

Assessment Strategies in Higher Education:  
A Case Study of Conestoga College's Fitness  
and Health Promotion Program

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## Abstract

### Assessment in Higher Education: A Case Study of Conestoga College's Fitness and Health

#### Promotion Program

The Fitness and Health Promotion (FHP) program is a relatively new program in the faculty of Health and Life Sciences and Community Services at Conestoga College in Ontario. The FHP program is designed to train and prepare individuals as qualified fitness and health consultants working in the fitness and lifestyle industry. Graduating students have the skills to complete standardized exams for accreditation. Although assessment is an essential component in higher education, the educators who are required to do it may not always understand it well. This single case study investigated the development and use of assessment tools and strategies in this higher education context through interviews with thirteen participants from three different stakeholder groups. In addition, this case study describes the perceptions around assessment of these stakeholders: educators, administrator and students. Professional development and training should be implemented for all stakeholder groups to resolve misunderstandings around assessment tools and strategies and to optimize feedback activities.

## Acknowledgements

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## Chapter I: Introduction

### Statement of the Problem

Assessment is important in higher education (HE; Praslova, 2010). Through high-quality assessments, educators are able to make inferences about students' knowledge and skills and use assessment results to guide instructional activities (DiDonato-Barnes, Fives, & Krause, 2014). Additionally, students can use assessment results to make judgements about their own learning (Taras & Davies, 2012). Although assessment is an essential component in HE, the educators who are required to do it may not always understand it well. Researchers note that minimal efforts are undertaken in HE to ensure that educators can collect and interpret "good" data (DiDonato-Barnes, Fives, & Krause, 2014). They also identify that most educators in HE have not received formal training in assessment and thus, they are apprehensive about the creation of student learning outcomes (a key component in assessment) and the subsequent assessment of them (Banta, 2004). Moreover, while Fletcher, Meyer, Anderson, Johnston, and Rees (2012) state that researchers have developed a substantial amount of theoretical literature on the principles and best practices of assessment in HE, there are few empirical studies on how assessment tools are actually being developed, used, and perceived by educators in HE.

Educators often think their assessments, especially those that are performance-based, are more authentic than they actually are (MacLellan, 2001; Verhoeven & Verloop 2002; & Wiggins, 1989). Additionally, in the few empirical studies that do exist, researchers have shown that educators cannot differentiate between the diagnostic, formative, and summative purposes of assessments (Scaife & Wellington, 2010; & Taras & Davies, 2012) or the terms *assessment* and *evaluation* (Taras, 2008). For instance, Taras (2008) and Taras and Davies (2012) found that educators had conflicting responses about the aim and application of formative and summative

assessment. Based on their findings, Taras and Davies (2012) concluded that there is a general lack of understanding about the purposes of assessment in HE (Taras & Davies, 2013). Confusion about the distinction between formative and summative assessment also has implications for the quality of student learning, educators' continuing professional improvement, and program evaluation. James (2003) notes that assessment is one of the least sophisticated aspects of teaching and learning processes in HE, and that ultimately, "much needs to be done to resolve misunderstandings and contradictions in the minds of university[/college] lecturers" (Taras & Davies, 2012, p. 188). Furthermore, DiDonato-Barnes, Fives, and Krause (2014) question why, in a time of heavily evidence-based practice, educators are not using empirically supported strategies to develop their assessment procedures and tools.

In fitness and health promotion (FHP) college-level programs, which include courses in anatomy, physiology, fitness assessment, exercise prescription, health promotion, lifestyle coaching, nutrition, marketing, and fitness leadership, assessment is mainly performance- or test-based with multiple choice, true and false, or essay items. The assessment results are important for accrediting professional organizations (e.g., Ontario Fitness Council), employers, and other stakeholders (e.g., clients, patients), as they expect graduating students to be appropriately prepared for the labour force (Allen, 2006; Bers, 2008; Brittingham, O'Brien, & Alig, 2008; Ewell, 2001). Assessment, specifically in this college setting, is critical for determining if students are prepared for employment in their chosen professions. Educators conduct assessment on a regular basis to ensure that their students are meeting the given course outcomes, that their programs are meeting industry standards, and that their teaching strategies are effective.

However, my review of the literature shows that researchers have not yet investigated assessment practices in FHP programs<sup>1</sup>. Instead, researchers have focused predominantly on the development and use of objective structured clinical examinations (OSCEs) in other health related professions (e.g., nursing, medicine) that are different from FHP. In comparison to other disciplines, FHP programs are relatively new and created in response to increasing societal interest in fitness and healthy lifestyles. Foundational to FHP programs is the combination of classroom theory, hands-on training, and real-world experiences. Educators in these programs typically devise their own assessment strategies and tools.

In order to add to the literature on assessment in this niche college context, resolve misunderstandings and contradictions in regard to assessment, as well as further understand the assessment strategies and tools that are developed and used in this context, I conducted a case study on assessment activities in the FHP at Conestoga College.

### **Research questions**

Given the concepts and issues explored in the above-mentioned problem statement, I used a single case study approach to investigate the following research questions:

1. How are assessment strategies and tools developed, used, and perceived by educators and administrators in one higher education context (i.e., Conestoga College's Fitness & Health Promotion Program)?
2. How are assessment strategies and tools perceived by students in one higher education context (i.e., Conestoga College's Fitness & Health Promotion Program)?

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<sup>1</sup> The search terms I used in this review included a mix of the following: "assessment", "assessment of student learning", "assessment tools", "assessment strategies", "student assessment", "teacher constructed tests", "higher education", "medical education", "health professions", "health sciences", "college programs", "perceptions", "fitness and health promotion", and "validity".

3. How do educators, administrators, and students use the results and interpretations generated from the assessment tools used in one higher education context (i.e., Conestoga College's Fitness & Health Promotion Program)?

### **Outline of the Thesis**

I have organized this study into five chapters. Chapter 2 provides a literature review of the key terms and concepts for this case study. Chapter 3 outlines the methodological approach of this study, including the research design, sampling, data collection, analysis, strategies for establishing trustworthiness, and ethical procedures. Chapter 4 details the study findings. Lastly, Chapter 5 discusses the key findings. It also notes the limitations of the study, contributions this empirical data adds to the published literature, implications this study has on assessment in HE, and some suggestions for future research.

### **Significance of this study**

This study contributes to research in four main ways. First, it provides empirical data on an area of research not heavily studied and thus provides valuable information on how key stakeholders in one FHP context develop, use, and perceive assessment strategies and tools. Second, this research provides insight into the factors and perceptions that lead to potential misunderstandings and contradictions in regard to assessment (Taras & Davies, 2012). Third, this study evokes reflection and self-awareness of assessment practices. This reflection is important as it is a key aspect of adult learning and growth, and can alter one's beliefs and perceptions about assessment. As such, this study may lead to changes in terms of how assessment strategies and tools are developed and used within selected HE contexts, especially FHP. Lastly, this research provides real world examples of how assessment is done in one HE context, bridging the gap between theory and what is actually happening in practice.

## **Chapter II: Review of the Literature**

The purpose of this chapter is to draw on and integrate the existing literature on assessment in HE to the FHP context. Fitness and Health Promotion programs are in their infancy, relative to other health professions, thus such programs have a lot to gain from a review of their assessment strategies and tools. Since research on assessment within FHP is limited, this review focuses on defining general concepts in assessment that are pertinent to the FHP and HE environments. First, this chapter outlines the four purposes of assessment in HE. Within this section, I present the importance of assessment in HE. Second, this chapter describes theoretical evidence for the development of assessment tools in HE, highlighting the use of backwards design and blueprinting. Third, it outlines the common types of assessment tools and items used in these contexts. Lastly, this chapter highlights existing research on educators', administrators', and students' perceptions of the development and use of assessment strategies and tools as well as their use and interpretation of assessment results.

### **The Purposes of Assessment in Higher Education**

Assessment tools in HE are developed and used for a variety of purposes (Fletcher, Meyer, Anderson, Johnston, & Rees, 2012). Typically, assessment is defined as a systematic method for collecting evidence about what students know and do at various stages of their academic careers (Ewell, 2006). A review of the literature reveals that there are four major purposes for assessment in HE. Assessment strategies and tools can be developed and used for diagnostic, summative, formative, and organizational decision-making purposes. In this sense, assessment can influence student learning and performance, curriculum reform as well as programming and institutional improvement.

Feedback generated from student assessment data is important because of its role in enhancing student success, retention, and satisfaction with HE (Eckel & King, 2004). Feedback will function differently depending on the learning environment, the needs of the learner, and the purpose of the assessment tool (Knight & Yorke, 2013 & Poulos & Mahony, 2008).

### **Diagnostic, Summative and Formative Assessment**

Diagnostic, summative, and formative assessment feedback is used to bridge the gap between the desired learning outcomes and actual performance (Lizzio & Wilson, 2008). The delivery, form, and context of the feedback are all important to consider (Ellery, 2008) as learning in HE is socially situated and knowledge generated from it is constructed through interactions with others (e.g., the educator and peers) (Evans, 2013). In HE, assessment feedback should be holistic and facilitative. The comments and suggestions made within the feedback allow students to make their own revisions and develop new understandings about the quality of their work, their level of competence, and areas where they need improvement (Archer, 2010). Price and O'Donovan (2006) suggest that feedback is the most important part of the learning process (Maggs, 2014). Feedback is seen as a “crucial way to facilitate students’ development as independent learners who are able to monitor, regulate and evaluate their own learning” (Ferguson, 2011 as cited in Evans, 2013, p. 72).

Diagnostic assessment is used as a preliminary method for gathering information on what students already know or do not know in relation to a specific topic. In HE as well as in other educational settings, diagnostic assessment is used to: (a) identify learning outcomes students have yet to master, (b) highlight specific topic areas where educators need to focus, and (c) delineate potential reasons why students have not yet mastered specific learning outcomes. With diagnostic assessment, the key focus is on identifying students’ existing learning deficits (Nitko & Brookhart,

2011). Assessment used for this purpose is important so educators can plan appropriate strategies and content.

Summative assessment, commonly referred to as ‘assessment of learning’ in HE literature, refers to assessment that takes place at the end of an educational process to quantify what students know (Airasian, Engemann, & Gallagher, 2012; Schuwirth & van der Vleuten, 2011 & Trotter, 2006). Tools used for this purpose commonly use quantitative scoring to measure whether students have mastered the given content and achieved the stated learning outcomes (Airasian et al., 2012 & Schuwirth & van der Vleuten, 2011). In HE, summative assessment strategies and tools are often used in high stake circumstances (Trotter, 2006) to determine if students: (a) attained the requirements for their degrees, (b) demonstrated their abilities to practice in a given field, and/or (c) qualified for selection/admittance into specific educational programs (Epstein, 2007; Fletcher et al., 2012; Hay, Tinning, & Engstrom, 2015). Bould (1995) points out, students cannot escape the impact of summative assessment due to their high stakes nature. Thus, it is important for students to have a clear understanding of what they need to do to be successful on such assessments. However, the pressure to do well on summative, high stakes assessments, can overpower aspects of the assessment that are designed to promote meaningful learning (Cilliers, Schuwirth, Adendorff, Herman & van der Vleuten, 2010).

Formative assessment, otherwise known as assessment for learning, is recommended by experts as something that should happen concurrently with summative assessment (Rolfe & McPherson, 1995; Wass, Van der Vleuten, Shatzer, & Jones, 2001 as cited in Carillo-de-la-Pena, Bailles, Caseras, Martinez, Orlet, & Perez, 2009). Assessment for learning is “an approach in which the assessment process is inextricably embedded within the educational process, which is maximally information-rich, and which serves to steer and foster the learning of each individual

student to the maximum of his/her ability” (Schuwirth & van der Vleuten, 2011, p. 478). The Higher Education Academy recognizes that excellent teaching includes the use of formative assessment (Trotter, 2006). Although formative assessment has received recognition in the school-based literature (Kindergarten to Grade 12), its empirical presence in the HE literature is somewhat limited. Between 1998 and 2008, there was an increase in research on assessment in HE but few publications focused primarily on the development and use of formative assessment (Scaife & Wellington, 2010). These limited publications highlight a research gap in the development and use of formative assessment in HE.

This lack of research is unfortunate, as successful formative assessment provides students with feedback they can use during their learning processes. More empirical evidence of good formative assessment would be welcomed as a resource for other educators who want to use evidence-based practices to improve their use of formative assessment. This feedback can be used as an indicator or motivation for future learning (Duers & Brown, 2009; Epstein, 2007; Falchikov, Sadler & Yorke cited in Weurlander, Soderberg & Scheja, 2012; Fletcher, et al., 2012; Taras & Davies, 2012). The results from formative assessment can provide benchmarks for students to monitor their own learning and progress towards reaching set learning outcomes (Epstein, 2007; Fletcher et al., 2012; Hay, Tinning, & Engstrom, 2015). Formative assessment also allows students to compare their desired performance to their actual performance and thereby allows them to reflect on ways for reaching their desired learning goals (Brookhart, 2003). Assessments developed for this purpose are integral in HE, as they also provide educators with essential information on how they can help students improve and achieve the learning outcomes of courses (Duers & Brown, 2009). Empirical examples of this are limited in the existing literature.

Carrillo-de-la-Pena et al. (2009) used three different disciplines (i.e., Medicine, Psychology, Biology) at four universities to provide insight about the relationship between formative and summative assessment. The study participants were students (N=548) who had the option of participating in only summative assessment or summative and formative assessment. If participants chose to participate in formative assessment, they were required to complete all formative assessment activities. The researchers conducted statistical analyses comparing those who only completed summative assessment and those who completed summative and formative assessment. This study found that those who participated in formative assessment, regardless of their level of success on the assessments, obtained better summative assessment results than those who did not complete formative assessment activities. Statistically, even those participants who failed the formative assessment performed better on summative assessment, illuminating that failure at the formative assessment stage was not a predictor of failure on the summative assessment activities (Carrillo-de-la-Pena et al., 2009). These findings reinforce the notion that receiving feedback from formative assessment influences the learning process, which in turn can provide favourable outcomes in summative assessment. However, it is important to also recognize that selection bias may have been a contributing factor, as students who understood how to use formative feedback may have been more inclined to participate in the formative assessment activities. Carrillo-de-la-Pena et al. (2009) suggest it would be interesting to explore the benefits of formative assessment in assessing practical skills and not only the acquisition of theoretical knowledge as was done in their study.

Taras (2008) and Taras and Davies (2012) also highlight the important role that formative assessment plays in HE. They found that few educators in HE were able to differentiate between formative and summative assessment, other than to stress that summative assessment is a “terminal

activity for official purposes” (Taras, 2008, p. 186). In 2008, Taras found that only twenty-eight percent of educators’ mention ‘feedback’ in their definition of formative assessment, despite seventy percent of educators saying they provide formative feedback to students. Moreover, only approximately half of the educators in their 2008 and 2012 studies thought that their students understood the concept of formative assessment. This fact is somewhat concerning as it implies that some students may be assessed using tools whose purposes they do not understand fully. Students’ misunderstandings of their required assessment activities has implications for assessment and students’ learning in HE (Taras, 2008). How can students be expected to understand such concepts when the educators who develop them have difficulty defining them and do not understand them fully? Furthermore, ungraded formative assessment is important because it allows learners to focus on their work without the pressure of grading (Black & William, 1998). Since it is the assessment takers’ right to have adequate information about the purposes of tests/assessment to properly prepare for such assessments (AERA et al., 2014), these above-mentioned findings are concerning.

Providing feedback to students in HE is undoubtedly valuable, however the type of feedback students receive is also important. In addition, although feedback is valuable, there is less clarity about why students are not always receptive to the feedback they receive (Maggs, 2014). Thus, Maggs (2014) proposes that feedback needs to be an ongoing dialogue throughout the learning and assessment processes. While there are many forms of feedback, the most common forms are generated through written comments, verbal comments, self-assessment, or peer-assessment. A report in 2007 from the British Broadcasting Corporation (BBC) showed that only 48% of Scottish students, who answered the National Student Survey (NSS), reported that they received timely feedback and that the feedback helped them to clarify areas they did not

understand. These findings and NSS results from other institutions became the foundation for Maggs' (2014) study, which aimed to investigate the levels of satisfaction with feedback among staff and students at a small HE institution. While the majority of staff reported that they felt students received enough feedback, they also reported that the majority of the feedback was only sometimes available to the students. Staff also reported that they were generally unaware of how students were using the feedback they obtained. Conversely, students reported that they were dissatisfied with assessment feedback, specifically the quantity and timing of it. Maggs (2014) notes that this difference in ratings between staff and students may be because, according to the staff, the most common reported method of delivering feedback was verbal in nature and thus, students may not have recognized this as formal feedback. Findings from this study suggested the need for: (a) staff training in the purpose of feedback, (b) staff training in how to deliver effective feedback; and (c) student training in the value of feedback and how to use it (Maggs, 2014). De Nisi and Kluger (2000) add feedback should focus on the task and task performance, not the person; and that feedback should not weigh on the relative performance of others in order to increase the receptivity of feedback by students.

In addition, Evans (2013) conducted a thematic analysis of the research evidence on assessment feedback in HE from 2000 to 2012. Evans (2013) found that : (a) feedback should be ongoing and an integral part of assessment, (b) assessment feedback should be explicit, (c) greater emphasis should be placed on feed-forward<sup>2</sup> rather than feedback activities; (d) students should be engaged in and with the process, (e) the technicalities (i.e., method of feedback delivery, timeliness of delivery) of feedback should be attended to in order to support learning, and (f) training in assessment feedback/forward should be an integral part of assessment design. Feedback

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<sup>2</sup> "The conceptualization of feedback as part of an on-going process to support learning" (Evans, 2013, p. 71).

in HE places large demands on educators, as it is a key requirement of HE to support access to and engage in high-quality feedback exchanges with students (Evans, 2013). That being said, there is no concrete evidence for or agreement on the “best method” for feedback in HE. Assessments in HE not only provide information and feedback for students and educators, they also provide information that can be used by institutions to inform policy and curriculum decisions.

### **Organizational Decision-Making.**

Assessment data that are generated from a variety of tools should not be used solely to assess student performance but also for institutional improvement (Peterson & Augustine, 2000). Barak and Sweeney (1995) note that assessments are integral parts of program reviews, whereby, aggregate assessment data can be used to inform educational program evaluations or as indicators of educators’ overall teaching effectiveness. Institutions can use assessment data to modify their overall teaching methods, to design new programs, or to revise current curricula (Peterson & Augustine, 2000). Unfortunately, to date there is a gap in the literature about institutions’ organizational and administrative efforts to utilize student assessment data for the improvement of institution-level academic decision-making (Peterson & Augustine, 2000). Assessments for organizational decision-making are part of institutional quality assurance and accountability processes (Barak & Sweeney, 1995). They can influence the quality and successes of educational programs as stakeholders (e.g., accreditation bodies) commonly require documented evidence of student learning and use it as a primary marker of the quality of academic programs (Allen, 2006; Ewell, 2001; Fletcher et al., 2012). If assessment data are used for programmatic and organizational purposes and the other purposes previously discussed it is important to ensure the results collected are valid.

## **The Development of Assessment Tools in Higher Education**

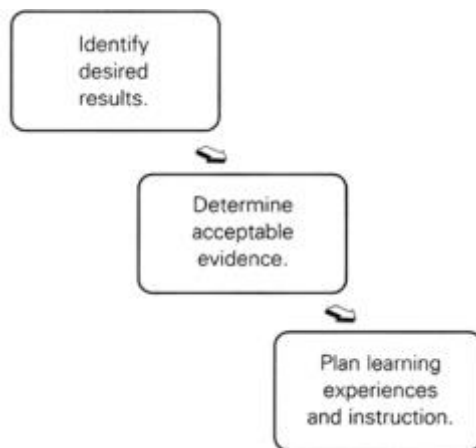
Given the purposes of assessment data, it is important to understand how stakeholders are using assessment strategies and tools in HE. As Stake and colleagues (2012) note, “Good decisions around assessment begin with a clear understanding of the ultimate purpose and use of assessment results” (p. 237). The development of effective assessment tools requires a systematic, organized approach that aligns with a clearly defined purpose (Downing, 2006). In developing assessment tools, educators should ensure that the results and interpretations generated from them are valid. Validity refers to the degree to which an assessment tool measures what it was intended to measure or operates as expected (AERA et al., 2014). For educators, validity is the degree to which they can trust the evaluations and judgements they make about students based on the quality of the assessment evidence gathered (Wolming & Wikstrom, 2010).

In order to enhance the validity evidence of assessment results and interpretations, Downing (2006) suggests the need to consider the following items when developing an assessment tool: (a) the purpose of it, (b) the population that it will be used with, (c) the content of it, (d) the format of it, (e) how it will be scored, (f) how it will be administrated, and (g) the ways in which its results will be used. It is important to document the processes used when developing assessment tools, as this documentation provides additional validity evidence for the inferences made from the results and interpretations of the tools. Establishing validity of assessment results is discussed in more detail below. Although the process used to develop assessment tools, including those in HE, is often less formal than the processes used to develop standardized assessment tools, it is still important to consider collecting validity evidence in the development of them (Stake et al., 2012). Below are two approaches to developing assessment tools in HE namely, backward design and blueprinting.

## Using backwards design to develop assessment tools.

One approach to developing assessment tools in HE is backward design. Backward design, a programmatic approach, is a method used to ensure alignment between learning outcomes, classroom activities, and assessment (Airasian et al., 2012). In backwards design, the learning outcomes of the course become the benchmark for assessment. The process of backwards design encourages educators to think about the assessment evidence they must collect to demonstrate that students achieved the various learning outcomes. Backwards design consists of three stages: (1) identifying desired results, (2) determining acceptable evidence, and (3) planning learning experiences and instruction as shown in Figure 1.

Figure 1



*Figure 1. Backwards Design. Adapted from Wiggins, G. & McTighe, J. (1998). Understanding by Design. <http://www.ascd.org/portal/site/ascd/template.chapter/menuitem.5d...62108a0c/?chapterMgmtId=4188fa36dfcaff00VgnVCM1000003d01a8c0RCRD>*

In stage 1, educators should ask the following questions to determine the desired results or learning outcomes: (a) What should the students know, understand and be able to do? (b) What is worthy of understanding? and (c) What enduring understandings are desired? (Wiggins & McTighe, 1998). When designing the learning outcomes established from stage 1, there are three domains to

consider namely, the cognitive, psychomotor, and affective domains (Airasian et al., 2012; Nitko & Brookhart, 2011). The cognitive domain includes intellectual activities such as memorizing, interpreting, analyzing, and problem solving. The psychomotor domain is comprised of physical and manipulative activities. Lastly, the affective domain involves feelings, attitudes, values, and motivation (Airasian et al., 2012; Nitko & Brookhart, 2011). Within these domains educators can use Bloom's Taxonomy (1956) (as cited in Nitko & Brookhart, 2011) and the revised version of it (Anderson and Krathwohl, 2001), to categorize the type of the intellectual processes required and in turn, create learning outcomes (Patel, Yoskowitz & Arocha, 2009).

Stage two of backwards design requires educators to consider what evidence they need to collect to show that the students have achieved the given learning outcomes. Different types of assessment should be used to collect this evidence based on the intellectual processes required by the student, as established in stage 1. The various types of assessment commonly used in HE and their purposes are described below. Backwards design helps educators to prepare the multiple methods of assessment they will use throughout the educational instruction to collect data in order to make a judgement about the students' performances (Wiggins & McTighe, 1998). In this way, assessments are planned at the beginning of the educational process instead of the end (Wiggins & McTighe, 1998). This "keeping the end in mind" approach ensures alignment between the learning outcome and assessment activities. The last stage of backwards design (stage 3) is where educators determine what instructional activities they will use to prepare students to master the course content and given learning outcomes. Classroom activities should align with the type of domain and the appropriate cognitive level, as determined by the educator in stage 1.

### **Using blueprinting to develop assessment tools.**

Another approach, blueprinting, can help ensure that assessment activities truly reflect the learning outcomes defined at the beginning of the educational process (stage 1). Blueprinting is a useful strategy for developing assessment tools in HE. Blueprinting assists educators in aligning learning outcomes with instructional and assessment activities (Stake et al., 2012). When developing tests, an educator needs to ensure that the test measures an adequate sampling of the class content at the cognitive level it was taught (DiDonato-Barnes, Fives & Krause, 2014). A table of specifications is a matrix outlining the topics covered, the amount of time dedicated to each topic and the cognitive level at which each topic was taught allowing for an appropriate amount of assessment items to be created for each topic. A blueprint or ToS, as Fives and DiDonato-Barnes note:

Can help teachers map the amount of class time spent on each [learning] objective with the cognitive level at which each objective was taught thereby helping teachers to identify the types of items they need to include on their tests. (p. 1)

The higher the stakes of the assessment scores, the greater the detail educators should include in their blueprints (Downing, 2006). Blueprinting is an example of how educators can provide content evidence to support the validity of assessment results and interpretations.

### **Establishing the validity of assessment results.**

One important thing to consider in the development of assessment tools for HE is whether the results and interpretations generated from the assessment tool are valid. As Fives and DiDonato-Barnes (2013) highlight, “It is important to understand that validity is not a property of the test constructed but, of the inferences made based on the information gathered from [the] test” (p.1). As such, in contrast to the classical conceptualization of validity, where validity is a

possession of the instrument itself (e.g., “validated instrument”) and has distinct types (e.g., content, criterion, construct), the modern conception of validity presents it as a unitary concept and as the degree to which evidence supports the intended interpretation of assessment scores for a given purpose (AERA et al., 2014).

The Standards for Educational and Psychological Testing (2014) describe five forms of validity evidence namely, content, internal structure, response process, relationship to other variables, and consequences. Content evidence refers to the themes, wording, and format of the items, tasks or questions on an assessment tool (AERA et al., 2014). Response process refers to how respondents interpret, process and elaborate upon item content. That is, what is their understanding of what the assessment item is asking and, subsequently, how they respond to it. Internal structure indicates, “the degree to which the relationships among test items and test components conform to the construct on which proposed test score interpretations are based” (AERA et al., 2014, p. 16). Relationship to other variables describes the relationship of assessment scores to variables external to the assessment tool. Lastly, intended and unintended consequences must be considered in the development of assessment tools (AERA et al., 2014). While it is unlikely that educators in HE will obtain support for all five forms of validity evidence for assessment tools that they are developing and using, they should aim to collect as many sources of evidence as possible (AERA et al., 2014). For example, educators can take steps such as defining the purpose of their assessment tool, using backwards design and blueprinting, collaborating with others (experts), documenting the development process, and piloting the tool to establish the content validity evidence. In terms of response process, they can ensure that their students are interpreting the assessment items as intended by piloting questions and asking them what they think the questions are asking.

## **Common Types of Assessment Items and Tools used in Higher Education**

To adequately provide content evidence and effectively use blueprints or tables of specification educators must have a good understanding of the types of assessment items and tools they are using as well as a strong understanding of the proper guidelines for the construction of these items and tools. Educators in HE can use various types of assessment items and tools to assess their students, with varying degrees of authenticity. Below, I provide a brief overview of some of the common types of assessment items and tools that are used including, their strengths and limitations.

To prepare students for “practice” or the workplace, assessment in HE needs to be authentic. Authenticity, as defined by Gulikers, Bastiaens, and Kirschner (2004), focuses on assessments that resemble students (future) professional practices. Authentic assessment is used in HE to stimulate deep learning and the development of professionally relevant skills (Bould, 1995; Gulikers, Bastiaens, & Kirschner, 2006; Tillema, Kessel, & Meijer, 2000). Authentic assessment should resemble the real-life work context of a profession and be perceived by the educator and students as real (Gulikers, Bastiens, Kirchner, & Kester, 2008). Educators use different types of assessment items in HE. Although some of these items can provide a high level of authenticity, they still require educators to be diligent and rigorous in the development of them.

Miller’s Pyramid (see Figure 2), a pyramid representing the different levels of competence in the health professions, can be useful in the development of assessment tools and items. It is divided into four tiers building from the base to the apex in the following order: *know*, *knows how*, *shows how and does* (Al-Eraky & Marei, 2016 & Miller, 1990).

The tapering at the top of the pyramid implies that fewer instruments are available to assess

Figure 2: Miller's Pyramid

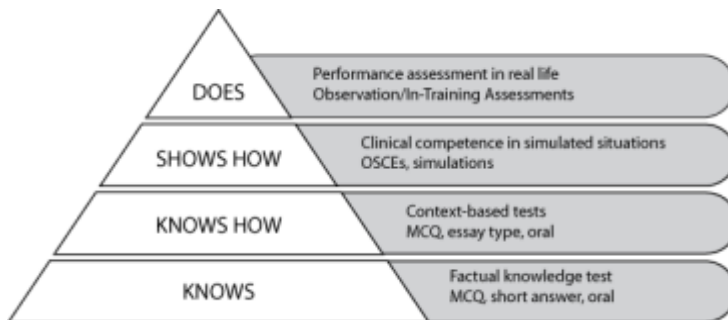


Figure 2. Miller's Pyramid. Adapted from Australian Medical Council Ltd. Workplace-based assessment – what is it? Retrieved from: <http://wbaonline.amc.org.au/about/> on April 18, 2017.

competence and performance (Al-Eraky & Marei, 2016). Moreover, “the higher the skills being tested in the pyramid, the more clinically authentic the assessment needs to be” (Al-Eraky & Marei, 2016, p. 1253). Educators in health sciences should choose assessment items based on the tier of Miller's Pyramid they are trying to measure. In practice-oriented health sciences program, like FHP, it is imperative that educators focus on the *shows how* tier in their assessment tools and items.

### **Performance Assessment.**

In health sciences, performance-based assessment has become increasingly popular (Berendonk, Stalmeijer, & Schwirth, 2013; and Ryan, 2006). Performance assessments require students to create a product or demonstrate knowledge in a meaningful and contextual setting (Airasian et al., 2012; Norcini & McKinley, 2007), whereby they are doing more than just the recollection of knowledge (Falchikov, 2005 and Carraccio, 2002 cited in Weurlander, Soderberg & Scheja, 2012). The rise in the use of performance-based assessment can be attributed to its ability to measure higher order thinking skills and deep understanding of concepts as well as communication and interpersonal skills (Berendonk, Stalmeijer, & Schuwirth, 2013; and Ryan, 2006). The goal of performance assessment is to determine if students are competent to perform

skills and tasks in a real-life workplace settings. For performance assessment to be successful (in the HE context) it needs to be authentic. Otherwise, students may not be prepared for the workplace. McMillan (2001) also recognizes that “well-constructed performance assessments often involve authentic, real-world problems that help students demonstrate their ability to apply academic knowledge to practical situations” (cited in Ryan, 2006, p. 98).

A performance assessment must have two components: (a) the performance task itself, and (b) an instrument/tool to guide the scoring of the performance (Nitko & Brookhart, 2011). In designing the scoring rubric or checklist, the purpose of the assessment and learning outcomes should be clear. Educators must also clarify if they are assessing the process or product. In assessing process, they are looking for evidence that the way the activity was carried out meets the stated expectations. When assessing the product, the steps the students took are not necessarily assessed only the final product.

Three types of performance assessments commonly exist in HE, including those that are structured-on-demand, use simulations, or are naturally occurring. Structured-on-demand assessments require the educator to specify the task and materials that the students will use and describe the outcome(s) to students *a priori*. The right or best way to complete the task should be transparent between the students and the evaluator(s) (Airasian et al. 2012; Nitko & Brookhart, 2011).

Simulations, on the other hand, provide students with authentic and contextually relevant settings for the performance tasks (Holmboe, Sherbino, & Long, 2010). They can involve the use of standardized patients/clients or computers (Norcini & McKinley, 2007). These demonstrations focus on how competent students are at completing selected skills, rather than their abilities to explain their own thinking (Nitko & Brookhart, 2011). The development of simulations usually

involves field experts and assessors who are specifically trained in the complexity of the performance assessment tasks (Norcini & McKinley, 2007).

Lastly, naturally occurring performance assessments observe students in their natural settings; they observe the way the students would typically perform a specific process (Airasian et al., 2012). Workplace assessment is a form of naturally occurring assessment and can differ across worksites (Nitko & Brookhart, 2011; Norcini & McKinley, 2007). A naturally occurring performance is the most authentic. The difficulty in naturally occurring assessment is that you often have to wait for the opportunity to arise to assess the particular activity you are looking to assess. Thus, naturally occurring performance assessment is not always feasible (Nitko & Brookhart, 2011). The major advantage to performance assessment is that it lends itself to assessing students' abilities to do something. Disadvantages to performance assessment are that they are complex to create, time consuming, and can be expensive. In addition, it is hard to guarantee that the way a student performs a task on one occasion is representative of how they will always perform that task. Although naturally occurring assessment may not always be feasible there are steps educators can take to make their non-naturally occurring performance assessments as authentic as possible.

### **Selected Response Assessment Items.**

Educators also use selected response assessment items in HE assessment. Selected response items require students to select the most correct answer from a list of supplied answers, rather than constructing or developing their own response. These types of assessments are typically used to measure knowledge and attributes in the lower levels of Miller's Pyramid. Types of selected response assessment items are true and false, matching, and multiple choice. True and false items ask students to make judgments about whether statements are true or false. With true

and false items, it is important to develop statements that are not trivial or ambiguous. It is well known that students can guess on true and false items due to their 50/50 chance of answering them correctly (Nitko & Brookhart, 2011). Matching items give the students premises and responses on an assessment, whereby the students must match them given the criteria in the proposed question (Nitko & Brookhart, 2011). Multiple choice items consist of an introductory sentence (stem) followed by a list of two or more suggested options comprised of the correct answer and distractors. Selected response items are objective, easy to mark and sometimes include pictures, maps, and diagrams. Due to students being able to use rote memorization to answer less sophisticated selected response type items, they are more commonly used for lower level thinking skills. Nevertheless, skilled educators and assessment tool developers can use selected response to assess comprehension (Nitko & Brookhart, 2011) and the *knows how* tier of Miller's Pyramid. Multiple-choice items, used often in HE, are praised for their ability to often produce results that have high reliability (Epstein, 2007). With training in item development, the multiple-choice format allows educators to measure a variety of learning targets and higher order thinking skills (Epstein, 2007), while eliminating the need for students to write out elaborate answers (Nitko & Brookhart, 2011).

### **Constructed Response Assessment Items.**

Opposite to selected response assessment items, constructed response items require students to produce answers. They are commonly included on classroom tests in health professions to measure the *knows* and *knows how* tiers of Miller's Pyramid. Short answer and essay items, two commonly used construct response items, require students to complete items with words, phrases, numbers, and symbols. These constructed response items are not free of subjectivity, as educators

cannot anticipate all possible responses students will give. In addition, spelling and grammatical errors can complicate scoring (Nitko & Brookhart, 2011).

## **Perceptions about Assessment in Higher Education**

### **Educators' and administrators' perceptions.**

Educators' and administrators' attitudes towards and perceptions of assessment can be contradicted by actual practice. Fletcher et al. (2012) found educators view assessment as a method for improvement, for both student learning and teaching strategies. Moreover, while educators acknowledge that assessment data can be used to inform their teaching strategies, they often do not use it for this purpose in practice (Fletcher et al. 2012). Work by MacLellan (2001) also supports this notion. More specifically, their survey of 80 students and 130 educators at a HE institution revealed that only 41% of educators felt that assessment was frequently used to improve and evaluate teaching, while students felt it was even less commonly used for this purpose. Other findings from this study showed that educators and students agreed that: (a) the most endorsed purpose of assessment was to grade or rank student achievement, (b) students were never assessed at the beginning of a module, (c) assessment typically happened at the end of the module, and (d) feedback was important to improve learning (MacLellan, 2001). These findings reinforce the need to gain a clear understanding about the use of results and interpretations of assessment strategies and tools.

In depth interviews with educators at one Community College in the United States gathered information about the barriers associated with assessment (Banta, Black, Kahn, & Jackson, 2004). One of the major reported barriers was the perception that assessment is a one-time, end-product activity rather than a tool for improving learning (Berger, Kluber, & Schubert, 1998) when educators assign a grade to the assessment. In opposition, Fletcher et al. (2012) found that faculty

members had one of two beliefs: either faculty viewed assessment as a way of encouraging critical thinking and informing the learning process or they simply used assessment to test students' abilities to reproduce information. Moreover, emerging themes from the work by Scaife and Wellington (2010) about educators' perceptions about assessment found that educators were sometimes confused in regard to the use and understandings of assessment terms, that they often used diagnostic assessment techniques unconsciously, and that assessment activities were educator-specific (not uniform across programs). Most importantly, during the analysis of educator interviews, Scaife and Wellington (2010) found that assessments often had unintended consequences for students such as motivational, attitudinal, behavioural, and social consequences, which influence the learning process. As such, Scaife and Wellington (2010) argue that educators need to be aware of their intended purposes and that they need to better align assessment practices with these purposes to minimize unintended consequences.

### **Students' perceptions.**

In contrast with educators' perceptions of assessment in HE (a method for improvement), students often see assessment as tool for accountability at the student and institutional level (Fletcher et al. 2012). Given the high stakes nature of assessment in HE, the students use the results and interpretations of assessments to gauge whether they will graduate. In the study by Fletcher et al. (2012) students reported assessment as irrelevant, unfair and said it was often ignored by administrators and educators as a source of evidence in organizational decision-making. Similarly, a review by Struyven, Dochy, and Janssens (2005) found that students believed traditional assessment (i.e., multiple choice, essay items) to be an "inaccurate, unfair measure of learning" (p.333). When researchers compared traditional assessment to alternative methods of assessment (i.e., portfolios, performance assessment) students favoured the alternative assessment because it

rewards students' efforts for trying to understand and not just reproduce information (Sambell, McDowell, & Brown, 1997). Alternative assessment is recognized as "fairer" by students because it appears to measure qualities, skills, and competencies (Sambell et al., 1997). From the students' perspectives, Sambell et al. (1997) found that in order for assessment to be fair, it needs to meet five criteria: "(1) be related to authentic tasks; (2) represent reasonable demands; (3) encourage students to apply knowledge to realistic contexts; (4) emphasize the need to develop a range of skills; and (5) be perceived to have long-term benefits" (p. 337) (cited in Sruyven et al. 2005). In addition, Drew (2001) as cited in Sruyven et al. (2005) found students want clear expectations and assessment criteria as well as effective feedback. When considering student perspectives, it is important to note that their perceptions of "fair" and "appropriate" may be influenced by their personal experiences with assessment, their skill levels, and preferences towards learning (Stuyven et al., 2005).

Scaife and Wellington (2010) interviewed 60 students regarding their perceptions about FA and diagnostic assessment. The key themes included the following: (a) students want feedback and lots of it, (b) students are not only concerned with a "grade", and (c) they think diagnostic assessment is infrequent. Students' remarks about feedback included the idea that feedback should specify where they went wrong and how they can improve. They also believed that there should be small assessments throughout their educational programs that do not count towards the final grades (Scaife & Wellington, 2010). Moreover, Scaife and Wellington (2010) found that students were anxious to find out how they did, and that feedback should be made available in an efficient manner so they can make improvements to their future work.

In summary, assessment strategies and tools in HE can vary greatly. It is the role of the educator to determine the most appropriate and effective assessment strategy(ies) and tool(s). The

purpose of these assessment strategies and tools should guide the development and subsequent use of assessment results. For example, if an educator is aiming to provide feedback to students on how they can improve they should prioritize the use of assessment results for formative purposes. Whereas, if an educator is aiming to make judgements about student competence, they should prioritize the use of assessment results for summative purposes. As described above, there are steps educators can take to ensure there is alignment between their assessment strategies/tools and course outcomes. The perceptions around assessment strategies and tools, the use of assessment results, and the interpretations of them influence the effectiveness of assessment strategies and tools. Overall, assessment strategies and tools in HE are complex. Many factors go into the development of assessment strategies and tools and their use has implications for student learning.

### **Chapter III: Methodology**

This chapter provides an overview of the philosophical assumptions of the present study and rationale for using a case study to explore assessment strategies and tools in one HE context. This chapter describes the research context (Conestoga College's FHP program) and criteria for participant selection. It outlines the research design, including the instrument development, data collection procedures, and methods for data analysis. Lastly, this chapter provides the steps taken to ensure the trustworthiness of the study findings.

#### **Philosophical Foundations**

For this research study, I assumed a constructivist worldview. In constructivism, researchers aim to gain an understanding of the world in which they live and work. The researcher relies as much as possible on the participants' views of the topic, while recognizing that their own backgrounds shape their interpretations (Cresswell, 2014). The interview questions that I used were broad, general, and open-ended, allowing participants to construct their own meanings of the topic (Cresswell, 2014). Three assumptions are held in constructivism: (1) human beings construct meaning as they engage with the world they are interpreting, (2) humans make sense of their world based on their historical and social perspectives, and (3) the basic generation of meaning is always social and arises out of interactions with others and the community (Creswell, 2014). In constructivism, unlike post-positivism, the researcher does not start with an existing theory. Instead, the researcher uses multiple participants' meanings to generate a theory on the given topic (Cresswell, 2007). Consistent with a constructivist worldview, I used a qualitative case study design.

## **Research Design and Rationale for Using Case Study**

I used a qualitative case study research design informed by Yin (2014) and Creswell (2007) to explore the views and perceptions of educators, administrators, and students on assessment strategies and tools used in HE. I chose to use a case study because it allowed me to examine this contemporary phenomenon in depth and within its real-life context. Using a single instrumental case study, I was able to study this topic through one HE program, Conestoga College's FHP program (Creswell, 2007). One-on-one interviews with representatives from three different assessment stakeholder groups (i.e., educators, administrators, students) enabled me to collect multiple sources of information on this topic (Creswell, 2007). Through interviews with multiple stakeholders, I was able to converge multiple sources of evidence to produce reliable findings (Yin, 2014). Through this design, I was able to make sense of assessment in HE, as experienced by those who develop assessment strategies and tools in this context as well as by those who use the results and interpretations generated by the given assessment strategies and tools. That is, I was able to explore closely these stakeholders' development, use, and perceptions of assessment strategies and tools as well as the results and/or interpretations they generated from them. Through this type of exploration, I was able to obtain data that are authentic and based on real-life experiences.

## **Researcher as Instrument**

As the principal investigator, I was aware of my previous experiences, as a graduate of and teaching assistant at Conestoga College's FHP. I also recognized that I established my knowledge of assessment in HE through coursework at the University of Ottawa. Throughout this study, I was conscious to keep my experiences separate from those that I interviewed. However, in line with

the constructivist worldview, I recognized that my own background and experiences helped shape the interview questions and how I made sense of the participants' answers.

### **Description of the Research Context**

Conestoga College is located in Kitchener, Ontario. I conducted this study with educators, an administrator, and students in their FHP program, which is one of 17 FHP programs in the province of Ontario. This FHP program is part of the School of Health and Life Sciences and Community Services. The FHP program is designed to train and prepare individuals as qualified fitness and health consultants working in the fitness and lifestyle industry. Graduating students have the skills necessary to assess and monitor health and fitness levels and to prepare safe and effective programs to meet client needs and interests (Conestoga College, 2016). The FHP program courses are offered in the Cowan Health Sciences Centre<sup>3</sup> located at Conestoga College to offer students opportunities to engage with simulation. The Centre aims to provide active and real-life learning and includes practice labs (one specially designed as a hospital), an apartment, an applied sciences lab, and open access lab for practice, an emergency station, a communication skills suite, an assisted living suite and a cross center for simulation learning. The simulation learning is equipped with computerized talking humans. The participants reported how the growing availability of simulation influences the development of their assessment strategies and tools, as it has made their assessment practices “increasingly authentic” (EA1). Simulation in FHP is not near as advanced as the other programs at Conestoga College, but they are working with the administrator to begin use of the communications suite to assist with motivational interviewing and lifestyle coaching, as examples. They are also going to be introducing the use of standardized patients for performance

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<sup>3</sup> A tour of the Cowan Health Sciences Centre is available on YouTube (<https://www.youtube.com/watch?v=aq5Hjshbqao>). The FHP fitness assessment and exercise prescription labs are newer additions to the Cowan Health Sciences Centre and are not featured in the video.

assessments within the program. This FHP program accepted its first full round of students in September 2009. At present, there are 68 students in this program. The program duration is 2 years, where at the end of the program successful students receive a diploma. Table 1 provides a list of all major program outcomes as per the Ministry of Training, Colleges and Universities Vocational Standards. Table 2 provides a list of the courses included in the program. All students are required to complete all courses listed in Table 2 for a total of 22 courses plus a one month field placement. For each course the class size is approximately 34. For example, a student may not have to complete College Reading and Writing Skills if they have already attained a BA. Graduates from this program are prepared to enter the work force or other educational programs. They are also eligible to take standardized tests for accreditations with, for example, the Ontario Fitness Council (OFC). When FHP program graduates obtain accreditation with OFC, they are recognized as Registered Health and Exercise Practitioners (RHEP).

Table 1

*Fitness and Health Promotion Program Outcomes at Conestoga College*

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Program Outcomes
<ul style="list-style-type: none"> <li>• Conduct assessments of fitness, well-being, and lifestyle for clients and effectively communicate assessment results.</li> <li>• Prescribe appropriate physical activity, fitness, and active living and lifestyle programs to enhance health, fitness and well-being of clients.</li> <li>• Utilize appropriate interviewing and counseling skills to promote or enhance health, fitness, active living, and well-being of clients.</li> <li>• Collaborate with individuals in the selection and adoption of strategies that will enable them to take control of and improve their health, fitness, and well-being.</li> </ul>

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- Develop, implement and evaluate activities, programs, and events which respond to identified needs and interests of clients and maximize the benefits of health, fitness and well-being.
  - Train individuals and instruct groups in exercise and physical activities.
  - Contribute to community health promotion strategies.
  - Assist in the development of business plans for health and fitness programs, activities, and facilities.
  - Implement strategies and plans for ongoing personal and professional growth and development.
  - Develop and implement risk management strategies for health and fitness programs, activities, and facilities.
- 

Table 2

*Fitness and Health Promotion Program Courses at Conestoga College*

Semester	Course Schedule
1	College Reading and Writing Skills Group Fitness and Leadership Skills I: Program Design Exercise Science I Fitness Assessment and Exercise Prescription I Introduction to Nutrition
2	Entrepreneurship and Business Practices of Fitness and Health Promotion Group Fitness Leadership II Exercise Science II Fitness Assessment and Exercise Prescription II Lifestyle Psychology and Behaviour Change
3	Exercise Science III: Adaptations & Pathophysiology Fitness Assessment and Exercise Prescription for Diverse Populations Motivational Interviewing and Coaching Health Promotion I Nutrition for Health Performance Campus Internship I

	Safety in the Workplace
4	Applied Motivational Interviewing and Coaching Applied Fitness Assessment and Exercise Prescription Management and Professional Practices Health Promotion II Campus Internship II Field Placement

*Note.* The program duration is two years; each year is defined by two semesters; the program encompasses four semesters in total.

### **Participant Selection**

I invited all full (N =2) and part-time educators (N =2) as well as the administrator (i.e., Program Chair) of the FHP program to participate in the study. I also invited the 68 students enrolled in the FHP program to participate. For case study research, Creswell (2014) suggests that a researcher typically needs 20-30 participants. However, Charmaz (2006) also notes that data collection should continue until the researcher reaches data saturation. Data saturation occurs when no new categories or themes emerge from the collected data (Charmaz, 2006). Given the limited participant pool of this niche context, my aim was to reach data saturation rather than the recommended 20-30 participants. As such, after interviewing three educators, one administrator, and nine students, I was able to obtain data saturation (i.e., the point where no new information emerged).

### **Participant Characteristics**

In total, thirteen participants from Conestoga College's FHP program participated in the study. Of the educators and administrator (N=4) who participated, two were male, one had 1-2 years of experience, one had 3-5 years of experience, and two had over five years of experience. In terms of the students, six were male and all had completed at least one semester in the FHP program.

## **Instrument Development**

I developed three interview guides –one for each participant group. Three assessment and HE PhD-trained experts, who were not participants in the study, reviewed the guides for clarity and relevance. In addition, I piloted the designated interview guides with two educators and two students from the Faculty of Education at the University of Ottawa, who have assessment experience, to ensure that the questions were clear and elicited data to answer my research questions. Following this review and pilot, I made minor modifications to the guides. These modifications included changing the language of some questions and adding additional sub-questions. For example, asking educators “How do you differentiate between teaching strategies and assessment?” and “How do you think students are using the feedback they receive?”. The final educators’, administrators’, and students’ interview guides included 8, 4, and 7 major questions respectively, with several probes to clarify the questions for the participants (see Appendix A, B, & C).

## **Data Collection Procedures**

I obtained ethics approval for this study from the ethics board at the University of Ottawa (see Appendix D). Additionally, I was granted ethics approval from Conestoga College’s ethics committee (see Appendix E), after receiving permission to conduct this study from the Chair of Health Sciences at the College (see Appendix F). The Program Coordinator for the FHP Program was the Local Research Investigator (LRI) at Conestoga College. This LRI identified all eligible participants and distributed an information letter (see Appendix G & H) to them about this study via their designated listservs. The information letter instructed those who were interested in participating to contact me to obtain more information about the study. I conducted the one-on-one interviews with the study participants. One interview was conducted in-person, in a private

location, at the participant's convenience. For the 12 participants who could not participate in-person, I conducted their interviews by telephone. The study involved cycles of simultaneous data collection and analysis, meaning that the findings of ongoing data analysis informed subsequent data collection (i.e., the addition of new interview questions based on emerging themes) as well as whether follow-up interviews were needed. All preliminary interviews with educators and administrators were approximately 60 minutes long, whereas the student interviews lasted approximately 30 minutes. I conducted three follow-up interviews with students to gain a more in-depth understanding of their experiences. All interviewees provided informed consent either by signing the consent form (see Appendix I & J) or giving verbal consent prior to the interview (telephone participants). Structured as a question and discussion session, each interview was audio-recorded and transcribed verbatim for analysis. To ensure the trustworthiness of my interview analysis, I emailed the participants their transcripts to review for accuracy prior to coding them.

### **Data Analysis**

I analyzed the interview data using Miles' and Huberman's (1994) three concurrent activities—data reduction, data analysis, and conclusions/verifications—to inform my cyclical and iterative analytic process. I completed all analysis by hand. Immediately following each interview, I summarized the key points and identified additional questions or probes for subsequent interviewees or potential follow-up interviews. Upon completion of all the interviews, I began data reduction. First, I created a starter coding system based on my research questions and the key concepts in the reviewed literature (see Appendix K). For dependability, another researcher (KM) with experience in health promotion assisted me in creating the coding system and conducting the analysis. I followed Miles' and Huberman's (1994) recommendation and had this other researcher

independently code two randomly selected transcripts using my existing coding structure. We then met to compare our coding and adjusted my coding as needed. For the purpose of this initial analysis, I used free codes, which do not assume relationships with any other concepts, as labels for the emerging themes that I found in the interviews (Miles & Huberman, 1994). Next, I read each interview several times, highlighted phrases within the transcripts relevant to my research questions, and coded the data using my starter coding system. At this point, I also allowed for codes that I did not identify *a priori* to emerge from the data (Glaser & Strauss, 1967). This mix of deductive and inductive coding ensured that I did not miss any key ideas. When needed, I also merged my free codes and created tree codes, which are hierarchical structures with categories and sub-categories. To ensure confirmability, I documented all coding steps and decisions to leave an audit trail and make it possible for someone to review my analysis and understand the shifts in my thinking (Bazeley, 2007). Finally, I explored the relationships between the various codes as well as the various interview transcripts to identify patterns and themes across the codes, interviews, and participant groups. Throughout my analysis, I aimed to produce rich descriptions and findings that could be adequately transferrable to similar contexts.

## **Chapter IV: Findings**

Chapter four delineates the findings to my above-mentioned research questions. Given that it is a single-case study, the themes presented represent the dominating and united views of all the participants. Such merging of the findings gives a real-life depiction of what is actually happening in regard to assessment within this one HE context. Following Yin's (2014) procedures for reporting case studies, this chapter uses participant quotes as exemplars to explain the given themes.

### **Educators' Formal and Informal Training in Assessment**

Two of the three educators described how they obtained their assessment training through their Master's of Education. All full-time educators also noted that they received assessment training from the College Educator Development Program (CEDP), which is a three-phase training conference with a variety of educational workshops. The educators noted how they were required to complete the mandatory CEDP. As one educator described, the CEDP is a "conference thing with other colleges and there are just various workshops there as well on multiple different teaching strategies, classroom management, and then there's also assessment evaluation ones as well" (EA1). Another educator elaborated on the assessment component of the CEDP by stating how "they [the workshops] will be specific to how do you make multiple choice tests more application-based versus memorization or recognizing content...workshops on how do you tie assessment to your course outcomes" (EA2). Moreover, the educators noted professional development workshops that are available to them at Conestoga College. They reported completing workshops on, for example, the validity of multiple-choice questions, as well as the formatting of accessible assessment tools (for inclusive education). The training opportunities described focused heavily on multiple-choice assessment items. While one educator reported that

he/she had not attended many professional development workshops offered by the college, the other two reported they had participated in several workshops. Moreover, one of the participants who engaged in multiple professional development activities, including CEDP, felt they had “no formal training in assessment” (EA2). The participants noted, especially for part-time educators that, “they don’t know about [the workshops] because they don’t get emails and such and they’re not kind of at the college all the time hearing about that stuff” (EA1). Lastly, the educators reported how they learn about assessment from their colleagues: “when you talk to faculty members, people will kind of discuss their processes or what they have found works, so that’s more informal” (EA2).

**Major Research Question 1: How are assessment strategies and tools developed, used, and perceived by educators and administrators in one higher education context?**

**Development of assessment strategies and tools.**

The educators explained how “Administration” plays a supporting role in the development of their assessment strategies and tools to ensure that they develop and use strategies and tools that align with the institutional and program standards of the College. The FHP administrator mandates, encourages, and reviews how educators develop their assessment strategies and tools.

Within this niche context, the educators and administrator discussed how simulation-based learning and assessment is also gaining momentum as it portrays “a high level of reality through the use of standardized patients” (EA4). As such, the educators and administrator in this study explained how the Chair of Health Sciences at Conestoga College, who directs the simulation program, assists them in the development of their assessment strategies and tools. For example, a participant described how the administrator has an open-door policy where the educators can ask questions and receive feedback regarding the assessment strategies they develop. In addition,

although educators do not have scheduled growth sessions<sup>4</sup> regarding assessment, it does come up during their performance reviews. The educators and administrator reported how the availability of simulation influences the development of their assessment strategies and tools, as it has made their assessment practices “increasingly authentic” (EA1).

To develop assessment strategies and tools that meet the administrators’ standards as well as those that can be used within a simulated environment, the educators in this study reflected on how in FHP: (1) educators use backwards design to develop their assessment strategies and tools, (2) educators try to develop assessment strategies and tools that resemble real-life situations, and (3) educators evolve the development of their assessment strategies and tools over time.

*Educators use backwards design to develop assessment strategies and tools.* The educators and administrator alluded to the concept of backwards design in describing the development of their assessment strategies and tools. They noted how they use their “learning outcomes” as well as “try very hard to rely on course outlines [which include the intended learning/course outcomes to students]” (EA3) when they develop their assessment strategies and tools. All educators reported how Conestoga College encourages them to use backwards design in their development processes, as a strategy to align their assessments with their course learning outcomes. Describing his/her development processes, a participant stated how he/she is always thinking:

How can I make this...assessment piece...relevant, is it a course outcome? ...So, I’ll look at that and tie the outcome to it and make sure it makes sense and then look back and say okay now what do I have to do to make sure that the students have the skills to demonstrate that course outcome in this evaluation piece. (EA1)

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<sup>4</sup> Feedback/learning sessions to help individuals grow professionally and personally

Similarly, another educator explicated his/her backward design process by stating "... developing my multiple-choice exam for the theory part of group fitness leadership, I will work backwards from the sense this is what they need to know theory-wise to be a good instructor" (EA2).

While using backwards design, the educators also described how they use Bloom's Taxonomy. For example, one educator expressed, "if we use Bloom's Taxonomy or what have you...if [the assessment] is practical [the course outcome] will say practice or demonstrate. When we look at other outcomes that are more theory-based it might say discuss or explain" (EA2). Additionally, although the participants did not articulate it this way, they reported to use a system similar to a ToS or a blueprint. From year to year, educators spend more or less time on certain topics or concepts and they use a blueprint to make sure that that they represent this difference in their assessment tools. For instance, a participant discussed "I spent so much more time on planes of movement...last year they got it really quick and I didn't spend as much time [in class] so I had to change it [the assessment tool] to be more reflective of what we talked about in class" (EA1).

*Educators try to develop assessment strategies and tools that resemble real-life situations.* The educators want to ensure that their students are prepared to work in their chosen field after graduation. In order to safeguard this preparation, the participants noted how "they try to develop their assessment tools to be as authentic as possible" (EA4). Expanding on this notion of authenticity, especially regarding the development of assessments, an educator described:

I say to myself how are they going to use this in the field? How are they going to use this in their industry? And I try to mimic or mock whatever that assessment tool would be towards how they would use it in the industry. (EA3)

Educators used the fitness assessment clinic practical exam as an example of how they use simulation to develop their assessment strategies. Faculty and students from the college are invited

to participate in a fitness assessment clinic, where the students from the FHP program conduct the assessments. The atmosphere and professional nature of the assessment clinic tests students in an environment very similar to what they would find in the real world. Conducting assessments on clients they have never met before is a key component of this assessment strategy. The participants felt that in past, the program had “limited engagement with simulation” (EA4). With the support and guidance of the administration this is something they are trying to work on moving forward.

*Educators evolve the development of their assessment strategies and tools over time.* The participants highlighted how the development of assessment strategies and tools evolves with experience, student performance on previous assessments (formative assessment data), and cohort characteristics. They articulated how their development processes become more sophisticated the longer they use them, the more often they teach a course, and with each new cohort of students. As an educator reflected: “The first year, I noticed when I was doing things I was scrambling and just throwing things together to get a test together, get an assignment together...but over time I got better” (EA1). Another educator also noted how they use selected assessments to help them better construct end of term summative assessments:

After the mid-term, I’ll look at the questions [the students] really don’t understand and I will...re-test [the concept] again on the final...for me it’s a personal check in to say I was able to get that concept across and it just took a little longer. It allows me to revisit as well and say that technique/teaching strategy didn’t work.

(EA2)

#### **Use of assessment strategies and tools.**

While the educators and administrator described how administrators do not directly use assessment tools, they do mandate how educators use assessment tools in the FHP. The

administrator and educators reported two uses of assessment strategies and tools in FHP. First, they described how strategies and tools are used formatively to: “aid student learning and progression” (EA4); help students understand their own strengths and weaknesses (EA1, EA2); and in ways so that “remediation plans can be made” (EA4). Second, they commented on how assessment strategies and tools can be used for summative purposes to “ensure rigor and quality care and services are delivered by graduates” (EA4); “to guarantee that students are meeting the necessary learning outcomes” (EA1) and to “recognize that these outcomes and competencies are multifaceted and across all domains (motor, cognitive and affective)” (EA3).

*Formative purposes.* When I asked the participants to define formative assessment, they used phrases like “assessment to help [students] learn content” (EA3), “small little measures” (EA1), “to provide feedback” (EA2), and “to identify topics I need to teach more effectively” (EA2). The participants reported using assessments for formative purposes throughout their educational processes to provide students with feedback about their performances and progress. In some cases, they also described how they used formative assessment to provide students with a grade, “We also do quizzes [due the night before a lab] ... [that are graded] (EA3)”. Additionally, the educators used formative assessment as a teaching tool and as a “functional way” (EA1) to provide students with feedback:

At the beginning of a lab I would do a lot more of the more informal formative feedback, so I might play the video of how to do...the sit-up protocol and then ask questions and have students answer [questions]. They have practice so that they can get feedback on did they miss anything and then other students are giving feedback as well. (EA3)

Examples of formative assessment included graded quizzes, [graded] lab reports, video critiques, and exercise demonstrations. Furthermore, when I asked if formative assessment focuses on feedback rather than on grading one educators' response was, "No, it varies, so it depends on the assessment you're using. Formative is very much like half-way kind of throughout, like going through, you may have a midterm and that does contribute to their grade" (EA2).

***Summative purposes.*** In contrast to formative assessment, participants defined summative assessment as "more or less is the students now taking the test or doing the practical and seeing if they know the information, they know the theory, they have the skills or they can demonstrate those skills" (EA2) and "to make sure the knowledge or the learning can be assessed in a question or short answer format" (EA1) and testing, "if they understand how to process that [information], do they understand how they would have to tell a client about it (EA3)." Primarily, the participants described summative assessment as a measurement and judgement of the students' levels of understanding/competence and as something used to assign appropriate grades.

#### **Educators' and administrator's perceptions of assessment strategies and tools.**

Most participants thought that administrators positively perceived the educators' assessment strategies and tools. Moreover, one participant said, "while there may be a lack of sophistication regarding the understanding of educational measurement theory, there's an intuitive sense about how to approach evaluation and they do by and large a good job" (EA4). The educators and administrator also perceived the following: (a) that providing feedback to students is more important than the assessment strategies and tools themselves, and (b) that their assessment strategies and tools still need improvement.

***Feedback is more important than the assessment strategies and tools themselves.*** The participants view feedback as essential to learning. They described how it creates opportunities for

students to create a deeper understanding of where they are and where they need to reflect to improve their practices. As one educator describes:

[I am] big for providing feedback, we also do reflections as well. So, I'll give them the feedback and then we'll reflect on it...because I think feedback and then reflecting, [that's] a huge portion of that learning process. It's not just doing the test or doing the assignment, it's like okay how could I have done better on this assignment or like how did I get to this position where I got 90 per cent on this?

What did I do, how did I prepare so I can do that again? (EA1)

The educators and administrator also commented on how feedback starts a dialogue between themselves and the students that allows for academic growth: "I am finally realizing that sometimes, for me personally, the feedback is more important than the actual assessment... I think that's where the learning comes in, so we're trying to do better at structuring that in" (EA2).

However, many educators believed that the stress and anxiety caused by assessments, especially tests, distracts students from the learning component of assessment. For example, in relation to stress and feedback, an educator stated:

[Feedback is] almost sometimes more important than the actual evaluation itself. You can get more value out of it as opposed to the actual evaluation because you're scared to do the evaluation. You're so worried about doing well on the test, but when it's done and the dust has settled, you're not nervous anymore and you can actually look at it with a level head and say oh, okay that's where I maybe did so well on that piece, right? (EA1).

Educators believe that students either learn from feedback or disregard it. Educators reported that although they have to speculate what students do with the feedback "you will have some students

who they live for feedback; they want the feedback and will use it to improve” (EA2) or “you will have students that don’t look at feedback whatsoever. The only feedback they want is the mark” (EA2). Educators reported that it is usually the more successful students who look at the feedback and learn from it. The participants also expressed how the “feedback delivery system” (EA4) has an impact on how students accept feedback. As one educator said,

I think they really take it in especially when you’re giving them some positive and some things to work on, usually then I see it and the next time I do...a mini-evaluation of their practical demonstration and then I see them say it in the way they needed to or did do the corrective cues or they gave the client a good example of how this exercise is for daily living and then I congratulate them on it, so that would be my way of understanding that they are understanding what they need to work on. (EA3)

However, overall the educators and administrator recognized that each student absorbs and uses feedback differently. They noted that some “students need to be kind of cued or almost told to look at the feedback and learn from it...they don’t have that skill of self-critiquing...based on the feedback” (EA1).

***Assessment in the program still needs improvement.*** The participants mentioned five changes needed to improve assessment in their FHP program. Specifically, they noted needed improvements in:

- (1) The mechanisms for, as well as the quality and delivery of, assessment feedback
- (2) Educators’ understandings of the students’ learning needs
- (3) The authenticity of assessment strategies and tools
- (4) Opportunities for professional development in assessment

(5) Level of alignment between assessment strategies and course learning outcomes

*The mechanisms for as well as the quality and delivery of assessment feedback.* The participants recognized that there are two components to feedback. First, they acknowledged that the educator must provide quality feedback. Second, they commented that the students must be receptive to the feedback for it to have an impact on their learning. One participant shared the following:

On one hand, there's a need to provide that feedback formatively. The reality is though, the usefulness of that is heavily influenced by the capacity of the student to receive said feedback in a reasonable and constructive way. And so not only is there a need to provide the feedback but there's a need to nurture an environment and an approach to learning in which students will accept that non-combatantly.

(EA4)

In order to ensure students' receptiveness towards feedback the educators comment on how they are trying new methods to devote time to "take up the feedback". As a participant stated:

Over the past few years we've started building in more time into our courses in the classroom where we actually take up a test...I think there's value...[in] going through the test with the students and saying, 'okay these are the questions people struggled with and let's go through this and figure out together how you can improve'. (EA2)

However, the educators and administrator still perceived the need for more mechanisms and activities to encourage student reflection and the use of feedback:

I think there should be something more intentional done to get them to reflect on that feedback more, a bit more intentionally, rather than just kind of hand back the assignment and then move on and never really talk about it again. (EA1)

Participants agreed that improving the quality and delivery of feedback would also help improve assessment strategies. The educators believe that feedback and reflection go hand-in-hand and that creating more opportunities for reflection could go a long way: “So really providing that opportunity for I guess like whatever it is, self-reflection, peer reflection, group reflection or just whole class reflection as well (EA3)”.

*Educators’ understandings of the students’ learning needs.* The educators also perceived that they need to understand better their students’ learning needs. They articulated how the FHP program experiences dramatic changes in cohort characteristics every year, and therefore the students’ needs are always different, which makes assessment a daunting task. The educators noted three variables that influence assessment: students’ levels of maturity, language barriers, and learning disabilities. To reiterate how students’ needs are dynamic one educator said:

Keeping the exams up to speed and assessments worthwhile [is important]. I think it’s being really aware of your audience and it changes every single year and we can’t re-write tests every single year. I would love to, but it’s impossible, plus I truly believe that you have to run a test a few times—or an assessment a few times—to really understand whether it’s working or not. You can’t just run it once and say it wasn’t good. Well, maybe it’s just your cohort, so we try to run it about three times before we really, really over haul it. (EA2)

Regarding maturity participants stated, for example:

You have young students coming out of high school, so there that maturity level or you have a lot of older students. We tend to have young [students]. We have some 17 year olds who have just moved away from home and just figuring out how to get to class on time is their challenge, right. (EA3)

The educators described how all classes include students of various ages and thus, the student dynamics can influence how students work in groups, experience assessments, and internalize feedback. Others also noted accessibility issues that they need to address in order to understand their students' learning needs. As one educator stated, "we have international students, so there's language barriers" (EA2). Others also reported, "we have more and more students having accessibility needs, so how do we make sure we're giving students assessments that allow them to use accessibility services and it's fair to them" (EA3).

*The authenticity of assessment strategies and tools.* The participants suggested that one way to improve their assessment strategies would be to increase the authenticity of their assessment tools. As a participant articulated:

I think making assessments more realistic in what people would see in the real world and using it as a way for students to learn.... I just want to know I passed, I just want to know I got over 80 percent. That's not what we want. We want you to say I get this and now know how I will use this material. So, I think it's being smarter about how we assess students". (EA2)

The educators and administrator felt that the inclusion of more simulation based assessments would help increase the authenticity of their assessment strategies, as simulation is a great predictor of students' preparedness for work. The following quote describes this belief in more detail:

The reality of practice in the workplace [simulation], that evaluation is going to provide us even more insight into the preparedness of our students to enter practice. And that's going to be a very, very useful basis for conversation with program advisory council and part of a feedback loop that will then drive quality improvement going forward...immersive simulation, is going to really benefit our ability to align the graduate capabilities with practice requirements. (EA4)

*Opportunities for professional development in assessment.* The educators and administrator suggested the need for more professional development opportunities to improve their assessment strategies and tools. The participants want to produce quality assessment strategies and tools, but admittedly lack technical assessment skills. The following quotation represents these sentiments:

I think more training...In most cases at the college level people are hired based in, one, their education, but two, their work experience. So, you are usually educated in your field of work, so you're not necessarily educated in education, right. So, you don't always have formal training on how do you write a multiple-choice question or how do you properly validate your questions...So, just having that training or access to training. (EA2)

The participants in this study were very humble about their assessment strategies and tools, offering that there is still lots of room for improvement. Given that the participants already have many years of experience with assessment, within the FHP program and at other institutions, further development of their skills and abilities would happen through more formal training. The educators and administrator did not know how, exactly, that would look and suggested that

possibly some research into or a needs assessment regarding this formal training would be necessary. The following quote represents that idea:

So really focusing on that, however, I don't really know how that looks essentially, kind of create that and it would be like another kind of avenue of research, just kind of how to do that, obviously, a little bit of information out there on how to create [assessment tools], so it's really just educating the instructors on how to do these things as well but really easily. (EA2)

The participants did add that although more training in assessment is needed, the format of that training would have to be very accessible and not too time consuming.

*Level of alignment between assessment strategies and course learning outcomes.* Overall, the Health Sciences faculty at Conestoga College has two primary responsibilities: (1) educational responsibility, and (2) patient-care responsibility. Each program within the faculty, for example FHP, must develop course learning outcomes that satisfy both responsibilities while staying within the program's scope of practice. Participants believe striking the right balance between these two initiatives is critical and still trying to be achieved. Because the course learning outcomes are used to develop assessment tools, using backwards design, the outcomes are important during discussions of assessment. The following quote depicts one participant's perceptions:

In health sciences, ultimately, we have an educational responsibility. We also have a patient care responsibility in that what we're doing is preparing people to care for people...the evaluation structures have to fit within both of those frameworks. They have to contribute to student learning and they have to contribute to the maintenance of competence [graduation requirements] ...such that when the students step into patient care environment they're well-prepared and patient

safety is not going to be compromised...this is now about improvement—there has to be an awareness of the different needs of the different categories...And I think finding the right balance is still something that the system is striving for.

(EA4)

Admittedly, educators are using processes like backwards design to develop assessment strategies and tools, however participants still add that they need to be more attentive to course outcomes when designing assessment strategies and tools:

Focusing on whether or not the course outcome is actually in fact being evaluated.

And then if it is in fact being evaluated, how valid is their assessment tool, how reliable it really is...make sure that those tools are actually measuring what they're intending to measure and doing it consistently, right? (EA1)

In general, educators describe assessment as difficult and time consuming. One educator notes that making assessment meaningful for students is “the biggest learning” they have done as an educator (EA2). Another educator believes it is “very difficult to make sure that everything is at a level that you know is going to be good for the students” (EA3).

### **Major Research Question 2: How are assessment strategies and tools perceived by students in one higher education context?**

The student participants had five main insights about assessment strategies and tools in the FHP program. Their insights are as follows:

- (1) Assessment strategies were useful for preparing students for industry based standardized exams
- (2) Students favoured practical assessments over other more classical methods of assessment

- (3) Assessments strategies could have an increased focus on interpersonal and soft skills
- (4) Students believe assessment is used for a variety of purposes
- (5) Feedback and delivery of it can be improved

**Assessment strategies were useful for preparing students for industry based standardized exams.**

The student participants perceive the assessment tools as useful in preparing them for industry-based standardized exams and as to work effectively in their chosen field. As one student stated, “I had to do very little to prepare to be successful in the [Can-Fit-Pro FIS] exam” (S7)”. All the students interviewed had completed at least one industry-based standardized exam (e.g., the Can-Fit-Pro Fitness Instructor Specialist (FIS) exam, the Canadian Society for Exercise Physiology Certified Personal Trainer exam). The participants described how these exams consist of theoretical and practical components. Students highlighted how their assessments in the FHP program adequately prepared them to complete these standardized exams easily. Students reported, “I felt very well prepared” (S2), and “I felt confident taking standardized exams” (S1). In particular, students found the practical assessments, including exercise demonstrations, palpations, fitness assessments and group fitness classes, to be especially relevant for preparing for standardized exams.

**Students favoured practical assessments over other more classical methods of assessment.**

The students overwhelmingly favoured practical assessments as a way to measure their understanding and competencies: “I am a huge fan [of practical assessment]” (S2); “There were lots of practicals, I think they should never take any of those away and maybe even add more” (S4), “...a lot more practical than your typical program, which I thought was important” (S2), and

“I really enjoyed the practical aspect of it, that was probably my favourite because we got the hands-on knowledge and got to learn based on that like real-life scenario” (S6). The students thought that these types of assessments allowed them to demonstrate their knowledge and experience through “real-life scenarios”. They found that the practical assessments did a good job at “reflect[ing] what we would be doing in our field of work” (S3). Participants expressed that practical assessments provided the best source of feedback from educators and that “feedback after practical exams was immediate” (S5). They articulated that the practical assessments enabled educators to comment on more than just their skills and knowledge. As one participant expressed, these assessments are “not just [testing] skills but to see if we were confident with what we were doing” (S2). Assessments of their nature provided feedback that was as one student put it “useful for my work-life, for example, how to talk to people” (S7).

**Assessments strategies could have an increased focus on interpersonal and soft skills.**

Given that relationship building is integral to most FHP jobs, students felt an increased focus on interpersonal and soft skills would be welcomed in future programming. One student said they wanted “more opportunities for public speaking” (S3), and to become more “comfortable with connecting one-on-one with people” (S8). Another student said to be successful in a FHP related job they need to be able to excite people, “keep things simple” (S8) for their clients, and have the skills to deal with difficult clients.

**Students believe assessment is used for a variety of purposes.**

In regard to students’ perceptions about the purpose of their assessments, students believed that assessments were useful in providing information about their performance, teaching strategies, assessment activities, and curriculum/programming. First, students believed assessment allowed educators to determine “who is really prepared to go out and be able to work effectively in the

field they are being educated in” (S1) and “to determine who is excelling more than others” (S1). In addition, assessment data provides information about where a student is on Miller’s Pyramid: “to prove the student’s level of understanding of the material” (S7), and “if I can apply what I learned and not just regurgitate” (S5). One student added that assessment is also an indicator of the students’ “focus and capability of self-directed study” (S3). Students felt assessments are an indicator of “where students are lacking” (S3) and for educators to “see who is struggling and reach out to them and offer assistance” (S7).

Second, students felt that assessment strategies were a measure of student performance as well as “how well the instructors are teaching” (S5) and “gain an understanding of how [the teacher] can improve” (S6). Participants thought that assessments were valuable “for the educator to see what specific topics need more emphasis” (S1) in classroom teaching. One student expressed that “if there was a low average the instructor has an opportunity to change their style and method of teaching and workload given to the students” (S5). Adding to this idea, other students said that assessment allows educators to “gage the learning level of the class and to reflect on their teaching habits” (E9) and “look for trends and change teaching style to better deliver content” (S7).

Third, briefly mentioned was the purpose of assessments to change future assessments. One student reported that educators could use the results of an assessment “to change the way they are assessing us” (S9), another stated, “if they have to change the assessment” (S7). One student (S7) remembered back to a conversation with an educator who said, “it is hard to know whether or not what they had written would assess the student effectively”.

Lastly, participants believe assessment is used “to change the program and how it’s delivered” (S1), including “if there is anything they need to add or take away from the program to educate more” (S1). Other participants commented how assessment could “change the program

from year to year” (S3) and offer a “big picture” (S8) of the program. Also, one student noted “[assessment] could help them improve curriculum” (S6).

**Feedback and delivery of it can be improved.**

Lastly, the students recommended improvements in the amount and type of feedback they receive. Students shared that feedback varied between educators saying that with some there “wasn’t great communication” (S4) and “they were vague and didn’t give great feedback” (S2), and “it wasn’t consistent from teacher to teacher” (S2) as opposed to “we were given this is what you did, this is what you could have done different” (S1), and “they would start with something positive and then let you know where you could have made changes or modifications” (S5). The students agreed that feedback from practical assessments was given verbally and immediately whereas, written feedback on tests, lab reports, and quizzes was delivered “sometimes within a week and sometimes took a month” (S1). As a student reported, “feedback from practical exams was really good [they told us] this is what you did, this is what could have been improved, this is what you did wrong” (S8). As compared to written feedback, that “could have been better” (S4) and “often had the same repetitive sentences” (S9). If students had questions regarding the feedback they were given “[they] could meet with the teacher and [the teacher] would elaborate” (S6). When asked, the students had difficulty recalling any non-graded assessments leading up to mid-terms or exams. To one student I asked, “everything you have known to be an assessment has had a grade associated with it?”, to which they replied “yes, that is correct” (S2).

**Major Research Question 3: How do educators, administrators, and students use the results and interpretations generated from the assessment tools used in one higher education context (i.e., Conestoga College’s Fitness & Health Promotion Program)?**

**Educators’ and Administrator’s use of assessment results and interpretations.**

Educators and students have similar beliefs about how assessment results and interpretations should be used. First, to improve themselves as educators or students and second, to make judgements about programming needs.

Educators believe that program evaluation and review is another purpose of assessment. The results and interpretations from assessment tools provide them with data to make judgements about the program. These judgements tend to involve three categories (1) evaluation of teaching effectiveness, (2) feedback about the assessment tools themselves, (3) programming needs, as we saw in the findings of research question one. Educators use assessment tool data as feedback about their teaching strategies and assessment tools. Students also commented that they believed assessment data should be used for this purpose. Educators reflect on this feedback, the same way they hope students will reflect on the feedback they receive. The educators admitted to being human and making mistakes, and thus, use the assessment data to evaluate themselves and make positive changes to their teaching strategies. One educator said, “I do a lot of reflection afterwards and kind of see what worked, what didn’t...based on that I change that for the year following to make [the assessment] a better indicator of how its measuring those skills” (EA1). Below is their example:

I do change [assessment tools]. I actually used one rubric first year and I was like oh my gosh, this is not getting what I need out of it. And so, I took notes and the next year changed it and it was 100 percent better. (EA1)

Another educator stated, “reflection... [of an assessment tool] to inform how we need to evolve it” (EA2). They used this example to elaborate:

If I do an exam and notice 80 percent of the class did not get a question, to me I look at that and it’s either I didn’t use enough of a teaching strategy or wasn’t effective on how I taught them, or...it could be the question and its more an assessment [item] issue. (EA2)

Reflection allows educators to “re-visit and say that technique/teaching strategy didn’t work...its either the way the question is written...or I’ve done a crappy job teaching you” (EA2). Another educator added they do “self-evaluation after each course...I review the course outcomes...other ways [students] could demonstrate [their skills] and [apply their knowledge]” (EA3). This educator specifically refers to formative assessment as a way to “identify strengths and weaknesses and maybe areas I might have to go back and review a bit more...if most of the students aren’t getting it” (EA3).

In addition to reflection, educators also use statistics to provide information about their assessment tools. Reliability coefficients are used to identify MC questions that need to be reworded or removed entirely. One educator said, “with MC I take a look at the questions and what statistics say about the difficulty level for the student...if most of the students didn’t do well on it then I may change it” (EA3).

Educators and administrators use data from assessment tools to identify programming needs. Administration is “responsible for the integrity and quality of all programs” (EA4) and assessment data are fundamental parts of ensuring this integrity and quality. An example of poor scoring on an anatomy exam is used to explain how assessment data is used at the program level:

Say we have a 70 percent student fail rate in this particular course...pull that data and then from an educational measurement point of view, really drill into what happened, how the students performed and the exam performed...make decisions about student progression...and consideration of that particular course within the program design. Is it well-positioned? Is the structure of the course appropriate? Is the content appropriate? ...student performance speaks to the curricular scaffolding and flow of content” (EA4).

In this context, the participant uses ‘curricular scaffolding’ to mean the way the course is structured, the sequence of subject units/chapters, the way courses are grouped together in semesters and where they fall in the two-year programming. Educators use assessment data when they “come together [during program review]” (EA1) to identify their strengths and weaknesses in the program. Data from student assessments are “key because that informs everything from admissions criteria to exam structure to [graduation] requirements” (EA4). Assessment data influences admissions criteria, for example a needed prerequisite like high school biology; exam structure, for example making the assessment item types more appropriate to align with the teaching strategies; and graduation requirements, making sure students are fit for work in their industry.

As mentioned previously educators use assessment strategies and tools to provide students with feedback. The educators provide students with written and verbal feedback. Written feedback is generally given to students via “electronic rubrics” or ‘track changes’. Verbal feedback is given to students one-on-one, for example after the fitness assessment clinic, or as an in-class take up session for the more important topics of written assignment or test.

### **Students' use of assessment results and interpretations.**

Students highlighted how they used the assessment results and interpretations to improve their performance on future assessments, adjust study habits and note taking, and to apply to current jobs. First, all participants reported that they used the results from their assessments “in a constructive manner” (S7) to “improve future assignments” (S7) and to “put toward future tests” (S3). A specific example provided was “if my graphs were too hard to read, I would make them more clear on the next lab report” (S5). Students also discussed how they make note of “what [they] did poor on and remember it for the next assessment” (S6). Examples of this are “explaining myself more” (S8) and “going more in-depth with ideas” (S3). Overall, students would use the results and interpretations from assessment strategies and tools to “improve myself in areas I was weak in” (S4). Second, participants expressed that the interpretations of their results “gave [them] a different way to think” (S6) and “changed how [they] studied, especially where [they] didn’t do as well as [they] hoped” (S1). One student added “feedback changed how I learned by taking different notes” (S9). Lastly, for students that were working in the FHP field concurrently with FHP courses, they stated that results from their assessments “helped them in real-life” (S1) and that they could “apply [the feedback] directly to work” (S7). Students believe results and interpretations should be used to evaluate how well instructors are teaching, inform changes that should be made to assessments tools, and improve the program – as we saw in research question two.

## **Chapter V: Discussion**

This study used a case study approach to initiate an exploration of assessment strategies and tools in this HE context. This study explored college level assessment strategies, including the development and use of assessment tools, the use of assessment results and the perceptions around assessment strategies by educators, administration and students.

### **Integration of Findings with the Published Literature**

**Research Question 1: How are assessment strategies and tools developed, used, and perceived by educators and administrators in one higher education context?**

When possible, the educators in this study develop assessment strategies and tools to resemble real-life situations. They are familiar with strategies like “backwards design” and “tables of specification” but could use more training to further understand these methods and to refine their skills. The educators acknowledged their use of backwards design in the development of assessment strategies and tools, as they consistently try to align their assessment activities with the course learning outcomes and program objectives. As identified in the literature review, backwards design consists of three stages. The educators engaged in Stage 1 (identifying desired results), when they chose to use the pre-determined learning outcomes as the starting point for developing their assessment tools. Using the learning outcomes helps them to answer the critical questions associated with Stage 1 (i.e., What should the students know? What should they understand? What should students be able to do?). Educators also reported how they engage in Stage 2 of backward design (determine acceptable evidence). Educators noted how they decide what a student must demonstrate (knowledge and skills) to determine if they have met the learning outcomes from Stage 1 (Wiggins & McTighe, 1998). Finally, educators complied with Stage 3 (plan learning experiences and instruction) by determining what learning activities would appropriately equip

students to attain the given learning outcomes. Moreover, educators in this study highlighted how they use blueprinting to ensure alignment between their learning outcomes and assessment tools (DiDonato-Barnes, Fives & Krause, 2014; Stake et al., 2012). The use of blueprinting demonstrates the intuitive sense of the educators to produce quality assessment tools even though they have limited theoretical assessment knowledge. Backwards design and blueprinting (ToS) are two strategies for obtaining validity evidence for classroom assessment tools (AERA et al., 2014).

The educators and the administrator believe that performance assessment can be authentic by mimicking what students will have to do in the health and fitness industry. It is well documented by Guilikers, Bastiaens, Kirchner (2006) and others that good performance assessment is perceived as authentic by the educator and the student. Radinsky et al. (2001) add that when assessment is perceived as authentic by students it will positively influence their learning. Educators in this study use performance assessments whenever possible. For example, the fitness assessment clinic, made to resemble real-life when assessing students' fitness assessment protocol competency. The educators use the course outlines to determine what skills should be measured during assessment strategies, which is also encouraged by administration.

However, educators in this study also note that they commonly use MC assessment items, especially for assessing theory and knowledge. Regarding the authenticity of these items, the educators reported how they aim to create MC items that assess higher cognitive levels. While using MC items to assess higher cognitive levels is good practice, it does not necessarily depict authentic assessment.

The educators believe feedback, and reflection on it, is key for student learning and thus, they believe that educators need to understand how students use feedback. Moreover, although the educators gave assessment examples, there is still some confusion around the practices of

summative and formative assessment. Nevertheless, the educators in this study agree with Price and O'Donovan (2006), who suggest that feedback is the most important part of the learning process. The educators use summative and formative assessment as opportunities to provide students with feedback. However, the educators noted that they grade both summative and formative assessment. Grading of formative activities contradicts recommendations by Black and William (1998), that suggest grading formative assessment eliminates the formative aspect of it due to their high stakes nature. Cilliers et al. (2010) also believe the pressure of grades overpower the aspects of the assessment that were meant to promote meaningful learning. Although the educators stated they grade formative assessment, I found that in talking about their teaching strategies they gave examples of what I would perceive to be formative assessment. Using Schuwirth and van der Vleuten's (2011) definition of formative assessment, which states it is "inextricably embedded within the educational process" (p. 478), I believe that educators are using formative assessment even when they are unaware they are doing so. Unconscious use of formative assessment is consistent with work by Taras (2008), Taras and Davies (2012), and Scaife and Wellington (2010) who found that educators were sometimes confused in regard to the use of summative and formative assessment, had difficulty understanding and defining the terms, and used assessment techniques unconsciously.

The educators in this study were very passionate about reflection and its role in making feedback meaningful. Brookhart (2003) also suggests that students can use feedback from formative assessment to reflect on reaching their desired performance. Feedback from formative assessment is so important because it is seen as the assessment throughout the program. Unlike summative assessment, that has been identified in the literature (Airasian, Engemann, & Gallagher, 2012; Schuwirth & van der Vleuten, 2011 & Trotter, 2006) and by the educators in this study to

take place at the end of an educational process to quantify what students know. Educators can provide feedback after summative assessments as well but it will have less of an effect as an indicator or motivation for future learning (Duers & Brown, 2009; Epstein, 2007; Falchikov, Sadler and Yorke cited in Weurlander, Soderberg & Scheja, 2012; Fletcher, et al., 2012; Taras & Davies, 2012) and as a benchmark to monitor their progress towards reaching course outcomes (Epstein, 2007; Fletcher et al., 2012; Hay, Tinning, & Engstrom, 2015). Both motivating and benchmarking are key characteristics for formative assessment. In general, the educators in this study were unaware of how students are using the feedback they receive, if they are using it at all. Maggs (2014) also found that staff were generally unaware of how students were using feedback. The educators in this study believe the stronger students take the feedback and put it towards future tests and assignments and that weaker students just want the grade and must be coaxed into receiving feedback. Different among students in regards to the use of assessment results supports work by Harrison et al. (2015) which suggests uptake of feedback varies based on the students' success on an assessment and that students may avoid feedback when they are aware that their performance is poor.

Educators in this study highlighted how they receive assessment training from three different sources: (1) graduate studies, (2) the CEDP (full-time staff only), and (3) professional development workshops. Although the educators in this study had formal and informal training in assessment, they hesitated to say that they were “trained in assessment”. The educators’ hesitation may reflect the fact that assessment is only one component of their training. The educators suggested more training and professional development as a way to improve assessment strategies and tools in HE. Training in assessment feedback should be an integral part of assessment design

and staff training in the purpose and delivery of feedback, were recommendations made by Evans (2013) and Maggs (2014), respectively.

**Research Question 2: How are assessment strategies and tools perceived by students in one higher education context?**

Students in this study felt that feedback and the delivery of it could be improved. For the most part comments about feedback were positive, especially concerning performance assessments. However, students want to receive more feedback and feel that the feedback received from written assessments, like MC exams, has room for improvement. Evans (2013) outlines that good feedback provides information to students about what they did well, where they could improve, and next steps. The students reported that these characteristics are included in the feedback they received from performance assessment, but that feedback from written assessments is vague and often has the same repetitive, non-specific sentences. Interestingly, it was the same students who reported the sole purpose of assessment is to assign a grade, who felt the feedback they received was unhelpful. Confirming students' perceptions about assessment and its purpose is important and that educators should engage students in the assessment process (Evans, 2013). Harrison et al. (2015) also found that after summative assessment, students are relieved to have passed and have little interest in addressing their weaknesses. The students in this study struggled to discuss how they use the feedback they receive. As such it may be helpful to provide educators and students with training on the use of feedback. As Maggs (2014) suggests training students to value feedback and how to use it is valuable in HE.

Performance assessments are the most favored strategy by the student participants in this study. One reason for may be that the feedback they receive from this type of assessment is timely and detailed. Performance assessment is also seen as "fairer" (Sambell et al., 1997), as compared

to traditional assessment like MC, and is used to measure communication and interpersonal skills (Berendonk, Stalmeijer & Schuwirth, 2013). The students in this study suggested greater focus on soft skills like communication and interpersonal skills as a way to improve assessment in the FHP program.

**Research Question 3: How do educators, administrators, and students use the results and interpretations generated from the assessment tools used in one higher education context?**

Students and educators in this study shared similar beliefs about the use of the results and interpretations from assessment tools. Both participant groups believe that assessment results and interpretation of them should help educators and students grow professionally and identify programming needs. Fletcher et al. (2012) found that despite educators acknowledging the use of assessment data to inform teaching strategies they do not often use it for this purpose in practice. Unlike the findings by Fletcher et al. (2012), the educators and students in this study report the use of assessment results for informing teaching strategies in the FHP program. The educators in this study reported how they use assessment data results to: (1) evaluate teaching effectiveness, (2) make changes to the assessment tools themselves, and (3) identify programming needs. These uses of assessment data parallels work by Barak and Sweeney (1995) and Peterson and Augustine (2000) who suggest that assessment data be used to, (1) measure teaching effectiveness, resulting in modification of teaching methods, and (2) inform educational program evaluations to revise current curricula as part of institutional quality assurance and accountability processes. In addition, consistent with the findings by Fletcher et al. (2012), the students in this study also felt that assessment data should be used for accountability at the institutional level. This study shows an improvement in the way assessment data is being used for organizational decision-making. In

2001, MacLellan found only 41% of educators were frequently using assessment data for this purpose and that the students felt it was used even less commonly.

In addition to using the results and interpretations from assessment strategies and tools for organizational decision-making, educators use this data to make judgements about students' competency, readiness to enter the workforce and provide students with feedback. Educators' perceptions about feedback is detailed in the discussion of research question one.

### **Limitations of the Study**

There are four major limitations of this study. First, case study methodology recommends the use of multiple sources of evidence such as interviews, direct observations, or document reviews. Multiple sources of evidence are used for triangulation, with the aim of developing converging lines of inquiry (Yin, 2014). Although this study did not use multiple types of evidence, it did involve representatives from multiple stakeholder groups and thus, I was able to triangulate data from these different groups. Second, Yin (2014) reports that a single-case study is often less robust than a multiple-case study. A single case study limits opportunities for data analysis and opens questioning about the uniqueness of conditions surrounding the case (Yin, 2014). However, due to resource constraints and the challenges of obtaining research ethics board approval at multiple colleges, a multiple-case would have been challenging to complete within the FHP context. Third, there was only one FHP program administrator to interview because the second administrator retired shortly before the commencement of this case study. While it would have been ideal to include additional administrators, I was able to combine the administrator's and educators' findings in order to maintain the confidentiality of the sole administrator who participated. Lastly, participation in this study was voluntary. Educators and students who

participated in this study are likely to be those who have a more active voice within the FHP program and those who are more interested in assessment activities.

### **Contributions**

As mentioned, this study contributes to research in four ways. First, this research provides real world examples of how assessment is done in one HE context, bridging the gap between theory and what is actually happening in practice. Second, this case study provides empirical data to an understudied area and thus, provides valuable information on how key stakeholders in one FHP context develop, use, and perceive assessment strategies and tools. Third, this research provides insight into the factors and perceptions that lead to potential misunderstandings and contradictions in regard to assessment (Taras & Davies, 2013). Lastly, this study evokes reflection and self-awareness of assessment practices. Reflection is important as it is a key aspect of adult learning and growth, and can alter one's beliefs and perceptions about assessment. As such, this study may lead to changes in terms of how assessment strategies and tools are developed and used within selected HE contexts, especially FHP.

### **Implications for Assessment Strategies in Higher Education**

Despite limitations of this study, it has potential implications for assessment strategies and tools in HE. First, educators should continue to use and develop authentic performance-based assessments because students and educators prefer them. In this FHP program, performance assessment, or “practicals”, provide useful and timely feedback. In addition, performance assessment is supported by the literature as an effective assessment strategy for the type of learning that often happens in the FHP program (e.g. teaching a fitness class, personal training session, fitness assessment, exercise demonstration). Higher education institutions should also offer educators additional training in assessment including, for example, formal training on evidence-

based practices for developing a wide-range of assessment tools (beyond just those that include MC items). Educator training on the use of formative assessment and the effects of grading formative assessment is also important to ensure the benefits of such assessment are maximized. Moreover, educator training on how to help students value and use feedback is key to engaging students in the formative learning process.

Based on the above-mentioned students' perceptions of assessment strategies and tools it is also important for educators to engage students in the assessment processes (e.g., in the development of assessment strategies and tools). In addition, educators should ensure that student assessment and feedback is on-going and not viewed by students as isolated or simply an end by-product because the way students perceive assessment impacts how they use the assessment results. Inclusion of more performance-based assessments on students' communication and other soft skills is also valuable, especially for student employability.

Finally, the use of assessment results in this HE context is multifaceted. While educators are using assessment data to evaluate their teaching effectiveness, they should also ensure that they are using the data to stimulate changes (if necessary) in their teaching strategies. Due to changing student demographics and needs from year to year, it is important for educators to adapt assessment tools and thus, enhance the validity evidence of the results. Furthermore, students play an important role in the use of assessment results. Although educators do not have control over how students use assessment results and interpretations, coaching students on how to use feedback is important in order to help students reach the desired learning outcomes.

### **Suggestion for Future Research**

There are three future research studies that would help build on the findings of this case study. First, a multiple-case study to explore other FHP programs' assessment strategies and tools

would be beneficial. It would allow us to see if their assessment strategies, tools, and perceptions differ from the ones presented in this study. Second, comparing student performance on an industry standardized exam among FHP programs with different levels of educator training in assessment would be useful to quantitatively investigate the impact educator training on student performance. This approach would confirm the educators' belief that additional assessment training is required in order for them to improve their assessment strategies. It would also demonstrate whether or not educators' expertise in assessment contributes to students' assessment performances. Third, a document review of the assessment tools used in FHP programs would be advantageous. Such a review would also allow us to better understand the strengths and weaknesses of the assessment strategies and tools identified in the present study.

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## Appendix A

### Educator's Interview Guide

Thank you for taking the time to talk to me about assessment activities at Conestoga College. This interview is a part of a study that examines (1) the use, development and perceptions of assessment tools by administrators and educators; (2) the perceptions of assessment tools by students, and (3) how the results and interpretations of these assessment tools are used by administrators, educators and students.

The information that you share in the interview will be kept confidential. Any information that may reveal your identity (e.g., name, town, or region) will be erased from the audio-recording and transcript so that you cannot be identified. I will email you a copy of the transcript from your interview to review for accuracy prior to analyses. If you think that any statements in the transcript are inaccurately transcribed, you may contact me by phone or email. I will compare the transcript with the audio recording and if necessary revise the transcript. You will then receive a revised copy of the transcript for review. I will password-protect all transcripts and will call you directly to provide you with the password.

Before we begin, I would like to remind you that there are no correct answers. Your participation is **voluntary**. You do not have to answer any questions that make you feel uncomfortable.

1. Tell me a little about yourself.
  - a. How long have you worked at the College?
  - b. What types of activities are you involved in at the College?
    - i. What courses do you teach in the FHP Program?
  - c. What types of assessment activities are you involved in at the College?
  - d. What type of training (if any) have you had in student assessment or the development of assessment tools?
2. In your opinion, what are the purposes of assessment in higher education?
  - a. How do you differentiate between assessment for learning and assessment of learning?
  - b. How do you differ between teaching strategies and assessment?
3. What are the learning goals in your course?
  - a. How do you know if students have learned?
  - b. What types of assessment strategies do you use?
  - c. What guides you towards a particular type of assessment?
4. How do you develop assessment tools for your courses at the College? Walk me through the steps that you take to develop your assessment tools.
  - a. Do you develop assessment tools differently for different courses?
  - b. Use a tools they have brought as a guide to walk through the process.
  - c. What guidelines do you follow in the development of these tools?
  - d. Do you collaborate with others when developing the assessment tools for your course?

- e. What steps do you take (if any) to establish that your assessment tools measure what they are intended to measure or operate as expected?"
  - f. What types of items do you include on your assessment tools?
5. How do you provide feedback to students?
    - a. How do you think the students are using the feedback? How quickly and by what method do you give feedback to students?
    - b. How would you define the term formative assessment?
  6. How does assessment tie into grading?
    - a. How would you define the term summative assessment?
  7. How do you use the assessment data that you collect?
    - a. How do you use assessment data to re-configure future learning and teaching strategies?
    - b. How do you use the results and interpretations of assessment tools to influence the development of future assessment tools?
  8. How do you think assessment in higher education could be improved?

## Appendix B

### Administrator's Interview Guide

Thank you for taking the time to talk to me about assessment tools at Conestoga College. This interview is a part of a study that examines: (1) the use, development and perceptions of assessment tools by administrators and educators; (2) the use and perceptions of assessment tools by students; and (3) how the results and interpretations of these assessment tools are used by administrators, educators and students. This study will inform the existing literature on assessment tools in higher education and aims to provide ways for improving assessment of student learning in these settings.

The information that you share in the interview will be kept confidential. Any information that may reveal your identity (e.g., name, town, or region) will be erased from the audio-recording and transcript so that you cannot be identified. I will email you a copy of the transcript from your interview to review for accuracy prior to analyses. If you think that any statements in the transcript are inaccurately transcribed, you may contact me by phone or email. I will compare the transcript with the audio recording and if necessary revise the transcript. You will then receive a revised copy of the transcript for review. I will password-protect all transcripts and will call you directly to provide you with the password.

Before we begin, I would like to remind you that there are no correct answers. Your participation is **voluntary**. You do not have to answer any questions that make you feel uncomfortable.

1. Tell me a little about yourself.
  - a. How long have you worked at the College?
  - b. What types of activities are you involved in at the College?
  - c. What types of assessment activities are you involved in at the College?
  - d. What type of training (if any) have you have in the development of assessment tools?
2. In your opinion, what are the purposes of assessment in higher education?
  - a. How does the administration in higher education use assessment data?
    - i. How is aggregate assessment data used in educational program evaluation?
    - ii. How is assessment data used to design new programs and revise curricula?
3. What guidelines and training are available to faculty for the development of assessment tools?
  - a. How does administration offer support or encourage educators to improve their assessment strategies?
  - b. How does administration at Conestoga College value assessment?
4. How do you think assessment in higher education could be improved?

## Appendix C

### Students' Interview Guide

Thank you for taking the time to talk to me about assessment tools at Conestoga College. This interview is a part of a study that examines: (1) the use, development and perceptions of assessment tools by administrators and educators; (2) the use and perceptions of assessment tools by students; and (3) how the results and interpretations of these assessment tools are used by administrators, educators and students. This study will inform the existing literature on assessment tools in higher education and aims to provide ways for improving assessment of student learning in these settings.

The information that you share in the interview will be kept confidential. Any information that may reveal your identity (e.g., name, town, or region) will be erased from the audio-recording and transcript so that you cannot be identified. I will email you a copy of the transcript from your interview to review for accuracy prior to analyses. If you think that any statements in the transcript are inaccurately transcribed, you may contact me by phone or email. I will compare the transcript with the audio recording and if necessary revise the transcript. You will then receive a revised copy of the transcript for review. I will password-protect all transcripts and will call you directly to provide you with the password.

Before we begin, I would like to remind you that there are no correct answers. Your participation is **voluntary**. You do not have to answer any questions that make you feel uncomfortable.

1. Tell me a little about yourself.
  - a. How long have you studied at the College?
2. In your opinion, what are the purposes of assessment in higher education?
3. How are you assessed?
  - a. What types of assessment activities are you asked to complete?
  - b. What type of assessment items are you given?
  - c. What type of assessment do you focus on?
2. How do you think the assessment data is being used (consequence evidence)?
3. What type of feedback do you receive from your assessments?
  - a. How do you use the feedback you receive?
  - b. How valuable is the feedback to receive?
4. If you have completed standardized exams (Can-Fit-Pro, CPFLA, etc.) how well prepared were you to complete that exam?
5. What changes would you make to assessment in higher education?

#### Additional Interview Questions:

6. Do you think the formative assessments (quizzes, class activities, labs) helped improve how you did on the larger summative assessments?
7. How well do you think the assessments represented what you had been taught/did test material ever catch you off guard?

8. Did you feel that you were given clear expectations for each of the assessments you had to complete (explain)?

# Appendix D

## University of Ottawa Ethics Approval

File Number: 03-16-03

Date (mm/dd/yyyy): 05/26/2016



**Université d'Ottawa** **University of Ottawa**  
Bureau d'éthique et d'intégrité de la recherche Office of Research Ethics and Integrity

### Ethics Approval Notice Social Sciences and Humanities REB

**Principal Investigator / Supervisor / Co-investigator(s) / Student(s)**

<u>First Name</u>	<u>Last Name</u>	<u>Affiliation</u>	<u>Role</u>
Katherine	Moreau	Education / Education	Supervisor
Julia	Koebel	Education / Education	Student Researcher

**File Number:** 03-16-03

**Type of Project:** Master's Thesis

**Title:** Assessment in Higher Education : A Case Study of Conestoga College's Fitness and Health Promotion

<b>Approval Date (mm/dd/yyyy)</b>	<b>Expiry Date (mm/dd/yyyy)</b>	<b>Approval Type</b>
05/26/2016	05/25/2017	Approved

**Special Conditions / Comments:**  
N/A

1

550, rue Cumberland, pièce 154      550 Cumberland Street, room 154  
Ottawa (Ontario) K1N 6N5 Canada      Ottawa, Ontario K1N 6N5 Canada  
(613) 562-5387 • Téléc./Fax (613) 562-5338  
[www.recherche.uottawa.ca/deontologie/](http://www.recherche.uottawa.ca/deontologie/) [www.research.uottawa.ca/ethics/](http://www.research.uottawa.ca/ethics/)

## Appendix E

### Conestoga College Ethics Approval



Certificate of Ethical Acceptability  
For  
Research Involving Human Participants

**REB NUMBER:** 195  
**REPORTS REQUIRED:** Completion Report  
**TYPE OF REVIEW:** Delegated  
**PRINCIPAL INVESTIGATOR:** Dr. Katherine Moreau, Supervisor  
**STUDENT INVESTIGATORS:** Julia Halar, MBA Candidate  
**DEPARTMENT:** University of Ottawa  
**SPONSOR:** Un-sponsored  
**TITLE OF PROJECT:** Assessment Strategies in Higher Education: A Case Study of Conestoga College's Fitness and Health Promotion Program  
**APPROVAL PERIOD** May 16, 2016 to May 16, 2017

A delegated review was completed by members of the Conestoga College ITAL Research Ethics Board in which they examined the protocol which describes the participation of the human subjects in the above-named research project and considers the procedures, as described by the applicant, to conform to the College's ethical standards and the Tri-Council Policy Statement 2. As a result, **the CCITAL REB has approved your application to conduct research** using human participants at CCITAL.

**Please include a statement on all documentation which participants will receive noting this application has been reviewed by and received approval from the Conestoga ITAL REB.**

If you intend to use the online data collection tool Survey Monkey (or any other on-line data collection tool covered by the U.S. Patriot Act which allows the U.S. government to access data residing on U.S. servers), please specifically mention this fact in the information and consent letter.

This approval is for the research protocol described in the above-numbered application. If you wish to make substantive changes to any part of the application documentation you have provided for approval (i.e. to change items such as the research protocol, the information and consent letter, survey or questionnaire wording etc.), these proposed changes should be handled through a Change Request Form. [Change Request Form](#)

Adverse or unexpected events must be reported to the REB immediately with an indication of how these events affect, in the view of the Principal Investigator, the safety of the participants and the continuation of the protocol. [Adverse Events Report](#)

The Tri-council Policy Statement requires that the ongoing research be monitored by, at a minimum, a final report. Please note that it is the responsibility of the Principal Investigator to submit a Completion Report when all interaction with human participants is complete. Should you wish to continue your research beyond the approval period, you must request further approval from the REB. [Completion or Renewal Request Report](#).

On behalf of the REB, we wish you the best of success with your research at CCITAL.

Chair  
Research Ethics Board

Approval Date: May 16, 2016

## Appendix F

### Letter of Support from Conestoga College



February 3, 2016

To Whom It may concern

Julia Koebel recently asked me for support related to her Master's research titled "Assessment Tools in Higher Education: A Case Study of Conestoga's Fitness and Health Promotion Program, I am pleased to support this work, and as the LRI at Conestoga will facilitate implementation of the project.

Sincerely,

Paul Finch, Ph.D., M.Sc., D.Pod M.  
Chair, Health Sciences,  
Conestoga College ITAL

## Appendix G

### Information Letter for Administrators and Educators

#### Assessment in Higher Education: A Case Study of Conestoga College's Fitness & Health Promotion Program

Research Team:	Julia Koebel, B.A.Sc. Faculty of Education University of Ottawa Ottawa, ON	Katherine Moreau, PhD (advisor) Faculty of Education University of Ottawa Lees Ave, Room E218 613-562-5800
----------------	---	--

Dear [Fitness and Health Promotion] employee,

You are invited to take part in single site qualitative case study research initiative by Julia Koebel from the University of Ottawa under the supervision of Professor Katherine Moreau. You have been identified as a potential participant because of your role in assessment at Conestoga College. This study has been approved by Conestoga College. The University of Ottawa and Conestoga College Research Ethics Boards have reviewed and approved the study.

This study aims to explore: (1) how assessment strategies and tools are being developed, used and perceived by stakeholders (e.g., educators, administrators) in one FHP Program at Conestoga College; and (2) how students perceive assessment strategies and tools they are required to complete at this same institution.

For this study, you are invited to participate in a one-on-one interview. The interview will ask a range of questions about your experiences with assessment. In particular, it asks about **your** development and use of assessment tools and **your** beliefs about the use of assessment in higher education. The interview will also cover how you use the results and interpretations of the assessment tools you use. The interview will include some demographic questions, and will take approximately **1 hour** to complete. **By participating in this interview you are consenting to participate in this study.**

There is little risk associated with your involvement in this study. Some of the interview questions may make you feel uncomfortable because they ask about your experiences and perceptions of assessment of student learning in higher education. Your employment at Conestoga College will not be affected by your agreement or refusal to complete the survey. Your manager(s) and colleagues at Conestoga College will not have access to your specific survey responses.

You may or may not benefit directly from participating in this study. The study will generate awareness for assessment of student learning practices in higher education. This study will also potentially improve assessment for student learning in higher education. To thank you for your

participation in the study, you will receive a summary of the findings in [insert timeline for delivering results].

The information that you share in the interview will remain strictly confidential. The information you provide in the interview will only be used for identifying what current assessment of student learning practices are happening at the higher education level. Your responses will be used to explore ways for improving assessment of student learning in these settings. Because the interview will be conducted with Julia Koebel, your anonymity cannot be protected. Only Julia Koebel will know your identity and you will not be asked to state your name or the name of your department in the interview. Any information that could potentially reveal your identity (e.g., name, town, or region) will be eliminated from the audio-recording and transcript so that you cannot be identified in published reports or presentations. We will email you a copy of your interview transcript to review and revise prior to analyses. We will password-protect the transcript and will call you directly to provide you with the password.

The digital audio-recording of the interview will be downloaded and erased from the audio-recorder immediately after the interview. All data will be stored safely. Audio- recordings will be stored on a password-protected computer. The members of the above-mentioned research team will have access to the data. Data will be conserved for five years after the publication of research findings. After this time, data will be shredded and appropriately discarded.

The completion this study is **voluntary**. You can withdraw from the study at any time and/or refuse to answer any questions without suffering any negative consequences. If you choose to withdraw, all data gathered until the time of withdrawal will be deleted, destroyed, and not included in any presentations or publications.

If you have any questions about the study please contact Julia Koebel or Katherine Moreau, at the coordinates below. 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 at:

Tabaret Hall  
550 Cumberland Street, Room 159  
Ottawa, Ontario K1N 6N5  
(613) 562-5841  
[ethics@uottawa.ca](mailto:ethics@uottawa.ca)

Sincerely,

---

Julia Koebel  
Faculty of Education  
University of Ottawa, Ottawa, ON

---

Katherine Moreau, PhD (advisor)  
Faculty of Education  
University of Ottawa, Ottawa, ON  
Lees Ave, E218  
613-562-5800

## Appendix H

### Information Letter for Students

#### Assessment in Higher Education: A Case Study of Conestoga College's Fitness & Health Promotion Program

Research Team:	Julia Koebel, B.A.Sc. Faculty of Education University of Ottawa Ottawa, ON	Katherine Moreau, PhD (advisor) Faculty of Education University of Ottawa Lees Ave, Room E218 613-562-5800
----------------	---	--

Dear [Fitness and Health Promotion] student,

You are invited to take part in single site qualitative case study research initiative by Julia Koebel from the University of Ottawa under the supervision of Professor Katherine Moreau. You have been identified as a potential participant because of your role in assessment at Conestoga College. This study has been approved by Conestoga College. The University of Ottawa and Conestoga College Research Ethics Boards have reviewed and approved the study.

This study aims to explore: (1) how assessment strategies and tools are being developed, used and perceived by stakeholders (e.g., educators, administrators) in one FHP Program at Conestoga College; and (2) how students perceive assessment strategies and tools they are required to complete at this same institution.

For this study, you are invited to participate in a one-on-one interview. The interview will ask a range of questions about your experiences with assessment. In particular, it asks about **your** beliefs about the use of assessment in higher education. The interview will also cover how you use the results and interpretations of the assessment tools you use. The interview will include some demographic questions, and will take approximately **1 hour** to complete. **By participating in this interview you are consenting to participate in this case study.**

There is little risk associated with your involvement in this study. Some of the interview questions may make you feel uncomfortable because they ask about your experiences and perceptions of assessment of student learning in higher education. Your studies at Conestoga College will not be affected by your agreement or refusal to complete the survey. Your educator(s) and classmates at Conestoga College will not have access to your specific survey responses.

You may or may not benefit directly from participating in this study. The study will generate awareness for assessment of student learning practices in higher education. This study will also potentially improve assessment for student learning in higher education. To thank you for your

participation in the study, you will receive a summary of the findings in [insert timeline for delivering results].

The information that you share in the interview will remain strictly confidential. The information you provide in the interview will only be used for identifying what current assessment of student learning practices are happening at the higher education level. Your responses will be used to explore ways for improving assessment of student learning in these settings. Because the interview will be conducted with Julia Koebel, your anonymity cannot be protected. Only Julia Koebel will know your identity and you will not be asked to state your name or the name of your department in the interview. Any information that could potentially reveal your identity (e.g., name, town, or region) will be eliminated from the audio-recording and transcript so that you cannot be identified in published reports or presentations. We will email you a copy of your interview transcript to review and revise prior to analyses. We will password-protect the transcript and will call you directly to provide you with the password.

The digital audio-recording of the interview will be downloaded and erased from the audio-recorder immediately after the interview. All data will be stored safely. Audio- recordings will be stored on a password-protected computer. The members of the above-mentioned research team will have access to the data. Data will be conserved for five years after the publication of research findings. After this time, data will be shredded and appropriately discarded.

The completion this study is **voluntary**. You can withdraw from the study at any time and/or refuse to answer any questions without suffering any negative consequences. If you choose to withdraw, all data gathered until the time of withdrawal will be deleted, destroyed, and not included in any presentations or publications.

If you have any questions about the study please contact Julia Koebel or Katherine Moreau, at the coordinates below. 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 at:

Tabaret Hall  
550 Cumberland Street, Room 159  
Ottawa, Ontario K1N 6N5  
(613) 562-5841  
[ethics@uottawa.ca](mailto:ethics@uottawa.ca)

Sincerely,

---

Julia Koebel  
Faculty of Education  
University of Ottawa, Ottawa, ON

---

Katherine Moreau, PhD (advisor)  
Faculty of Education  
University of Ottawa, Ottawa, ON  
Lees Ave, E218  
613-562-5800

## Appendix I

### Consent Form for Administrators and Educators

Assessment in Higher Education: A Case Study of Conestoga College's Fitness & Health Promotion Program

Research Team:	Julia Koebel Faculty of Education University of Ottawa Ottawa, ON	Katherine Moreau, PhD Faculty of Education University of Ottawa Lees Ave, Room E218 613-562-5800
----------------	--	--

**Invitation to Participate:** I am invited to participate in an interview as part of a case study research project of the above-mentioned research study conducted by Julia Koebel from the University of Ottawa under the supervision of Professor Katherine Moreau. It has been approved by Conestoga College.

**Purpose of the Study:** This study aims to explore: (1) how assessment strategies and tools are being developed, used and perceived by stakeholders (e.g., educators, administrators) in one FHP Program at Conestoga College; and (2) how students perceive assessment strategies and tools they are required to complete at this same institution.

**Participation:** My participation will consist of taking part in one, one-on-one interview. The interview may take place by phone or in person at a time that is convenient for me. If I am located in the Kitchener area, I may choose to conduct the interview in person with Julia Koebel in a private meeting room at Conestoga College. If I am outside the Kitchener area or prefer a telephone interview, I will be asked to select a location for the telephone interview that is private and convenient for me. Julia Koebel will then conduct the interview with me by telephone. The interview will be structured as a question and discussion section. In the interview, I will be asked a range of open-ended questions focusing on my experiences with assessment of student learning in higher education at Conestoga College. The questions will cover my use, development and perceptions of assessment tools. The interview will take approximately **1 hour** to complete. With my consent, the interview will be audio-recorded and transcribed by Julia Koebel for analysis.

**Risks:** There is little risk associated with my involvement in this study. Some of the questions in the interview may make me feel uncomfortable because they ask about my experiences and perceptions of assessment of student learning in higher education. I have received assurance from the researchers that every effort will be made to minimize these risks. I do not have to respond to any questions that make me feel uncomfortable. My employment at Conestoga College will not be affected by my interview responses or my agreement or refusal to participate the study. My manager(s) and colleagues at Conestoga College will not have access to my specific interview responses, recordings, or transcripts.

**Benefits:** I may or may not benefit directly from the study. The study will generate awareness for assessment of student learning practices in higher education. This study will also potentially improve assessment for student learning in higher education. To thank me for my participation in the study, I will receive a summary of the findings in [insert timeframe for delivering results].

**Confidentiality and anonymity:** I have received assurance from the researchers that the information I will share will remain strictly confidential. I understand that the information I provide in the interview will only be used for identifying current practices for the assessment of student learning and current methods of assessment tool development in higher education at Conestoga College and exploring ways for improving assessment practices in these settings. Because the interview will be conducted in person or by telephone with Julia Koebel, from the University of Ottawa, my anonymity cannot be protected. Only Julia Koebel will know my identity and I will not be asked to state my name in the interview. Any information that could potentially reveal my identity (e.g., name, town, or region) will be eliminated from the audio-recording and transcript so that I cannot be identified in published reports or presentations. Julia Koebel will email me a copy of my interview transcript to review and revise prior to analyses. Katherine Moreau will password-protect the transcript and call me directly to provide me with the password.

**Conservation of data:** The digital audio-recording of the interview will be downloaded and erased from the audio-recorder immediately after the interview. All data will be stored in a locked research office at the University of Ottawa. All audio- recordings will be stored on a password-protected computer in the same research office at the University of Ottawa. Only the members of the above-mentioned research team will have access to the data. Data will be conserved for five years after the publication of research findings. After this time, data will be shredded and appropriately discarded.

**Voluntary Participation:** I am under no obligation to participate and if I choose to participate, I can withdraw from the study at any time and/or refuse to answer any questions without suffering any negative consequences. If I choose to withdraw, all data gathered until the time of withdrawal will be deleted, destroyed, and not included in any publications or presentations.

**Acceptance:** I \_\_\_\_\_, agree to participate in the above-mentioned research study conducted by Julia Koebel from the University of Ottawa under the supervision of Professor Katherine Moreau.

If I have any questions about the study, I may contact Julia Koebel or Katherine Moreau at:

\_\_\_\_\_  
Julia Koebel  
Faculty of Education  
University of Ottawa, Ottawa, ON

\_\_\_\_\_  
Katherine Moreau, PhD (advisor)  
Faculty of Education  
University of Ottawa, Ottawa, ON  
Lees Ave, E218  
613-562-5800

If I have any questions regarding the ethical conduct of this study, I may contact the Protocol Officer for Ethics in Research, University of Ottawa at:

Tabaret Hall  
550 Cumberland Street, Room 159  
Ottawa, Ontario K1N 6N5  
(613) 562-5841  
[ethics@uottawa.ca](mailto:ethics@uottawa.ca)

There are two copies of the consent form, one of which is mine to keep.

Participant's signature:

Date:

Researcher's signature:

Date:

## Appendix J

### Consent Form for Students

Assessment in Higher Education: A Case Study of Conestoga College's Fitness & Health

Promotion Program

Research Team:	Julia Koebel Faculty of Education University of Ottawa Ottawa, ON	Katherine Moreau, PhD Faculty of Education University of Ottawa Lees Ave, Room E218 613-562-5800
----------------	--	--

**Invitation to Participate:** I am invited to participate in an interview as part of a case study research project of the above-mentioned research study conducted by Julia Koebel from the University of Ottawa under the supervision of Professor Katherine Moreau. It has been approved by Conestoga College.

**Purpose of the Study:** This study aims to explore: (1) how assessment strategies and tools are being developed, used and perceived by stakeholders (e.g., educators, administrators) in one FHP Program at Conestoga College; and (2) how students perceive assessment strategies and tools they are required to complete at this same institution.

**Participation:** My participation will consist of taking part in one, one-on-one interview. The interview may take place by phone or in person at a time that is convenient for me. If I am located in the Kitchener area, I may choose to conduct the interview in person with Julia Koebel in a private meeting room at Conestoga College. If I am outside the Kitchener area or prefer a telephone interview, I will be asked to select a location for the telephone interview that is private and convenient for me. Julia Koebel will then conduct the interview with me by telephone. The interview will be structured as a question and discussion section. In the interview, I will be asked a range of open-ended questions focusing on my experiences with assessment of student learning in higher education at Conestoga College. The questions will cover my use and perceptions of assessment tools. The interview will take approximately **1 hour** to complete. With my consent, the interview will be audio-recorded and transcribed by Julia Koebel for analysis.

**Risks:** There is little risk associated with my involvement in this study. Some of the questions in the interview may make me feel uncomfortable because they ask about my experiences and perceptions of assessment of student learning in higher education. I have received assurance from the researchers that every effort will be made to minimize these risks. I do not have to respond to any questions that make me feel uncomfortable. My studies at Conestoga College will not be affected by my interview responses or my agreement or refusal to participate the study.

My educator(s) and classmates at Conestoga College will not have access to my specific interview responses, recordings, or transcripts.

**Benefits:** I may or may not benefit directly from the study. The study will generate awareness for assessment of student learning practices in higher education. This study will also potentially improve assessment for student learning in higher education. To thank me for my participation in the study, I will receive a summary of the findings in [insert timeframe for delivering results].

**Confidentiality and anonymity:** I have received assurance from the researchers that the information I will share will remain strictly confidential. I understand that the information I provide in the interview will only be used for identifying current practices for the assessment of student learning and current methods of assessment tool development in higher education at Conestoga College and exploring ways for improving assessment practices in these settings. Because the interview will be conducted in person or by telephone with Julia Koebel, from the University of Ottawa, my anonymity cannot be protected. Only Julia Koebel will know my identity and I will not be asked to state my name in the interview. Any information that could potentially reveal my identity (e.g., name, town, or region) will be eliminated from the audio-recording and transcript so that I cannot be identified in published reports or presentations. Julia Koebel will email me a copy of my interview transcript to review and revise prior to analyses. Katherine Moreau will password-protect the transcript and call me directly to provide me with the password.

**Conservation of data:** The digital audio-recording of the interview will be downloaded and erased from the audio-recorder immediately after the interview. All data will be stored in a locked research office at the University of Ottawa. All audio- recordings will be stored on a password-protected computer in the same research office at the University of Ottawa. Only the members of the above-mentioned research team will have access to the data. Data will be conserved for five years after the publication of research findings. After this time, data will be shredded and appropriately discarded.

**Voluntary Participation:** I am under no obligation to participate and if I choose to participate, I can withdraw from the study at anytime and/or refuse to answer any questions without suffering any negative consequences. If I choose to withdraw, all data gathered until the time of withdrawal will be deleted, destroyed, and not included in any publications or presentations.

**Acceptance:** I \_\_\_\_\_, agree to participate in the above-mentioned research study conducted by Julia Koebel from the University of Ottawa under the supervision of Professor Katherine Moreau.

If I have any questions about the study, I may contact Julia Koebel or Katherine Moreau at:

\_\_\_\_\_  
Julia Koebel  
Faculty of Education  
University of Ottawa, Ottawa, ON

\_\_\_\_\_  
Katherine Moreau, PhD (advisor)  
Faculty of Education  
University of Ottawa, Ottawa, ON

Lees Ave, E218  
613-562-5800

If I have any questions regarding the ethical conduct of this study, I may contact the Protocol Officer for Ethics in Research, University of Ottawa at:

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Ottawa, Ontario K1N 6N5  
(613) 562-5841  
[ethics@uottawa.ca](mailto:ethics@uottawa.ca)

There are two copies of the consent form, one of which is mine to keep.

Participant's signature:

Date:

Researcher's signature:

Date

**Appendix K**  
**Starter Coding System**

Training in assessment

Purpose of assessment

Formative assessment

Summative assessment

Development of assessment strategies and tools

Use of assessment results and interpretations

Educator perceptions

Administrator perceptions

Student perceptions

Suggested changes for assessment in higher education

Feedback