps with language practice but also allows instructors to assess pronunciation, fluency, and confidence in speaking.
- *Non-Verbal Feedback:* If possible, enable reaction buttons or emojis (like thumbs-up or clapping) during live sessions. These provide students with a way to interact non-verbally without interrupting the flow of the conversation, which is particularly useful in large classes.
- *Peer Feedback:* Facilitate peer feedback opportunities where students can give and receive constructive feedback on assignments or presentations. This encourages engagement and fosters a sense of community, reducing the isolation that can occur in online environments.

3. Leveraging Technology and Artificial Intelligence in Language Instruction

Flow Barrier: In online classes, it is more difficult for students to build relationships and find conversation partners. Moreover, unwillingness to participate and insufficient opportunities for speaking and listening practice can hinder students' ability to stay engaged and improve their language skills.

Best Practices:

- *AI-Powered Conversational Agents (Chatbots)*: Integrating AI chatbots can provide additional Spanish language practice in a low-pressure, conversational setting. These bots can simulate real-life situations (e.g., ordering food, having a casual conversation) and give immediate feedback on grammar, pronunciation, and fluency. This makes practice more engaging and accessible.
- *Cultural Simulations*: Virtual platforms or immersive software can be used to simulate real-life Spanish-speaking environments, such as a virtual walk through the vibrant culture of Barcelona. This helps with language practice and enhances engagement by allowing students to experience the language through its culture.

4. Including Student-Generated Topics and Themes

Flow Barrier: The findings of the study indicated that students perceive they will have more control by being involved in the selection of the themes and topics for the Oral Task. Previous studies also indicated that including student-generated topics and ideas stimulated their interest in activities.

Best Practices:

- *Student-Centered Content*: Encourage students to generate ideas for topics they want to explore. Let them propose themes related to their interests (e.g., Spanish-language reading topics, music, or social issues). This increases their intrinsic motivation and helps them stay engaged with the course content. During the first class, students can be given a list of activities and asked to rate them according to which ones interest them the most and ask students to suggest additional topics or activities.
- *Autonomy and Choice*: Students can be given some control over assignments or projects. For example, they can choose how they demonstrate their learning—through a video,

written paper, podcast, or presentation. This flexibility can increase their sense of agency, a key factor in maintaining flow.

- *Peer Collaboration:* Students can collaborate with their peers in choosing project topics or creating shared content, such as creative videos or stories indicating the difference between preterit and imperfect tense. Collaborative learning fosters a sense of community and helps mitigate feelings of isolation in online settings.

5. Computer-Adaptive Content in Online Learning

Flow Barrier: If the course material is too easy or too difficult, students can experience frustration or boredom, breaking the flow state and diminishing motivation.

Best Practices:

- *Adaptive Learning Platforms:* Incorporate adaptive learning tools that adjust the difficulty of content based on students' performance. This ensures that students are constantly challenged but not overwhelmed, which helps maintain engagement and flow.
- *Continuous Assessment and Personalized Feedback:* Use quizzes, short assignments, and real-time assessments to gauge student progress. Based on performance, recommend specific exercises that target weak areas. This personalized approach helps students stay in the zone of proximal development (ZPD) — where they are challenged just enough to improve without frustration.

6. Engagement, Flow, and Agency in Online Learning

Flow Barrier: Online courses can sometimes feel disconnected or isolated, making it harder for students to feel involved or invested. Lack of interaction and active participation can all reduce flow.

Best Practices:

- *Interactive and Gamified Learning*: Using gamified elements like points, badges, and leader boards to encourage engagement and friendly competition. Tools such as Kahoot or Quizlet can turn vocabulary drills or grammar exercises into competitive games, keeping students engaged and in flow.
- *Agency in Learning*: Students can be provided with opportunities to choose how they engage with the content. For example, offer a variety of exercises (e.g., writing assignments, oral presentations, podcasts) and let students select the method that suits their learning style. This enhances their sense of control and investment in the learning process, contributing to a sustained flow state.

7. Continuous Improvement

Continuous improvement in both online and in-person Spanish courses is essential for fostering an engaging, effective, and flow-promoting language-learning environment. By using data-driven feedback, diversifying teaching methods, integrating cultural contexts, and leveraging technology, instructors can enhance student engagement, proficiency, and overall success in learning Spanish.

6.3 Implications

The study contributes to the field of SLA, particularly positive psychology, language pedagogy and L2 development – it provides insights into the nature and sources of flow in different instructional modalities and how they impact engagement and perceived language learning. Flow is an individual experience but does not emerge in isolation. Its emergence usually depends on creating an enabling environment that grants students some autonomy, giving

them challenges that prepare and push them to develop complex L2 competence.

(Csikszentmihalyi, 1990).

L2 teaching aims to design target language tasks with learning outcomes that foster students' strengths while overcoming learning gaps in engaged learning settings. The information could be helpful for educators responsible for the instruction of Spanish. Although focused on Spanish, the findings could provide insights to other languages, regardless of the academic level, who seek to enhance the teaching-learning processes in online and in-person formats. The findings broaden understanding of possible interventions and key aspects of flow that boost engagement from the perspectives of fellow students and instructors. Experiencing flow has a positive spill-over effect of strengthening learners' as well as instructors' motivation (Dewaele & McIntyre, 2022; Tardy & Synder, 2004), an aspect pointed out by both student and instructor respondents in this study. It thus implores educators to design tasks that gives learners unique learning experiences, engender positive emotionality (Ibrahim, 2020) and flow.

The findings of this study contribute to validation and language research. It provided practical evidence that the think-aloud method can provide meaningful information on item response processes and content as sources of validity. It also provided information on the research benefits of online think-aloud survey platforms that record verbalizations in real-time with automatic transcription of recorded files. Such tools seem beneficial in advancing think-aloud research with larger sample sizes. Lastly, the study validated the FTEQ, and the revised questionnaire could be used to advance future studies on flow and task engagement.

Finally, the study advances research on student engagement as showed that there is a link between flow and engagement. It confirmed that flow translates into the three types of engagement in both online and in-person modalities.

6.4 Limitations

There were various important methodological limitations identified in the design of this study. First, since the study used a non-probability technique via convenience sampling to elicit data from both student and instructor participants, self-selection bias is considered to be a limitation of the online questionnaires. The questionnaire could have been completed by motivated and diligent students, so it cannot be claimed that the sample is representative of Spanish beginner and intermediate learners. Another limitation is that the analysis is based on retrospective self-report data and should be interpreted as such. The issue with retrospective self-reports is that participants may not be able to give an accurate and objective picture of their subjective experiences. To mitigate this limitation, data was collected through a combination of qualitative and quantitative data tools including open-ended responses, instructor ratings and interviews, and from two different perspectives (i.e. students and instructors).

It is also important to note that the student participants in the study came from different Spanish beginner and intermediate courses taught by various instructors. While all instructors use the same course materials and follow the same syllabi for classes at the same level, it must be acknowledged that varied instructor teaching styles and rapport with students could influence the engagement level and classroom experiences reported by students. This limitation was mediated by including instructor perspectives in the analysis. Most of the instructor participants were teaching both online and in-person classes concurrently and thus were in a good position to add their observations of both worlds. Moreover, both beginner and intermediate level learners were targeted to obtain students with diverse proficiency levels to determine the effect of proficiency level on flow experiences, and to increase the participation rate. Students from the same course

level are more likely to share similar flow experiences than combined students from different course levels – this could have influenced the findings.

In addition, it should be recognized that data was collected from students enrolled in three different semesters. Data collection was intended for only the Winter 2023 semester, however, due to insufficient data to determine statistical analysis, it was extended to the Summer and Fall 2023 semesters. Moreover, there were no online classes during the Fall 2023 semester, hence the in-person respondents were twice as many as the online participants.

Another limitation encountered is that the proficiency test utilized only assessed students' knowledge of grammar and reading comprehension. It excluded other abilities such as listening, writing and speaking. Moreover, the multiple-choice format of the test could permit guessing of all or most of the responses. Hence, the scores might not represent students' actual Spanish proficiency levels. It must be noted also that the classification of student participants into proficiency groups is an estimation based on the scores of Spanish course placement levels. The cut-off score of 18 (low proficiency) is very close to 19 (high proficiency), however, this reflects the reality and practice in the language course in which students are placed as explained in Chapter 3.

Finally, the challenge of subjective judgements inherent to qualitative data analysis was encountered. Although the TA data analysis followed the operationalization adhered to in previous studies (Irwin, 2009), in which two negative comments warrant revision, such decisions are subjective and should be taken into consideration.

6.5 Suggestions for Future Research

Several ideas for future research emerge from the limitations of the study design. First, the advancement in artificial intelligence and other technology could provide promising benefits

for language instruction. This will particularly be helpful in addressing the flow barriers identified in online learning to maximize its benefits of flexibility and accessibility. Future studies can explore the integration of technology in Spanish language instruction, such as AI-powered tutoring, speech recognition software, and chatbots, to enhance engagement and flow. Also, this study examined flow and engagement during a semester, future studies can look at the longitudinal effect of online and in-person Spanish language instruction on engagement.

Moreover, students did not reach flow on the Oral Task, but findings showed that all groups of learners in the study spent approximately half or more of class time in flow. This means that there are other tasks in the Spanish classes that account for the Class Engagement reported. It would be of interest to investigate the impact of other tasks (particularly ungraded tasks) on online and in-person learners' flow experiences and what characteristics of flow-inducing tasks incite flow in comparison with Oral Tasks.

Furthermore, individual students in both modalities experienced flow on the Oral Task and Class Engagement. What are the unique characteristics of said students that allowed them to reach flow while other learners in the same modality group did not? Could those be the HP learners of each condition or those studying the course as an elective? Individual differences is an important factor that has come up throughout the study. Some learners in both modalities mentioned that they chose their course format because of personal preferences and learning style. Therefore, one may argue that the flow questionnaires examined individual differences rather than engagement. It was beyond the scope of the study to conduct correlational studies on participants variables. However, it could be of value to add interviews with students and also conduct correlational analysis involving factors that were not included in this study such as

gender, age, academic major, Spanish learning history, as well as use of Spanish outside of the classroom.

Instructors recommended that implementing a blended teaching format would enrich Spanish instruction with the best qualities of online and in-person learning. It would be of interest for similar studies investigating the impact of the three learning environments (i.e. online, in-person and blended) on the phenomenon of flow in language classes to see what differential effect blended learning would contribute. Future studies can also look at how the flow promoting factors reported by students and instructors can be effectively combined into hybrid and blended learning formats.

Furthermore, future research could look deeper into the issue of camera usage. The findings in this study could serve as the foundation for further exploration of the camera debate. Findings indicated that keeping the camera on helps to enhance engagement, track learning progress, and create a feeling of community. It seems that some students do not feel comfortable with cameras on for several reasons. This brings up questions that can be explored: what other alternatives can instructors use to track engagement and attendance in online learning? What strategies are effective in encouraging learners to switch on webcams without compelling them to? What is the role of pair or smaller group work in breakout rooms on students' autonomy, camera usage and sense of community?

Finally, each item in the task engagement questionnaire had a total of seven TA data. It is recommended that after revisions are made to an assessment tool, another round of TA data should be collected on the revised items (Irwin, 2009; Peterson et al., 2017; Willis, 2005). Therefore, future studies could conduct additional TA on the revised questionnaire to provide thorough validity evidence for the scale. Also, some items were deleted to attain minimum

threshold of Cronbach's alpha, this warrants the need for complex psychometric analysis (e.g. factor analysis) to understand whether the revised questionnaire is indeed measuring the four underlying constructs of flow.

6.6 Conclusion

This study investigated the effect of the learning environment and proficiency on flow in Spanish language classes. It suggested that Spanish students were engaged behaviourally, cognitively, and emotionally on the Oral Task, but their engagement did not reach peak levels (i.e. flow). The findings also indicated that the learning environment has a significant effect on the duration of time in flow and that the online environment has several factors that impede flow which clarifies the shorter period in flow compared to in-person learners.

It was confirmed that Low and Online learners experienced lower average time in flow than Low and In-person learners, suggesting that online learning coupled with lower proficiency can make it slightly harder for learners to reach flow. Instructors perceived that in-person learners demonstrate higher engagement in class activities than online learners and that the lack of camera usage in online learning diminishes the sense of community and instructional efforts. Instructors also believe that both instructional formats are beneficial in accommodating the needs of different learners (e.g. individual differences).

The findings of this dissertation showed that many contextual and learner factors influence flow and that with an enabling setting and careful task design, flow can emerge and be sustained for longer periods. The findings are positive as they indicated that learners in both formats experienced approximately half of their class time in a flow state. This suggests that online learning is a viable option that institutions can pursue – It will be beneficial for institutions in terms of increased enrolment and international students who may not be able to

acquire study permits or those who can afford tuition but cannot afford living expenses. Local students who cannot come to campus for various reasons (e.g. family obligations or work) can benefit from online Spanish classes. It is my hope that these findings will represent both an applause of language instructors for their hard work as well as an urge to adopt strategies in creating tasks that lead learners into that addictive, motivating and fleeting moments of shared flow in both modalities.

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Appendix A: Certificate of Ethics Approval

22/02/2023

Université d'Ottawa

Bureau d'éthique et d'intégrité de la recherche

University of Ottawa

Office of Research Ethics and Integrity

CERTIFICAT D'APPROBATION ÉTHIQUE | CERTIFICATE OF ETHICS APPROVAL

Numéro du dossier / Ethics File Number

S-01-23-8823

Titre du projet / Project Title

Student Engagement: A comparative analysis of in-person and online Spanish classes from flow theory perspective

Type de projet / Project Type

Thèse de doctorat / Doctoral thesis

Statut du projet / Project Status

Approuvé / Approved

Date d'approbation (jj/mm/aaaa) / Approval Date (dd/mm/yyyy)

22/02/2023

Date d'expiration (jj/mm/aaaa) / Expiry Date (dd/mm/yyyy)

21/02/2024

Équipe de recherche / Research Team

**Chercheur /
Researcher**

Affiliation

Role

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Appendix B: Language Background and Demographic Information -English

1. Are you currently taking your Spanish course online or in-person?
2. Are you enrolled in the beginner or intermediate level course?
3. Which gender do you identify with?
4. What is your academic major?
5. What is your chronological age?
6. How many years have you been formally studying (high school and/or university) Spanish?
7. Do you speak Spanish outside the classroom?

Appendix C: Language Background and Demographic Information in French

1. Suivez-vous actuellement votre cours d'espagnol en ligne ou en présentiel?
2. Êtes-vous inscrit(e) à un cours de niveau débutant ou intermédiaire?
3. À quel sexe vous identifiez-vous?
4. Quelle est votre spécialité universitaire?
5. Quel est votre âge chronologique?
6. Depuis combien d'années étudiez-vous formellement (au lycée et/ou à l'université) l'espagnol?
7. Parlez-vous espagnol en dehors de la classe?

Appendix D: Student Engagement Questionnaire

Part I: Engagement on Task

For each item below, choose the option that best describes your experience while completing the **Oral Test** for your Spanish class. Take into consideration class activities such as textbook activities, class instructions, individual and group discussions and activities etc. that prepared you for the test.

Respond to each of the following items on a scale from 1 (strongly disagree) to 7 (strongly agree).

1. The task felt not too easy, nor too hard
2. This task was interesting in itself.
3. I felt that I had no control over what was happening during this task.
4. The task was fun for me.
5. I was completely focused on the task at hand.
6. When doing this task, I thought about other things.
7. When doing this task, I was totally absorbed in what I was doing
8. This task excited my curiosity
9. During this task, could make decisions about what to study, how to study it, and/or with whom to study.
10. This task bored me.
11. I would do this task even if it were not required.
12. I had a sense of freedom that I am in charge of my work.
13. I was challenged, but not overwhelmed (I believed my skills would allow me to meet the challenge).
14. It was no effort to keep my mind on what was happening.
15. This task aroused my imagination
16. During the task, I felt like I was given choices.

Part II – Class Engagement

Respond to each item regarding your experience during your Online/In-person Spanish class time.

What proportion of Spanish class time does this apply to you (ranging from 0%-never to 100%-always)? During my online Spanish or during my face-to-face Spanish (if attending your class on campus):

1. *I'm totally absorbed...%*
2. *I feel fulfilled...%*
3. *I'm happy...%*
4. *I'm distracted...%*
5. *I'm frustrated...%*
6. *I'm enthusiastic...%*
7. *I feel am learning and improving...%*

Part III – Open Ended Questions

In this section provide comments about items answered above. For the following question, describe your feelings or experiences in as much detail as possible, (describe relevant events or episodes in your Spanish class, if any).

How has the format of your class (online/ in-person) influenced your:

1. Level of interest?
2. Concentration?
3. Control and choices you are able to make in class?
4. Confidence?
5. Your language abilities?
6. Perception of this class?
7. Impression about your learning

Appendix E: Student Engagement Questionnaire in French

Partie I: Engagement Dans la Tâche

Instructions: Pour chaque élément ci-dessous, choisissez l'option qui décrit le mieux votre expérience lors de l'épreuve orale de votre cours d'espagnol. Prenez en compte les activités en classe telles que les activités du manuel, les instructions du cours, les discussions et activités individuelles et de groupe, etc. qui vous ont préparé à l'épreuve.

Répondez à chacun des points suivants sur une échelle allant de 1 (pas du tout d'accord) à 7 (tout à fait d'accord).

1. La tâche ne semblait ni trop facile, ni trop difficile
2. Cette tâche était intéressante en soi.
3. J'ai eu l'impression de n'avoir aucun contrôle sur ce qui se passait pendant cette tâche.
4. Cette tâche était amusante pour moi.
5. J'étais complètement concentré sur la tâche à accomplir.
6. En effectuant cette tâche, j'ai pensé à d'autres choses.
7. En effectuant cette tâche, j'étais totalement absorbé par ce que je faisais
8. Cette tâche a éveillé ma curiosité
9. Pendant cette tâche, j'ai pu prendre des décisions sur ce qu'il fallait étudier, comment l'étudier et/ou avec qui l'étudier.
10. Cette tâche m'a ennuyé.
11. Je ferais cette tâche même si elle n'était pas requise.
12. J'ai eu un sentiment de liberté car je suis responsable de mon travail.
13. J'ai été mis au défi, mais pas dépassé (j'ai cru que mes compétences me permettraient de relever le défi).
14. Je n'ai pas eu à faire d'effort pour rester concentré sur ce qui se passait.
15. Cette tâche a éveillé mon imagination
16. Pendant la tâche, j'ai eu l'impression qu'on me donnait des choix.

Partie II - engagement en classe

Instruction: Répondez à chaque question concernant votre expérience pendant les cours d'espagnol **en ligne / en personne**

Quelle proportion du temps de cours d'espagnol cela s'applique-t-il à vous (de 0%-jamais à 100%-toujours) ? Pendant mon cours d'espagnol en ligne ou pendant mon cours d'espagnol en face à face (si vous suivez votre cours sur le campus) :

1. Je suis totalement absorbé...%.
2. Je me sens épanoui...%
3. Je suis heureux(se)...
4. Je suis distrait(e)...%
5. Je suis frustré(e)...%
6. Je suis enthousiaste...%
7. J'ai l'impression d'apprendre et de m'améliorer...%

Partie III - Questions ouvertes

Dans cette section, faites des commentaires sur les questions auxquelles vous avez répondu ci-dessus. Pour la question suivante, décrivez vos sentiments ou expériences de la manière la plus détaillée possible (décrivez les événements ou épisodes pertinents de votre cours d'espagnol, le cas échéant).

Comment le format de votre cours (si vous avez assisté à un cours en ligne ou en personne) a-t-il influencé votre :

1. ¿Votre niveau d'intérêt?
2. ¿Votre concentration?
3. ¿Le contrôle et les choix que vous êtes capable de faire en classe?
4. ¿Votre confiance en vous ?
5. ¿Vos capacités linguistiques ?
6. ¿La perception de ce cours?
7. ¿L'impression que vous avez de votre apprentissage?

Appendix F: Items by Flow Component

Challenge-Skill Balance	1. I was challenged, but not overwhelmed (I believed my skills would allow me to meet the challenge). 2. The task felt not too easy, nor too hard 3. This task excited my curiosity 4. This task aroused my imagination
Concentration	5. When doing this task, I thought about other things. 6. When doing this task, I was totally absorbed in what I was doing. 7. It was no effort to keep my mind on what was happening. 8. I was completely focused on the task at hand.
Control	1. I felt that I had no control over what was happening during this task. 2. During this task, could make decisions about what to study, how to study it, and/or with whom to study. 3. During the task, I felt like I was given choices. 4. I had a sense of freedom that I am in charge of my work.
Interest	1. This task was interesting in itself. 2. The task was fun for me. 3. This task bored me. 4. I would do this task even if it were not required

Appendix G: Student Recruitment Flyer



PARTICIPATE IN A RESEARCH STUDY

Student Engagement in Online and Face-2-Face Classes

What you will do

- You will complete an online questionnaire.
- It will take approximately 15-20 minutes.

Compensation and Benefits

- **Reward:** Each participant will be rewarded \$10 through e-transfer.
- You will be entered into a draw for a chance to win one of seven (7) amazon gift cards of \$50.
- An opportunity to practice and hone your Spanish skills as the questionnaire includes a Spanish proficiency test that is autocorrected after submission.

Access Link

- Click on the link below for more information and link to the study questionnaire.
- <https://ca.research.net/r/M65SFXM>

Appendix H: Student Recruitment Information in English

STUDENT ENGAGEMENT IN ONLINE AND FACE-2-FACE SPANISH COURSES

You are invited to participate in a study on student engagement conducted by researchers at the Department of Modern Languages and Literatures at the University of Ottawa.

This study will evaluate the level of students' engagement and flow in online and face-2-face (In-person) Spanish courses and the effect of speaking tasks on engagement in the two learning environments.

For this study, you will complete a perception questionnaire after your Spanish oral test. The perception questionnaire will both include a consent form, demographic and language background questionnaire, a Spanish proficiency test and a student engagement questionnaire – these will collect data on your Spanish studying history, Spanish knowledge and your perception about your level of engagement in class. Surveys will be completed online, and it should only take a maximum of 20 minutes. The link to the perception questionnaire is embedded below in this document. There are no known risks to your participation in this study.

Your course instructors will not know which students participated in the study and the choice to participate will have no effect on your course grades. Participating in this study will provide you with an opportunity to practice and hone your Spanish language skills as the proficiency test is autocorrected. You have the chance to win one of seven (7) amazon gift cards worth \$50 each. This study entails no risks to you.

Click the link to access **Perception Questionnaire in English**[[link](#)]

If you have any questions about this project, please email us:

Principal Researcher: Fati Osuman
 Supervisor: Prof. Elena Valenzuela
 Department of Modern Languages and Literatures
 University of Ottawa
 Emails: xxxx@uottawa.ca / xxxxx@uottawa.ca

THANK YOU!

**This study has been reviewed by and received ethics clearance
 through the University of Ottawa Research Ethics Board.**

Appendix I: Student Recruitment Information in French

Recrutement des participants (étudiants espagnols)

L'ENGAGEMENT DES ÉTUDIANTS DANS LES COURS EN LIGNE ET EN FACE-À-FACE

Vous êtes invité à participer à une étude sur l'engagement des étudiants menée par des chercheurs du Département des langues et littératures modernes de l'Université d'Ottawa.

Cette étude évaluera le niveau d'engagement optimal (ou flux) des étudiants dans les cours d'espagnol en ligne et en face-à-face (In-person) et les tâches (test de lecture vs test d'écriture) qui facilitent un engagement plus élevé dans les deux environnements d'apprentissage.

Pour cette étude, vous remplirez une série d'enquêtes à deux reprises au cours du semestre : Première et deuxième enquêtes de perception. La première et la deuxième enquête de perception comprendront toutes deux un formulaire de consentement, un questionnaire sur les antécédents démographiques et linguistiques, un test de compétence en espagnol et un questionnaire sur l'engagement de l'étudiant - ces éléments permettront de recueillir des données sur vos antécédents en matière d'apprentissage de l'espagnol, vos connaissances en espagnol et votre perception de votre niveau d'engagement en classe (en ligne ou en face à face) et dans la tâche (lecture ou écriture). Les enquêtes seront remplies en ligne, et cela ne devrait prendre qu'un maximum de 20 minutes par enquête. Le lien vers chaque enquête de perception sera intégré dans ce document et affiché sur votre Brightspace à deux moments différents : après avoir effectué des tâches de lecture et d'écriture respectivement dans votre cours d'espagnol (c'est-à-dire que vous remplirez la première enquête de perception après le test de lecture et la deuxième enquête après le test d'écriture). Votre participation à cette étude ne présente aucun risque connu.

Vos instructeurs ne sauront pas quels étudiants ont participé à l'étude et le choix de participer n'aura aucun effet sur vos notes de cours. La participation à cette étude vous donnera l'occasion de pratiquer et d'affiner vos compétences en espagnol, car une copie du test de compétence en espagnol avec les réponses correctes sera publiée sur votre Brightspace après la collecte des données à la mi-avril. Vous avez également la possibilité de gagner l'un des sept (7) tirages au sort de bons d'achat amazon d'une valeur de 50 \$ chacun. Pour des raisons de confidentialité, vous générerez un code alphanumérique et vous ne serez pas identifié par vos réponses. Pour votre code alphanumérique, il vous sera demandé de fournir les deux premières lettres de votre mois de naissance et les quatre derniers chiffres de votre numéro de téléphone portable. Cette étude ne comporte aucun risque pour vous.

Cliquez sur ce lien pour accéder à **l'enquête de perception [lien vers l'enquête]**.

Si vous avez des questions sur ce projet, veuillez nous envoyer un courriel:

Chercheuse principale: Fati Osuman
Directrice: Prof. Elena Valenzuela
Département des langues et littératures modernes
Université d'Ottawa
Courriels: xxxx@uottawa.ca / xxxx@uottawa.ca

MERCI!

Appendix J: Student Consent Form in English

Principal Investigator: Fati Osuman
 PhD Candidate- Spanish (Linguistics)
 Langues et Littératures Modernes/Modern Languages and Literatures
 Université d' Ottawa/University of Ottawa
 MHN 240, 70 Laurier East

Supervisor: Dr. Elena Valenzuela
 Associate Professor
 Langues et Littératures Modernes/Modern Languages and Literatures
 Université d' Ottawa/University of Ottawa
 MHN 221
 Ph: xxxxxx ext. xxxx

You are being invited to participate in a research study looking to evaluate the level of students' engagement and flow in online and face-2-face (In-person) Spanish courses. The main goal of the research is to provide a deeper understanding of the intensity and nature of student engagement in in-person and online courses which will be beneficial for instructors and scholars alike in the design of tasks that induce optimal learning experiences for both group of students. This research is being conducted by Ms. Fati Osuman in fulfillment of her doctoral dissertation.

This study involves a set of surveys to complete during the semester: First and Second perception surveys. First and Second perception surveys will both include a demographic and language background questionnaire, a Spanish proficiency test and a student engagement questionnaire. You will complete the two perception surveys at two different times: after doing reading and writing tests respectively in your Spanish class. Surveys will be completed online, and it should only take a maximum of 20 minutes per Perception Survey. There are no known risks to your participation in this study.

Participation in this study is voluntary. You may refuse to participate and refuse to answer any questions. You may choose to not have your data included in the study and can withdraw from the study at any time without any negative consequences. Your course instructor will NOT have access to your responses.

For confidentiality reasons, you will be asked to generate an alphanumeric code consisting of the first two letters of your birth month and the last four digits of your cell phone number (e.g., Ju3427) and you will not be identified by your answers. Participating in this study will provide you with an opportunity to practice and hone your Spanish language skills as a copy of the Spanish proficiency test with correct answers will be posted on your Brightspace after data collection in mid-April. Participants will also be entered into seven (7) amazon voucher prize draws worth \$50 each. You will be asked to provide your email when completing the surveys (2nd page), if you wish to be entered into the draw. Emails will only be used to send vouchers to the winners of the draw.

Your research records will be stored in the following manner: Online data will be stored in an encrypted and password protected One Drive (owned by the principal investigator); only the research team will have access to the data, and it will be securely destroyed after an

appropriate period of time (5 years following the publication of a research paper). Should you withdraw from the project all data you have provided will immediately be securely destroyed. In order to minimize the risk of security breaches and to help ensure my confidentiality, it is recommended that I use standard safety measures, such as signing out of my account, closing my browser, and locking my device when I am no longer using it/when I have completed the study.

If the results of the study are published, your name will not be used and no information that discloses your identity will be released or published.

If you have any questions about the study, you may contact Fati Osuman, at xxxxx@uottawa.ca or Prof. Elena Valenzuela at xxxxxxxx@uottawa.ca

If you have any questions regarding the ethical conduct of this study, you may contact the Protocol Officer for Ethics in Research, University of Ottawa, Tabaret Hall, 550 Cumberland Street, Room 154, Ottawa, ON K1N 6N5

Tel.: xxxxxx

Email: xxxxx@uottawa.ca

Click here to save/print a copy of the letter of information and consent for your records.

Do you consent to have your data included in the study:

<<Yes, I consent to participate>>.

<<No, I do not consent to participate>>.

Appendix K: Student Consent Form in French

Chercheuse principale: Fati Osuman
 Candidate au Doctorat - Espagnol (Linguistique)
 Langues et Littératures Modernes/Modern Languages and Literatures
 Université d' Ottawa/University of Ottawa
 Pavillon Hamelin 240
 70 Laurier East
 Ph: xxxxxx Ext. xxxx

Directrice de thèse: Elena Valenzuela
 Langues et Littératures Modernes/Modern Languages and Literatures
 Université d' Ottawa/University of Ottawa
 Pavillon Hamelin 221
 Ph: xxxxxx ext. xxxx

Formulaire de Consentement

Vous êtes invité à participer à une étude de recherche visant à évaluer le niveau d'engagement optimal (ou flux) des étudiants dans les cours d'espagnol en ligne et en face-à-face (In-person). L'objectif principal de la recherche est de fournir une compréhension plus approfondie de l'intensité et de la nature de l'engagement des étudiants dans les cours en ligne et en face à face, ce qui sera bénéfique pour les instructeurs et les universitaires dans la conception de tâches qui induisent des expériences d'apprentissage optimales pour les deux groupes d'étudiants. Cette recherche est menée par Mme Fati Osuman dans le cadre de sa thèse de doctorat.

Cette étude comporte une série d'enquêtes à remplir au cours du semestre : Première et deuxième enquêtes de perception. La première et la deuxième enquête de perception comprendront toutes deux un questionnaire démographique et linguistique, un test de compétence en espagnol et un questionnaire sur l'engagement des étudiants. Vous remplirez les deux enquêtes de perception à deux moments différents : après avoir effectué des tâches de lecture et d'écriture respectivement dans votre cours d'espagnol. Les enquêtes seront remplies en ligne et cela ne devrait prendre que 20 minutes maximum par enquête de perception. Il n'y a aucun risque connu à votre participation à cette étude.

La participation à cette étude est volontaire. Vous pouvez refuser de participer et de répondre à toute question. Vous pouvez choisir de ne pas faire figurer vos données dans l'étude et vous pouvez vous retirer de l'étude à tout moment sans aucune conséquence négative. L'instructeur de votre cours n'aura PAS accès à vos réponses.

Pour des raisons de confidentialité, il vous sera demandé de générer un code alphanumérique composé des deux premières lettres de votre mois de naissance et des quatre derniers chiffres de votre numéro de téléphone portable (par exemple, Ju3427) et vous ne serez pas identifié par vos réponses. La participation à cette étude vous donnera l'occasion de pratiquer et d'affiner vos compétences linguistiques en espagnol, car une copie du test de compétence en espagnol avec les réponses correctes sera affichée sur votre Brightspace après la collecte des données à la mi-avril. Les participants seront inscrits à sept (7) tirages au sort de bons d'achat amazon d'une valeur de 50 \$ chacun. Il vous sera demandé de fournir votre adresse électronique lorsque vous répondrez aux enquêtes (2ème page), si vous souhaitez participer au tirage au sort. Les adresses électroniques ne seront utilisées que pour envoyer les bons d'achat aux gagnants du tirage au sort.

Vos dossiers de recherche seront stockés de la manière suivante: Les données en ligne seront stockées dans un One Drive crypté et protégé par un mot de passe (appartenant à l'investigatrice principale); seule l'équipe de recherche aura accès aux données, et elles seront détruites de manière sécurisée après une période de temps appropriée (5 ans après la publication d'un article de recherche). Si vous vous retirez du projet, toutes les données que vous avez fournies seront immédiatement détruites en toute sécurité. Afin de minimiser les risques de bris de sécurité et pour assurer ma confidentialité, le chercheur me recommande d'utiliser des mesures de sécurité standard, telles que mettre fin à la session, me déconnecter de mon compte, fermer mon navigateur Internet et verrouiller mon écran ou appareil lorsque je ne les utilise plus / lorsque j'ai terminé l'étude.

Si les résultats de l'étude sont publiés, votre nom ne sera pas utilisé et aucune information révélant votre identité sera publiée.

Si vous avez des questions à propos de cette étude, veuillez envoyer un courriel à Fati Osuman <xxxxx@uottawa.ca>. ou le professeur Elena Valenzuela à l'adresse <xxxxx@uottawa.ca>

Si vous avez des questions concernant la conduite éthique de cette étude, veuillez contacter le Bureau d'éthique et d'intégrité de la recherche de l'Université d'Ottawa, Pavillon Tabaret 154, 550 rue Cumberland, Ottawa, ON K1N 6N5

Tél.: xxxxxx

Courriel: xxxxxx@uottawa.ca

Cliquez ici pour enregistrer/imprimer une copie de la lettre d'information et de consentement pour vos dossiers.

Consentez-vous à ce que vos données soient incluses dans l'étude:

<<Oui, je consens à participer>>.

<<Non, je ne consens pas à participer>>.

Appendix L: Student Engagement Checklist

1. I am completing this observation for ☐ **Online** / ☐ **Face-to-Face** class.

Criteria

High: More than 2/3 (66.7%) of the students.”
Medium: 1/3 (33.3%) to 2/3 (66.7%) of the students
Low: A few or less than 1/3 (33.3%) of students

2. Check the best option based on the descriptions under each variable (a-d) and the criteria above:

	High	Medium	Low
a. Challenge-skill balance	☐	☐	☐
<i>Do students exhibit confidence and competence in carrying out tasks with limited coaching?</i>			
<i>Do students work hard to complete in-class tasks and assignments?</i>			
b. Concentration	☐	☐	☐
<i>Are Students focused on the learning activity with minimum disruptions?</i>			
<i><u>Active Participation</u>: are they focused on their learning, ask relevant questions, provide appropriate answers, work on assigned tasks?</i>			
<i>Do students engage in meaningful small group discussions about texts or course activities?</i>			
<i>Do students participate in small group discussions, whether orally or through the chat?</i>			
c. Sense of Control	☐	☐	☐
<i>Do students demonstrate a sense of responsibility during class time and on tasks?</i>			
<i>Do students consistently respond to quick questions (e.g. Do Now questions, quick polls, “give me a thumbs up if . . .”)?</i>			
d. Interest	☐	☐	☐
<i>Do students show interest in class activities, peers and teacher?</i>			
<i>Do students comment on and celebrate their peers’ responses, whether orally, through the chat, or the use of emojis and icons?</i>			
<i><u>Positive body language cues</u>: Eye contact (looking at the teacher and following his/her movements and watching other student contributing to the tasks, looking at visuals and text being read), facial expressions (smiling, excitement, enthusiasm etc.), displaying appropriate non-verbal responses (e.g. nodding), head postures, sitting and arm positions that indicate interest in class activities.</i>			

Appendix M: Teacher Perception oQuestionnaire

1. Have you taught both in-person and online Spanish classes at uOttawa?

Part I – Likert scale Items

Participants will respond to each of the following items on a scale from 1 (strongly disagree) to 7 (strongly agree).

2. Students appear more competent in handling class tasks in an online class compared to a in-person class.
3. Students appear more concentrated in an online class compared to an in-person class.
4. Students appear more interested or enthusiastic in an online class compared to an in-person class?
5. Students tend to demonstrate more sense of control when fulfilling class tasks in an online class compared to an in-person class.

Part II – Open-ended questions.

Write in as much detail as possible and answers should relate to the mode of instruction (online vs in-person) and its interaction with student engagement and learning in Spanish courses.

6. In general, do students appear more engaged in an online class compared to an in-person class?
7. What are some of the factors that prevent student engagement in in-person classes?
8. What are some of the factors that prevent student engagement in online classes?
9. What are some of the factors that facilitate student engagement in in-person classes?
10. What are some of the factors that facilitate student engagement in online classes?

11. In general, do students learn at the same pace, slower or faster in an in-person Spanish class than in an online class?

Appendix N: Instructor Recruitment Text in English

Recruitment of Participants (Spanish Course Instructors)

STUDENT ENGAGEMENT IN ONLINE AND FACE-2FACE COURSES

You are invited to participate in a study on student engagement in Spanish courses conducted by researchers at the Department of Modern Languages and Literatures at the University of Ottawa. This study will evaluate the level of students' engagement and flow in online and face-2-face (In-person) Spanish courses and the task (reading vs writing test) that facilitate higher engagement in the two learning environments.

For this study, you will complete a student engagement observation checklist and a teacher perception questionnaire. You will complete two (2) student engagement observation checklists in four weeks interval (February and March) and the teacher perception questionnaire towards the end of the semester (April). All forms will be completed online, and it will take maximum 10 minutes to complete each checklist and questionnaire. The link to each form will be embedded in this document and sent to you through email. By participating in this study, you will learn about an observational tool that you can use to improve the engagement of your students in different class activities. There are no known risks to your participation in this study.

For confidentiality reasons, you will generate an alphanumeric code and you will not be identified by your answers. For your alphanumeric code, you will be asked to provide the first two letters of your birth month and the last four digits of your cell phone number. This study entails no risks to you.

Click on this link to access **Form [link to form]**

If you have any questions about this project, please email us:

Principal Researcher: Fati Osuman

Supervisor: Prof. Elena Valenzuela

Department of Modern Languages and Literatures

University of Ottawa

Emails: xxxx@uottawa.ca / xxxxx@uottawa.ca

THANK YOU!

Appendix O: Instructor Recruitment Text in French

Recrutement des participants (instructeurs de cours d'espagnol)

L'ENGAGEMENT DES ÉTUDIANTS DANS LES COURS EN LIGNE ET EN FACE-À-FACE

Vous êtes invité à participer à une étude sur l'engagement des étudiants dans les cours d'espagnol menée par des chercheurs du Département des langues et littératures modernes de l'Université d'Ottawa.

Cette étude évaluera le niveau d'engagement optimal (ou flux) des étudiants dans les cours d'espagnol en ligne et en face-à-face (In-person) et les tâches (test de lecture vs test d'écriture) qui facilitent un engagement plus élevé dans les deux environnements d'apprentissage.

Pour cette étude, vous remplirez une liste de contrôle d'observation de l'engagement des étudiants et un questionnaire de perception des enseignants. Vous remplirez deux (2) listes de contrôle d'observation de l'engagement des étudiants à quatre semaines d'intervalle (février et mars) et le questionnaire de perception des enseignants vers la fin du semestre (avril). Tous les formulaires seront remplis en ligne, et il faudra au maximum 10 minutes pour remplir chaque liste de contrôle et questionnaire. Le lien vers chaque formulaire sera intégré au présent document et vous sera envoyé par courrier électronique. En participant à cette étude, vous découvrirez un outil d'observation que vous pourrez utiliser pour améliorer l'engagement de vos élèves dans différentes activités de classe. Il n'y a aucun risque connu à votre participation à cette étude.

Pour des raisons de confidentialité, vous générerez un code alphanumérique et vous ne serez pas identifié par vos réponses. Pour votre code alphanumérique, il vous sera demandé de fournir les deux premières lettres de votre mois de naissance et les quatre derniers chiffres de votre numéro de téléphone portable. Cette étude ne comporte aucun risque pour vous.

Cliquez sur ce lien pour accéder au **formulaire** [[lien vers le formulaire](#)].

Si vous avez des questions sur ce projet, veuillez nous envoyer un courriel :

Chercheuse principale: Fati Osuman
Directrice: Prof. Elena Valenzuela
Département des langues et littératures modernes
Université d'Ottawa
Courriels: xxxx@uottawa.ca / xxxxx@uottawa.ca

MERCI!

Appendix P: Instructor Consent Form in English

Principal Investigator: Fati Osuman
 PhD Candidate- Spanish (Linguistics)
 Langues et Littératures Modernes/Modern Languages and Literatures
 Université d' Ottawa/University of Ottawa
 MHN 240, 70 Laurier East

Supervisor: Dr. Elena Valenzuela
 Associate Professor
 Langues et Littératures Modernes/Modern Languages and Literatures
 Université d' Ottawa/University of Ottawa
 MHN 221
 Ph:xxxxxxxxxxx

You are being invited to participate in a research study looking to evaluate the level of students' engagement and flow in online and face-2-face (In-person) Spanish courses. The main goal of the research is to provide a deeper understanding of the intensity and nature of student engagement in in-person and online courses which will be beneficial for instructors and scholars alike in the design of tasks that induce optimal learning experiences for both group of students. This research is being conducted by Ms. Fati Osuman in fulfillment of her doctoral dissertation.

This study involves a student engagement observation checklist and a teacher perception questionnaire which will be completed online during the spring 2023 semester. You will complete two (2) student engagement observation checklists in four weeks interval (February and March) and the teacher perception questionnaire towards the end of the semester (April). It should take maximum 10 minutes to complete each checklist and questionnaire. There are no known risks to your participation in this study.

Participation in this study is voluntary. You may refuse to participate and refuse to answer any questions. You may choose to not have your data included in the study and you can withdraw from the study at anytime without any negative consequences. By participating in this study, you will learn about an observational tool that you can use to improve the engagement of your students in different class activities.

For confidentiality reasons, you will be asked to generate an alphanumeric code consisting of the first two letters of your birth month and the last four digits of your cell phone number (e.g., Ju3427) and you will not be identified by your answers.

Your research records will be stored in the following manner: Online data will be stored in an encrypted and password protected One Drive (owned by the principal investigator); only the research team will have access to the data, and it will be securely destroyed after an appropriate period of time (5 years following the publication of a research paper). Should you withdraw from the project all data that you have provided will immediately be securely destroyed. In order to minimize the risk of security breaches and to help ensure my confidentiality, it is recommended that I use standard safety measures, such as signing out of my account, closing my browser, and locking my device when I am no longer using it/when I have completed the study.

If the results of the study are published, your name will not be used and no information that discloses your identity will be released or published.

If you have any questions about the study, you may contact Fati Osuman, at xxxxxx@uottawa.ca or Prof. Elena Valenzuela at xxxxxx@uottawa.ca

If you have any questions regarding the ethical conduct of this study, you may contact the Protocol Officer for Ethics in Research, University of Ottawa, Tabaret Hall, 550 Cumberland Street, Room 154, Ottawa, ON K1N 6N5

Tel.: xxxxxxxxxx

Email: xxxxxx@uottawa.ca

Click here to save/print a copy of the letter of information and consent for your records.

Do you consent to have your data included in the study:

<<Yes, I consent to participate>>.

<<No, I do not consent to participate>>.

Appendix Q: Instructor Consent Form in French

Chercheuse principale: Fati Osuman
Candidate au Doctorat - Espagnol (Linguistique)
Langues et Littératures Modernes/Modern Languages and Literatures
Université d' Ottawa/University of Ottawa
Pavillon Hamelin 240
70 Laurier East

Directrice de thèse: Elena Valenzuela
Langues et Littératures Modernes/Modern Languages and Literatures
Université d' Ottawa/University of Ottawa
Pavillon Hamelin 221

Formulaire de Consentement

Vous êtes invité à participer à une étude de recherche visant à évaluer le niveau d'engagement optimal (ou flux) des étudiants dans les cours d'espagnol en ligne et en face-à-face (In-person). L'objectif principal de la recherche est de fournir une compréhension plus approfondie de l'intensité et de la nature de l'engagement des étudiants dans les cours en ligne et en face à face, ce qui sera bénéfique pour les instructeurs et les universitaires dans la conception de tâches qui induisent des expériences d'apprentissage optimales pour les deux groupes d'étudiants. Cette recherche est menée par Mme Fati Osuman dans le cadre de sa thèse de doctorat.

Cette étude comprend une liste de contrôle d'observation de l'engagement des élèves et un questionnaire de perception des enseignants qui seront complétés en ligne au cours du semestre de printemps 2023. Vous remplirez deux (2) listes de contrôle d'observation de l'engagement des élèves à quatre semaines d'intervalle (février et mars) et le questionnaire de perception des enseignants vers la fin du semestre (avril). Il vous faudra au maximum 10 minutes pour remplir chaque liste de contrôle et questionnaire. Il n'y a aucun risque connu à votre participation à cette étude.

La participation à cette étude est volontaire. Vous pouvez refuser de participer et de répondre à toute question. Vous pouvez choisir de ne pas faire figurer vos données dans l'étude et vous pouvez vous retirer de l'étude à tout moment sans aucune conséquence négative. En participant à cette étude, vous découvrirez un outil d'observation que vous pourrez utiliser pour améliorer l'engagement de vos élèves dans différentes activités de classe.

Pour des raisons de confidentialité, il vous sera demandé de générer un code alphanumérique composé des deux premières lettres de votre mois de naissance et des quatre derniers chiffres de votre numéro de téléphone portable (par exemple, Ju3427) et vous ne serez pas identifié par vos réponses.

Vos dossiers de recherche seront stockés de la manière suivante: Les données en ligne seront stockées dans un One Drive crypté et protégé par un mot de passe (appartenant à l'investigatrice principale); seule l'équipe de recherche aura accès aux données, et elles seront détruites de manière sécurisée après une période de temps appropriée (5 ans après la publication d'un article de recherche). Si vous vous retirez du projet, toutes les données que vous avez fournies seront immédiatement détruites en toute sécurité. Afin de minimiser les risques de bris de sécurité et pour assurer ma confidentialité, le chercheur me recommande d'utiliser des mesures de sécurité standard, telles que mettre fin à la session, me déconnecter de mon compte, fermer mon navigateur Internet et verrouiller mon écran ou appareil lorsque je ne les utilise plus / lorsque j'ai terminé l'étude.

Si les résultats de l'étude sont publiés, votre nom ne sera pas utilisé et aucune information révélant votre identité sera publiée.

Si vous avez des questions à propos de cette étude, veuillez envoyer un courriel à Fati Osuman <xxxxxx@uottawa.ca> ou le professeur Elena Valenzuela à l'adresse <xxxxxx@uottawa.ca>

Si vous avez des questions concernant la conduite éthique de cette étude, veuillez contacter le Bureau d'éthique et d'intégrité de la recherche de l'Université d'Ottawa, Pavillon Tabaret 154, 550 rue Cumberland, Ottawa, ON K1N 6N5

Tél.: xxxxx

Courriel: xxxxxx@uottawa.ca

Cliquez ici pour enregistrer/imprimer une copie de la lettre d'information et de consentement pour vos dossiers.

Consentez-vous à ce que vos données soient incluses dans l'étude:

<<Oui, je consens à participer>>.

<<Non, je ne consens pas à participer>>.

Appendix R: Follow-up Interview Guide - Sample Questions

1. Proficiency and engagement in online vs. face-to-face classes

- a. Low proficiency students: In which course format (online vs. in-person) are they more engaged?
- b. High proficiency students: In which course format are they more engaged?
- c. Performance - does performance differ between low vs high proficiency learners in online and in-person courses?
- d. Does performance differ between low vs high proficiency students in online courses?
- e. Does performance differ between low vs high proficiency students in in-person?
- f. Level of distraction- generally, in which course mode do students easily get distracted (online or in-person)?
- g. Students have commented that they are easily distracted in online courses. What aspects of online classes causes distraction?
- h. Low prof. vs high proficiency – which group gets more distracted in online classes.
- i. Does proficiency level influence the amount of effort required to keep students engaged in an online/in-person class?

2. Speaking task: Oral Activity

- a. Does the task delivery format affect the outcome of the Oral Task
- b. How will you compare the outcome of the Oral Task between online and in-person students in terms of:
 - Ease of administration
 - Level of concentration and participation
 - Overall engagement
 - Overall performance

3. Personal Impression

- a. What is your preferred format for teaching L2 Spanish
- b. Which format will you endorse for a language course such as Spanish
- c. Does it require more efforts to teach online/in-person (Adequate knowledge about online platforms)
- d. Suggest changes to language teaching curriculum in general to optimize learning in different settings.

Appendix S: Think-Aloud Questions

1. Item Response Process

<i>Paraphrasing:</i>	In your own words, can you rephrase or describe what this item/question is aiming to ask?
<i>Cognitive/Recall strategy:</i>	What did you think of when answering this item?
<i>Difficulty Level:</i>	Was this item easy or hard to understand?
<i>Comprehension/ Interpretation:</i>	Are there any specific words that are difficult to understand? If yes, how would you change the words to make it clearer?
<i>Response Mapping:</i>	Which answer choice would you select?
<i>Confidence Judgement:</i>	How sure are you of your answer?

2. Content

Directions

- How would you make the directions more clear/easy to understand?

Domains

- In your own words, what do you think the group of items are asking about?
- Are there any items that don't belong in this questionnaire?

Response Choices

- What do you think about the response choices?
- How would you make the response choices clearer or easier to understand?

Overall Assessment

- Are there things that we forgot to ask about that you think are important?
- Overall thoughts/opinions of the questionnaire

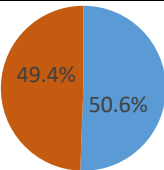
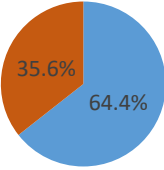
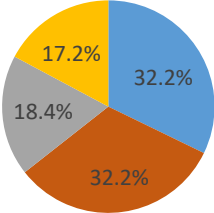
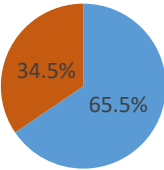
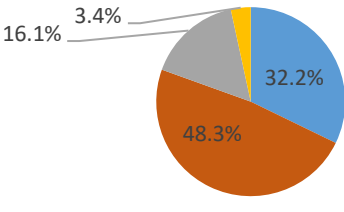
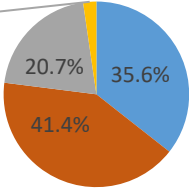
3. Information from Think-Aloud informants

1. Indicate if you are: 1) Student 2) Teacher 3) Language testing expert

4. Listening and Speaking Task (Reference task to complete the FTEQ)

Informants listened to brief audio of someone talking about how their previous day went. At the end of the audio, informants were asked to answer orally how their previous day went and talk one thing that was challenging or interesting about their day.

Appendix T: Student Sample Profile

Group	Frequency	Percentage	Pie Chart
Proficiency Level			
Low (0 – 18)	44	50.6	 ■ Low (0 – 18) ■ High (19 - 36)
High (19 - 36)	43	49.4	
Course Environment			
In-Person	56	64.4%	 ■ In-Person ■ Online
Online	31	35.6%	
Proficiency Level * Course			
Low & In-Person	28	32.2%	 ■ Low & In-Person ■ High & In-Person ■ Low & Online ■ High & Online
High & In-Person	28	32.2%	
Low & Online	16	18.4%	
High & Online	15	17.2%	
Speak Spanish outside the classroom			
No	57	65.5%	 ■ No ■ Yes
Yes	30	34.5%	
Chronologic Age			
16 – 20	28	32.2%	 ■ 16 – 20 ■ 21 – 25 ■ 26 – 30 ■ 31 - 40
21 – 25	42	48.3%	
26 – 30	14	16.1%	
31 - 40	3	3.4%	
Studying Spanish			
1 year or less	31	35.6%	 ■ 1 year or less ■ 2 – 3 years ■ 4 – 6 years ■ 7 years and more
2 – 3 years	36	41.4%	
4 – 6 years	18	20.7%	
7 years and more	2	2.3%	

Appendix U: Result of Common Method Variance

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.602	29.484	29.484	5.602	29.484	29.484
2	3.179	16.734	46.218			
3	1.539	8.103	54.321			
4	1.369	7.208	61.528			
5	1.169	6.151	67.679			
6	.926	4.872	72.551			
7	.797	4.196	76.747			
8	.652	3.430	80.177			
9	.584	3.072	83.249			
10	.555	2.920	86.169			
11	.513	2.701	88.870			
12	.450	2.370	91.240			
13	.375	1.975	93.215			
14	.296	1.560	94.775			
15	.263	1.382	96.156			
16	.237	1.249	97.405			
17	.213	1.119	98.524			
18	.161	.848	99.372			
19	.119	.628	100.000			

Extraction Method: Principal Component Analysis.

Appendix V: Revised Items of the FTEQ based on Validity and Reliability Results

	Revised	Original
Challenge-Skill Balance		1. This task excited my curiosity
	This task aroused my imagination	2. This task sparked my imagination
Concentration		3. When doing this task, I thought about other things.
		4. When doing this task, I was totally absorbed in what I was doing.
		5. It was no effort to keep my mind on what was happening.
		6. I was completely focused on the task at hand.
Control	During this task, could make decisions about what to study, how to study it, and/or with whom to study.	7. I felt I could make my own decisions on how to complete the task
		8. During the task, I felt like I was given choices.
	I had a sense of freedom that I am in charge of my work.	9. I felt I was in charge of my work
Interest		10. This task was interesting on its own.
	The task was fun for me.	11. I enjoyed doing this task

		12. This task bored me.
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