Key Pedagogical Practices for Formative Assessment in Higher Education

Brita L. Williams
Concordia University - Portland

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CERTIFY THAT WE HAVE READ AND APPROVE THE DISSERTATION OF

Brita L. Williams

CANDIDATE FOR THE DEGREE OF DOCTOR OF EDUCATION

James A. Therrell, Ph.D., Faculty Chair Dissertation Committee
Donna Eastabrooks, Ph.D., Content Specialist
Patricia B. Easley, Ed.D., Content Reader
Key Pedagogical Practices for Formative Assessment in Higher Education

Brita L. Williams
Concordia University–Portland
College of Education

Dissertation submitted to the Faculty of the College of Education
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Doctor of Education in
Higher Education

James A. Therrell, Ph.D., Faculty Chair Dissertation Committee
Donna Eastabrooks, Ph.D., Content Specialist
Patricia B. Easley, Ed.D., Content Reader

Concordia University–Portland

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Abstract

Instructors in higher education, except those in teacher education, generally do not have any prior pedagogical training nor are they generally required to have such training. Formative assessment is an essential component to creating effective teaching and learning. Most research in methods of formative assessment primarily stems from pedagogical research for the PK–12 learning environment. Consequently, collegiate instructors typically do not know how to use methods of formative assessment in higher education to gather evidence of learning during the teaching and learning process or why it may inform their instruction and have an impact on student learning; hence, achieving student learning outcomes becomes problematic (Asghar, 2012; Jensen, 2011; Scott-Webber, 2012). The purpose of this study was to explore the current pedagogical methods of formative assessment used in higher education and answer the research question: How are collegiate instructors using methods of formative assessment to inform their instruction? The research design for this study was a hermeneutic phenomenological design using Heidegger’s hermeneutic circle (Gadamer, 1975). This design began with a preunderstanding of what constitutes formative assessment based on research-based best practices currently applied in teacher preparation programs (Gadamer, 1975). Interviews and a focus group were conducted with instructors from two different institutions across a variety of disciplines to gather data on their experiences from their perspective. One recommendation resulting from this study was to provide faculty development and training in effective teaching and learning strategies to non-education collegiate instructors to fulfill the mission of educating students (Fullan & Scott, 2009; Giridharan, 2016).

Keywords: formative assessment, feedback, assessment evidence, assessment methods, student motivation, reteaching
Dedication

I am dedicating this work to my husband and children who never once gave up on me and were always more convinced in my abilities than I was. Specifically, to Brian, who declared he always knew I would get a doctorate and who encouraged me when I needed it and pushed me when I needed to be pushed. To my sons, Trevor and Connor, who never doubted their mom could succeed. Lastly, I would like to recognize the support from my peers in this journey, especially my cohort buddy, Dr. Darlys Garcia-Marty, who would not let me quit, made me laugh, and prayed us both to the end. The reason for this journey is because I want to be the best that I can be doing what I love to do, teach while hoping to have a positive influence preparing future teachers to help develop "change makers". I'm not concerned with the letters after my name, nor any future accolades, but recognize the benefits of scholarship, research, and a deeper level of thinking.
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We do not learn and grow in isolation. I would not have started, nor could I have finished this were it not for the support from my colleagues at my institution who mentored and encouraged me, specifically Dr. Ian Loverro, my faculty chair, as well as Dr. Janet Finke who convinced me to go for it, and Dr. Sharryn Walker who has always treated me as an equal. My committee members, Dr. Donna Eastabrooks and Dr. Patricia B. Easley provided invaluable feedback and encouragement. I especially want to thank Dr. James Therrell, my dissertation chair, who was tremendously supportive, never seeming to waver that I could and would finish this, and finish well. His guidance, detailed feedback, and continuous encouragement to always focus ONWARD will stay with me for the rest of my life.
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Chapter 1: Introduction

Introduction to the Problem

The focus of this study was to investigate how instructors who are not pedagogically trained implemented formative assessment in higher education classrooms. Collegiate instructors use different specific strategies to evaluate student understanding during the teaching process as opposed to summative assessments to gather evidence of the sum of learning (Fook & Sidhu, 2013; Weimer, 2013). Formative assessment strategies include facilitating a question and answer period, an observation while students are working during class time, a quiz or exit ticket, or assignments completed outside of class which elicit and record evidence of learning (Chappuis & Stiggins, 2017; Darling-Hammond, Austin, Cheung, & Martin, 2003).

For this study, the feedback given to students, which is a component of how the instructor used formative assessment to advance student learning, was noted and described, as well as how the student used it. An example of this is when an instructor checked for student understanding of either an assignment or during instruction, and how he/she responded to the student(s’) interpretation of the subject with feedback to facilitate improved comprehension. The instructor's response to the results of formative assessment was examined to see if he/she found it necessary to reteach the lesson or concept, or simply make adjustments in their instruction which provided an opportunity for improvement in student understanding.

Background, Context, and History

While teaching pedagogical principles of education at a large state university in the Pacific Northwest, and specifically teaching classroom assessment, many of my students have shared their assessment experiences from their general education courses and content courses as lacking any obvious formative assessment and feedback such that they could clearly see or use it.
The frustration stemmed from their instructors teaching the content material with little to no opportunity for the students to check their understanding until a midterm or final examination. Any feedback after such summative assessments have little applicable value to the students’ ability to succeed. Many instructors in higher education do not have the training or understanding of how to create, implement, and use the principles of formative assessment for the benefit of student learning or to improve their current and/or future instruction (Jensen, 2011). Without this training or understanding, effective student learning may be jeopardized, which in turn leads to a lack of student motivation and contributes to the issue of student retention, a leading concern of administration in higher education (Crosling & Heagney, 2009; Weimer, 2013, 2017).

A review of the literature showed significantly favorable results from the application of formative feedback to student academic improvement impacting student motivation (Fulcher, Good, Coleman, & Smith, 2014; Nicol & Macfarlane-Dick, 2006). Black and Wiliam (2018) added to their original 1998 research of using formative assessment in the K–12 classroom by integrating it into a broader theoretical framework of teaching and learning from which other researchers have extended the pedagogical significance of applying such assessment strategies in higher education. The research-based concepts of evaluating student learning in K–12 to improve academic achievement provides a foundation for applying best practices to teaching and learning in higher education (Barnett, 2000; Cook-Sather, 2011).

My research study was conducted at two different types of public institutions of higher education in the Pacific Northwest using a purposeful sample of instructors across disciplines to increase the reliability of the findings. The two different institutions had different cultures of faculty support and expectations. The community college employed many adjuncts from the
workplace and provided more faculty development focused on pedagogy. The comprehensive university did not offer the same level of faculty development support for teaching. This research provided a basis for faculty to transform their teaching practices contributing to the improvement of the academic success in their classes.

**Statement of the Problem**

One of the current trends in K–12 education is an increase in the assessment of student learning through the application of standardized, summative tests to provide evidence of learning. The drive to show growth in these academic test scores comes from state and federal mandates that tie school funding to the academic performance of schools which is not seen in higher education. The purpose is ostensibly “to close student achievement gaps by providing all children with a fair, equal, and significant opportunity to obtain a high-quality education” (Office of Superintendent of Public Instruction, n.d., para. 3). The periodic state testing of students in K–12 has had mixed results in demonstrating academic growth based solely on student test scores (Dee & Jacob, 2011). This trend of evaluating student learning through standardized, summative tests has prompted some researchers to focus on how formative assessments will provide more student support to increase student test scores (Kaynardağ, 2019; Marzano, Pickering, & Pollock, 2001; Saroyan & Amundsen, 2004).

The main problem my study addressed is that collegiate instructors outside of teacher education typically do not know how to use methods of formative assessment in higher education to gather evidence of learning during the teaching and learning process or why it may inform their instruction and have an impact on student learning; hence, achieving student learning outcomes becomes problematic (Asghar, 2012; Jensen, 2011; Scott-Webber, 2012). The current research into formative assessment practices has previously been limited for application in the
K–12 classroom environment. As a result, instructors in higher education are not exposed to the research of the best practices that are applicable in both educational institutions.

**Purpose**

Higher education creates opportunities for students to increase their knowledge and reasoning skills and to learn how to learn and develop cognitive and problem-solving skills for later use in their career of choice. The purpose of this hermeneutic phenomenological study was to explore the current pedagogical methods of formative assessment used in higher education across disciplines. Improving the learning environment with a constructivist pedagogy uses formative assessment to gauge learning to build new knowledge (Darling-Hammond et al., 2003). This constructivist type of pedagogy can have lasting consequences for students to take responsibility for their learning, for instructors to improve their teaching, and for the institutions to improve student retention (Crosling & Heagney, 2009; Weimer, 2013, 2017).

**Research Question**

In researching how formative assessment strategies are implemented by instructors in higher education, it was necessary to identify the strategies currently being used. Identifying these strategies provided a base for determining why they may or may not be effective in increasing the students' understanding of the subject. Analyzing how the instructor responded to the data he/she received from these assessments provided insight into the instructor’s thinking about how formative assessment should be used. Exploring the feedback given to the students as a result of any formative assessment indicated how an instructor communicates the validity of the assessment results. Hence, the question this research study sought to answer was: How are collegiate instructors using methods of formative assessment to inform their instruction?
Rationale, Relevance, and Significance of the Study

Without effective formative assessment by instructors, students struggle with improving their comprehension of the course subject, which may lead to student dissatisfaction, low faculty evaluation scores, and retention issues (Crosling & Heagney, 2009; Marzano et al., 2001; Weimer, 2013, 2017). Extending the research on the use of formative assessment in higher education allows instructors to continue to improve their teaching and create a more effective learning environment that is conducive to increasing student academic achievement (Brownell & Tanner, 2011; Mascolo, 2009; Raman, 2016). Additional research into how instructors implement formative assessment and if there is corresponding feedback contributes to the conversation of how to increase student academic achievement in higher education.

Researcher-as-Instrument

I performed a hermeneutic phenomenological study from a position of experience in using formative assessment in higher education, as well as teaching formative assessment in a PK–12 teacher education program. The genesis for this study was a result of many discussions with peers in higher education, both who teach in teacher education and those who teach in other disciplines. Comments from former students who completed my course in classroom assessment for learning in the teacher education program prompted a genuine interest in determining how instructors outside of teacher education implement formative assessment in their classes. It was not my intention to determine what other instructors in higher education are doing correctly or incorrectly in facilitating their teaching and learning environment. Nor was it my intention to determine why their students are successful or not in their class. There was no presumption made about the pedagogical training of the instructors. Participants included instructors with a range of experience in teaching.
Definition of Terms

Assessment. The gathering of measurable evidence of learning. Any means of having students say, do, or produce something during instruction is an assessment of acquired knowledge, comprehension, and learning (Chappuis & Stiggins, 2017; Marzano et al., 2001).

Assessment strategies/instruments. The means by which assessment evidence is gathered. Strategies range from personal conversations or class discussion to assignments, projects, quizzes, and tests. Assessment strategies need to be appropriate for the type of evidence being gathered (Chappuis & Stiggins, 2017; Darling-Hammond et al., 2003).

Constructivism. The building of knowledge on prior knowledge and experience. The purpose of using a constructivist teaching approach is to create relevancy for the learner which increases comprehension, knowledge retention, and memory recall (Darling-Hammond et al., 2003; Gardner, 1983; Vygotsky, 1962). How we learn and build knowledge is done in part through the use of formative assessment (Piaget, 1971; Vygotsky, 1962).

Differentiated instruction. The process of varying instruction of a subject to meet the academic and cognitive level of students. Differentiated instruction may be tailored to individuals or groups of students for a lesson or concept. Differentiating instruction can only occur if formative assessment is implemented as part of the teaching and learning process (Wormeli, 2006). Differentiation is not to replace explicit instruction for individuals with identified learning disabilities (Mintz, 2006).

Evidence. The measurable proof that a student has or has not achieved competency in a subject, concept, or course outcome. Types of evidence may be a student’s knowledge and understanding which represent specific facts and their relationship to each other, and/or a student’s reasoning skills which demonstrate their ability to apply their knowledge and
understanding. A student’s ability to create a product or perform a physical skill may also act as a type of evidence as proof of learning (Chappuis & Stiggins, 2017; Marzano et al., 2001).

**Exit ticket.** A brief questionnaire given to students at the end of a class to gather immediate evidence of learning from that class session. Exit tickets are a type of formative assessment which may be paper, digital, or verbal, collected as students leave the classroom (Marzano, 2012; Marzano et al., 2001).

**Formative assessment.** The informal or formal process of assessing during the instruction process for the purpose of determining the next steps in teaching. Informal processes may be personal communication with a student or group of students, in-class activities, or an exit ticket. Formative assessment may or may not be considered academically consequential with an assigned point value or grade. The users of formative assessment are both the instructor and student. The instructor evaluates if reteaching is necessary or only minor corrections to a student’s understanding of the material. The student has the opportunity to make corrections in his or her learning process (Chappuis & Stiggins, 2017; Darling-Hammond et al., 2003; Marzano et al., 2001).

**Formative feedback.** Feedback is information given by an instructor to a student as a response to formative assessment of the student’s work or expressed understanding of a concept or subject. Formative feedback is information that details a student’s strengths and needs, providing the student the opportunity to improve on his or her current level of understanding (Darling-Hammond et al., 2003).

**Metacognition.** The process of thinking about thinking. A cognitive awareness of how one thinks and how one knows what they know. As individuals are physically unique, so are they unique in how they think and process information (Darling-Hammond et al., 2003).
Reliability in assessment. The consistency in the results of assessments. Clarity in assessment questions or the stated expectations creates consistency. Assessments that are confusing, ambiguous, or contain examples/scenarios that students are not familiar with are not reliable (Chappuis & Stiggins, 2017; Marzano et al., 2001).

Summative assessment. The formal process of assessing to determine the sum or totality of learning. Formal processes range from a mid-term or final exam to exams required for a specific content certification. Summative assessments are consequential and carry a score value as a record of a student’s academic achievement. The users of summative assessments are the instructor and program director (Chappuis & Stiggins, 2017; Darling-Hammond et al., 2003; Marzano et al., 2001).

Validity in assessment. The alignment of instructional activities and assessments to predetermined goals to assess what you want the students to know. Applying assessment strategies to elicit evidence of what was taught, presented, or expected contributes to validity in assessment. Assessing on information that is not presented in class or present in the materials is not valid (Chappuis & Stiggins, 2017; Marzano et al., 2001).

Zone of Proximal Development (ZPD). The area of a student’s capability to successfully learn a concept with or without instructor support. The importance of teaching to a student’s ZPD is to attain the best chance for academic success. Teaching students the information they already know does not contribute new knowledge and teaching the students information beyond their cognitive ability to grasp does not result in academic achievement but in frustration (Vygotsky, 1962).
Assumptions and Delimitations

It is necessary to recognize assumptions made to develop and conduct any research (Simon & Goes, 2013). This study required some assumptions about the theoretical basis, the participants, and the methodology used to obtain data. The first assumption was relying on the theoretical basis for applying formative assessment in any teaching and learning environment. Depending on foundational research for how we learn provided the background for many of the best practices referenced throughout this study. The second assumption was that the participant instructors were competent in the field for which they are contracted to teach and understand the necessity of meeting the course outcomes as outlined by the institution. Third, it was assumed that the participant students were aware of the course outcomes as communicated by the instructors. Fourth, it was further assumed that the participants were honest in answering the interview questions and described their experiences to the best of their ability and understanding. The final assumption was that the interviews and focus group conducted by the researcher provided enough data from which to interpret the participants’ lived experiences.

It was necessary to outline the boundaries and scope of this study to recognize the inherent limitations of its validity and reliability (Simon & Goes, 2013). Due to the logistics of time and distance, this study was restricted to two different institutions of higher education in the Pacific Northwest, a community college and a comprehensive state university. While the participant sample consisted of different disciplines across the institutions, it was limited by who agreed to participate, including the logistics of conducting individual interviews and a focus group.
Summary of Chapter 1

Formative assessment as seen in higher education is one component of evaluating what influences student academic success. The interpretation of the lived experiences of the instructors in how student success is measured throughout various academic disciplines can inform instructors and programs on how to improve student achievement. Applying the research-based best-practices of formative assessment from the PK–12 environment benefits the individual collegiate instructor’s teaching as well as their students’ learning (Cook-Sather, 2011; Gibbs, 2010). The following chapter presents the conceptual framework developed to support a review of the relevant literature of the previous research for formative assessment practices in higher education.
Chapter 2: Literature Review

The purpose of this literature review was multifaceted. One intention was to investigate previous research that explored the application of formative assessment in higher education. On the other hand, this review evaluated and situated the appropriateness of this study within the current literature. Specifically, this review investigated and supported the need for additional research into the impact of formative assessment with the use of feedback and its value to student learning in higher education. The research in employing formative assessment in higher education was built, in part, on the results of its purposeful, relevant application in the K–12 school setting (Barnett, 2000; Cook-Sather, 2011; Fuchs, 2017; Huba & Freed, 2000; Raman, 2016; Reder, 2007; Saroyan & Amundsen, 2004; Sorcinelli, 2007).

Organization of Literature Review

This review of the literature was focused on higher education classrooms, the application of formative assessment, formative feedback, and the resulting perceived impact on student learning. An initial review of 48 articles, mostly published between 2013 and 2018 with a couple of significant articles published in 2012, was generated using the following keywords in various combinations: formative assessment, instructor feedback, formative feedback, assessment for learning, student perceptions, and student motivation. The literature was organized from an initial scan by type of article as a journal article or an article based on original research. The articles based on others’ research and original research articles were then sorted by research methodology and the methods used to gather data. During the initial scan, some of the literature originally found was discarded and additional literature added as each piece was analyzed by the abstract, its conceptual framework, and the results or conclusion. After the initial scan was completed, a more in-depth reading and analysis were conducted with each piece of literature,
manually highlighting in four colors the relevant attributes according to the proposed Argument of Discovery (see Appendix A). The relevant attributes, which were determined from the initially proposed research topic, are: (a) the purposeful gathering & evaluation of evidence of acquired knowledge during the learning process, (b) the resulting motivation of learner to improve academically, (c) instructor feedback during learning, and (d) student perception of assessment and feedback. The attributes found in each piece of literature were transcribed word for word with associated page numbers placed into a literature matrix. This resulted in the distribution of attributes to the number of articles where attribute one appeared across 31 articles, attribute two in 15 articles, attribute three was found in 34 articles, and attribute four in 33 articles. The constructed literature matrix was then sorted by type of article, methodology, and research method with the accompanying attributes found in each article. This organization of the literature allowed for a systematic analysis and presentation of the contribution each piece provided for laying the groundwork to conduct the Argument of Advocacy (see Appendix B) to complete the study.

**Conceptual Framework**

In determining how to search for literature which supported the topic of formative assessment in higher education, a conceptual framework was needed to create a base from which to begin narrowing down the topic to focus on the different components of formative assessment relevant to the problem statement (Ravitch & Riggan, 2017). This framework shown in Figure 1 served as a conceptual map to guide this study so it could productively contribute to the body of knowledge of best practices in education with the aim to clarify how student learning and academic success was achieved through formative assessment. Student learning is both dependent on prior knowledge and experience with the subject matter, as well as attaining
Figure 1. The conceptual framework of formative assessment in the higher education classroom. The teaching and learning cycle based on research-based best practices (Marzano et al., 2001).
additional knowledge, which is presented through a constructivist educational environment designed to build on that prior knowledge and experience (Piaget, 1971; Vygotsky, 1962). While new knowledge is available through individual research, teachers can facilitate the understanding of new knowledge by helping students connect concepts, build critical thinking skills, and develop problem-solving skills for use beyond their educational experience (Gagne, 1965).

This conceptual framework illustrated five components of the teaching and learning cycle, of which formative assessment is an integral part. Using formative feedback, a component of formative assessment, is how teachers can facilitate the understanding of new knowledge (Darling-Hammond et al., 2003). Summative assessments are typically for providing “evidence of student achievement for the purpose of making a judgment about student competence or program effectiveness” and formative assessments are both “formal and informal processes teachers and students use to gather evidence for the purpose of informing next steps in learning” (Chappuis & Stiggins, 2017, p. 21). Simply stated, formative assessment is for learning and summative assessment is the sum of learning. University faculty use mid-terms and final exams, term papers, and final projects to determine a student’s sum of learning. If formative assessment is not employed during the learning process, it may be difficult for students to gauge how they will perform in the summative assessments. Additionally, this review included the application of instructor feedback to improve student learning and how students used the feedback.

While assessments are a necessary component of higher education for both students and university programs, it is important to separate the evaluative judgment associated with assessments and apply a purposeful approach to improve student learning. This subsequently motivates students to make the necessary adjustments in their understanding to be academically successful (Marzano et al., 2001). Another important component of using formative assessment
in the classroom is the opportunity for the instructor to adjust their teaching to elicit a clearer and more thorough understanding of the course content (Chappuis & Stiggins, 2017).

**Classroom Instruction**

The first component of the conceptual framework for investigating formative assessment in the higher education classroom began by determining how it is employed within the structure of the classroom instruction (see Figure 1). The university instructor plans their instruction according to their discipline, pedagogical knowledge base, and teaching style. Some of the methods which may be present are lecture, inquiry, a project or lab, and assignments where students can synthesize and assimilate the subject matter conveyed by the instructor and any additional materials used in their teaching.

**Formative Assessment**

The concept of formative assessment shown in Figure 1 contains the basic elements of all assessments which is to gather measurable evidence of learning to provide a basis for making a judgment about student competence or program effectiveness. The second component of this conceptual framework detailed the means by which the formative assessment process gathers the evidence (Black & Wiliam, 2018). An instructor may utilize a quiz or exit ticket in addition to employing a question and answer session or through simple classroom observation (Marzano, 2012). Formative assessment includes a broad range of methods which allow an instructor to perform a check for understanding throughout the teaching and learning experience (Chappuis & Stiggins, 2017; Darling-Hammond et al., 2003; Marzano et al., 2001).

**Evidence of Student Learning**

All formative assessment instruments or processes as shown in Figure 1 are intended to gather measurable evidence of student learning (Chappuis & Stiggins, 2017). The third
component of the evidence from formative assessment may be embedded in the normal process of the instructor's teaching environment (Darling-Hammond et al., 2003). Student responses during a question and answer session are evidence of their understanding of the current topic being discussed. Students show their level of comprehension through their responses to a quiz or an exit ticket (Marzano, 2012). The class conversations observed by an instructor provide a meaningful opportunity for gathering evidence of student perspectives of the course material which can lead the instructor to discover how students interpret their teaching. Any means that instructors can utilize to determine the extent of their students’ understanding gives them a window into the connection and effectiveness of their teaching (Black & Wiliam, 2018).

**Instructor Feedback to Student**

Authentic feedback that an instructor presents to students during the learning process (see Figure 1) is the fourth important component of this conceptual framework (Owen, 2016). Feedback can serve as an opportunity for additional teaching to shore up student gaps or misconceptions in their understanding of the content. Formative feedback as part of formative assessment is characterized as the articulation of a students’ strengths and needs, based upon the evidence of their learning at a point in time and throughout the teaching and learning experience (Chappuis & Stiggins, 2017). The strengths and needs of a student as communicated through instructor feedback provide the student with tangible information to improve their academic learning (Mulliner & Tucker, 2017). Delivering feedback of a student’s strengths is more than just stating what is presented as a good comprehension of the subject, but additional suggestions of how the student may extend or apply their understanding to a new task or a more complex version of the one just completed. An instructor’s feedback of a student’s needs is more than a
response which communicates what the student is missing in their comprehension, but additional support of how they can increase their understanding of the subject.

**Reteach or Adjust Instruction**

The fifth and final component of this conceptual framework (see Figure 1) illustrates where the application of formative assessment could lead (Grosas, Raju, Schuett, Chuck, & Millar, 2016). As an instructor implements formative assessment throughout their teaching, they are gathering evidence of student learning which can inform their immediate or future instruction. Some formative assessment results will demonstrate gaps in student understanding, allowing for an adjustment in how their lessons are taught. Other formative assessment results will show a need to reteach some concepts to attain an improved level of understanding in the classroom. Instructors can add this evidence of learning to their reflective practice so they can make changes in future courses to improve student academic achievement (Sambell, McDowell, & Montgomery, 2012; Saroyan & Amundsen, 2004).

**Theoretical Components**

There is continual theoretical research on how we learn which provides a backdrop for the implications of using formative assessment in higher education. Learning is an active process that is supported through a constructivist framework (Menon, 2016; Wilson, 1957). Presenting knowledge by building on a student’s prior knowledge and experience contributes to the learner’s comprehension and memory recall (Vygotsky, 1962). To integrate a student’s growing body of knowledge into new learning experiences, instructors need to monitor the student’s cognitive level referred to as the Zone of Proximal Development (Darling-Hammond et al., 2003; Vygotsky, 1962; Wormeli, 2006). The ZPD is the area of cognitive ability where a learner can attain knowledge and reasoning skills with supportive scaffolding (Marzano et al., 2001).
Effective teaching presents lessons and content to the student’s ZPD, which becomes a moving target as learning is achieved (Joyce, Weil, & Calhoun, 2015). Assessing student learning throughout teaching is essential to meeting the student’s cognitive level and increasing their ability to learn new information (Black & Wiliam, 2018). The act of learning is fraught with mistakes and incorrect assumptions which is increasingly considered something to avoid (Robinson, 2011). Learning success requires practice, time, and the opportunity to make metacognitive adjustments while attaining and forming new concepts (Bransford, Brown, & Cocking, 2004; Joyce et al., 2015).

**Impact of Formative Assessment**

The education of students in higher education is focused on preparing adults to become contributing members of society. The general mission of an institute of higher education is to prepare students to develop the knowledge, skills, and responsibility to lead creative and productive lives for the benefit of their community and beyond (Fullan & Scott, 2009). To prepare these students for success, the onus is on both the instructor and the student to determine what that success entails and whether the student is on track to attain it.

While investigating previous research exploring the application of formative assessment in higher education, developing a conceptual framework helped to narrow the topic and support the proposed research. This researcher hoped to provide more insight into how instructors in higher education applied formative assessment, determined its effectiveness, and how instructor feedback was given for students to use to improve their academic understanding. Much of the research focused on specific content courses, which begged the question of how formative assessment was applied across content to obtain similar results impacting student achievement. This researcher hoped to extend the literature to answer this question.
Review of Research and Methodological Literature

Much of the recent research has readily embraced the benefits of implementing formative assessment in any teaching and learning environment, whether it is a PK–12 classroom, a classroom in higher education, or for specialty training (Black & Wiliam, 2018). Recognizing the benefits of using formative assessment for the academic success of learners as well as for adjusting the teaching environment does not always translate to the practical realities of its implementation. The following headings break down the literature researched into the aforementioned attributes relevant to this study.

Attribute 1: The Purposeful Gathering and Evaluation of Evidence of Acquired Knowledge During the Learning Process

The emerging themes from the research literature on how instructors implemented formative assessment in higher education referenced the different formative assessment instruments used, when they are used during instruction, the stated purpose for conducting formative assessments, and its predetermined need and usefulness. The variations of how to formatively assess students are often combined with when an instructor implements them. Both the how and when is dependent on whether the instructor deems it necessary to use formative assessment in their classroom.

Formative assessment instruments. There are a variety of ways to implement formative assessment depending on the content and outcomes of a course. The different types of formative assessment instruments used by researchers included exit tickets, student surveys, low-stakes assignments, personal conversations one-on-one or with groups, as well as peer- and self-assessments through reflections or journal writing (Asghar, 2012; Owen, 2016; Patka, Wallin-Ruschman, Wallace, & Robbins, 2016; Restrepo & Nelson, 2013; Roscoe, 2013). Patka et al.
(2016) studied the use of exit tickets and student self-reflection as formative assessments to increase the instructor’s ability to learn about student needs and concerns. The instructors emphasized the importance of asking students specifics regarding their content understanding beyond a simple “what did you learn” (Patka et al., 2016, p. 665) as well as using varying prompts to avoid monotony which may elicit a canned response. Implementing low-stakes assignments creates a progression of formative assessments which allows the instructor to evaluate the students’ level of understanding and helps the students keep track of their learning, evaluating where they may need clarification or additional support from the instructor (Owen, 2016).

**Stated purpose.** Much of the literature discussed research that studied using formative assessment as a study tool for future summative assessments. Exposing students to the concepts they plan on including in a summative assessment created an opportunity for the instructors to gauge their level of comprehension (Bubb et al., 2013; Jacoby, Heugh, Bax, & Branford-White, 2014; Houston & Thompson, 2017). Koke, Jansome-Ratinika, and Koka (2017) and Man Sze Lau (2016) concluded that using formative assessment in the learning process positively impacted the students’ results on their summative assessments. Weurlander, Soderberg, Scheja, Hult, and Wernerson (2012) posited that using different types of formative assessments which complement each other could be a significant support for students in managing their studies by improving their learning as they progressed through the course. Using formative assessments can improve student learning by helping to identify their strengths and weaknesses so that misconceptions or any marked lack of understanding can be addressed immediately (Carter & Bathmaker, 2017; McCarthy, 2017; Torrance, 2012). Systematically aligning formative assessment questions and discussions with predetermined criteria creates validity in discovering

**Predetermined need.** The implementation of formative assessment was examined to determine if it was necessary and useful to the students’ academic understanding of the presented material. Some of the literature was specifically examining when it was the most effective to implement formative assessment within a course’s timeline (Cassells, 2018; Fook & Sidhu, 2013; Lopez-Pastor & Sicilian-Camacho, 2016; Poth, 2018; Restrepo & Nelson, 2013; Roscoe, 2013). Cassells (2018) focused on integrating formative assessment in the learning environment to increase attendance with the implementation of an “early warning system” (p. 525). It was determined that using such a system allowed the instructor to respond to student concerns earlier, empowering them and lowering failure rates. Popham (as cited in Fook & Sidhu, 2013) described formative assessment as a process, planned by instructors to adjust their teaching as an “integral part of the instructional cycle” (p. 3). Referencing formative assessment as a part of the learning process emphasized the importance of implementing it during instruction as a check-in, to monitor comprehension (Lopez-Pastor & Sicilian-Camacho, 2016; Poth, 2018). Self-assessment and self-reflections are formative assessment tools that were shown to empower the students during the learning process (Restrepo & Nelson, 2013; Roscoe, 2013). The implementation of formative assessment in higher education was shown to be a slow process to recognize the need, in part due to the misunderstanding of its purpose (Asghar, 2012; Thomas & Hornsey, 2014; Wheatley, McInch, Fleming, & Lord, 2015).

**Attribute 2: The Resulting Motivation of Learner to Improve Academically**

Another theme that emerged from the research literature conveyed whether students were motivated when formative assessment was implemented. Student motivation was shown to be
connected to the accompanying feedback (Nicol & Macfarlane-Dick, 2006). Student responses were divided between improving their learning or merely improving their grades.

Motivation for improving learning. Intrinsic motivation comes from the desire for increased learning, cultivating interest in the subject matter (Weurlander et al., 2012). When instructors engaged their students during formative assessment with feedback, the students generally responded positively and became motivated to improve their understanding (Asghar, 2012; Jacoby et al., 2014; Pitt & Norton, 2017; Randall & Zundel, 2012; Wheatley et al., 2015). Some of the literature expressed the necessity of using formative assessments to build student confidence, so they were cognizant of their learning allowing them to contribute to the learning process (Frost & Connolly, 2016; Jacoby et al., 2014; Restrepo & Nelson, 2013; Weurlander et al., 2012).

Motivation for better grades. Extrinsic motivation was generated by the students’ focus on grades (Lopez-Pastor & Sicilian-Camacho, 2016; Weurlander et al., 2012). This incentive often led to a negative perspective on assessment and an unenthusiastic predisposition toward the instructor (Cole et al., 2017; Pitt & Norton, 2017). Instructors can frame their feedback from assessment in such a way to encourage students to think critically with purpose, creating an environment that promotes extended learning opportunities beyond the immediate grades they receive (Friedrich-Nel & MacKinnon, 2015; Glazer, 2014; Owen, 2016).

Attribute 3: Instructor Feedback During Learning

The themes regarding instructor feedback during learning from the research literature ranged from the focus of the feedback provided, to the timeliness of feedback, and the various types of feedback.
**Focus of feedback.** The literature’s focus on formative feedback reflected it as a process prior to implementing summative assessment to discuss with students their progress, understanding of the material, and how to improve on their performance in the class (Asghar, 2012; Evans, 2013; Glazer, 2014; Koke et al., 2017; Lopez-Pastor & Sicilian-Camacho, 2016; Perera, Nguyen, & Watty, 2014; Petrovic, Pale, & Jeren, 2017; Wheatley et al., 2015). Instructors used feedback as a form of dialogue to support students by identifying their strengths as well as needs, which contributed to the students’ growing capacity for self-reflection (Fook & Sidhu, 2013; Frost & Connolly, 2016; Jacoby et al., 2014; Lefroy, Hawarden, Gay, McKinley, & Cleland, 2015; Owen, 2016; Patka et al., 2016; Restrepo & Nelson, 2013). However, Grosas et al. (2016) noted the poor quality of some feedback which identified the student’s problem without explaining how to address the problem.

**Timeliness of feedback.** Much of the literature referenced when best to implement instructor feedback, some giving it throughout the learning process and others after specific applications of formative assessment (Asghar, 2012; Bubb et al., 2013; Taras & Davies, 2017; Thomas & Hornsey, 2014; Wheatley et al., 2015). The consensus, however, was that all feedback must be given in a timely manner to affect student achievement (Glazer, 2014; Kaminskiene & Stasionaitiene, 2013). Timeliness allows students to adjust their learning comprehension and for the instructors to reteach or adjust their instruction, as a part of the cyclic process of formative assessment (Bayerlein, 2014; Fulcher et al., 2014; Purcell, 2014; Wanner & Palmer, 2018; Zimbardi et al., 2016).

**Types of feedback.** The feedback instructors chose to utilize were various, depending on the expectations of how it should be used (Friedrich-Nel & MacKinnon, 2015; Gibbs & Taylor, 2016; Jones & Blankenship, 2014). The types of feedback instructors used included personal
feedback on individual assignments, exit tickets, as well as within a dialogue through personal or whole class communication (Lefroy et al., 2015; Mulliner & Tucker, 2017; Patka et al., 2016; Randall & Zundel, 2012). The rubrics instructors provided prior to an assignment or project detailing their expectations was a way to deliver feedback proactively to give students a better chance of success (Jones & Blankenship, 2014; Randall & Zundel, 2012). Petrovic et al. (2017) stressed the importance of providing feedback based on the evaluation of the students’ knowledge while Pitt and Norton (2017) stressed that feedback should not focus on judging the individual. The quality of the feedback requires knowledge of the metacognitive abilities of the students (Vygotsky, 1962; Wheatley et al., 2015) and an engagement in the process by both instructor and student (Darling-Hammond et al., 2003). The compilation of feedback from formative assessment throughout the teaching and learning process builds towards a summative assessment, linking the pertinent concepts to build a comprehensive understanding (Taras & Davies, 2017).

**Attribute 4: Student Perception of Assessment and Feedback**

The perceptions of formative assessment and corresponding feedback appeared in the research literature as to whether the applied formative assessment brought value to the student or the instructor, whether the students found the corresponding feedback useful or not, and whether the instructor believed the students reflected on the formative assessment and feedback received.

**Value to the students and/or the instructor.** The literature showed that some students responded positively to formative assessment (Restrepo & Nelson, 2013). It gave them the opportunity to demonstrate their understanding and reflect on their learning which ultimately led to higher levels of confidence in their ability to succeed (Fook & Sidhu, 2013; Gibbs & Taylor, 2016; Jacoby et al., 2014; Koke et al., 2017; Lefroy et al., 2015; Rosco, 2013). Some instructors
and students did not see the value of formative assessment because they did not understand the pedagogical application or its ultimate purpose as a tool to affect student achievement (Asghar, 2012; Evans, 2013; Frost & Connolly, 2016; Glazer, 2014; Houston & Thompson, 2017; Owen, 2016; Taras & Davies, 2017; Wheatley et al., 2015).

**Perceived usefulness and actual use of feedback.** The literature referenced two different perspectives on the usefulness compared to the actual use of instructor feedback. Students did not tend to use feedback if it was not timely, did not understand it, or it was presented negatively (Cole et al., 2017; Evans, 2013; Jones & Blankenship, 2014; Mulder, Pearce, & Baik, 2014). When instructors communicated how to use the feedback they provided, students were more likely to respond positively and sought to apply it to further their understanding in addressing both their strengths and needs (Bayerlein, 2014; Jing, 2017; Kaminskiene & Stasiunaitiene, 2013; Lopez-Pastor & Sicilian-Camacho, 2016; Patka et al., 2016; Perera et al., 2014; Pitt & Norton, 2017; Randall & Zundel, 2012). Some of the literature stated that the instructors did not believe that students used the feedback yet others believed they did, resulting in how they delivered feedback and its quality in addressing the students’ strengths and weaknesses (Asghar, 2012; Evans, 2013; Mulliner & Tucker, 2017). Many instructors and students tended to fall back on using grades or other scoring marks as pseudo feedback to any assessment, whether because of familiarity with it or their inexperience with the potential effect the purposeful use of formative assessment and associated feedback can have on student academic achievement (Wanner & Palmer, 2018; Weurlander et al., 2012; Zimbardi et al., 2016).

**Review of Methodological Issues**

A review of the literature on formative assessment in higher education revealed the methodological choices researchers made to perform empirical research using data from
students, instructors, and achievement scores. While many of the recommendations from the literature were that more in-depth studies are needed, a longitudinal study of the implementation of formative assessment in higher education is morally problematic (Roscoe, 2013). Using students who are striving to gain an education for their future should never be subjected to less than best practices in teaching (Slavin, 2003).

**Quantitative Research**

In relation to other approaches, not much of the research used a quantitative method. The data collected came from student and instructor surveys using quantified results, questionnaires, case studies, student achievement scores, and instructor evaluation scores (Jing, 2017; Jones & Blankenship, 2014; McCarthy, 2017; Perera et al., 2014; Petrovic et al., 2017; Torres & Leite, 2014; Zimbardi et al., 2016). Using surveys are time-consuming for both the surveyor and surveyed because of the number of prompts needed to objectively control the sought-after data. The quantitative research literature contained structured data within narrow parameters to protect against bias (Petrovic et al., 2017). The benefits, however, of this type of research provided the opportunity to examine specific trends and what the outlying results may be (Creswell, 2014).

The limitations expressed by researchers quantifying the data pointed to the continuous subjectivity of the survey questionnaires and interview questions. There were concerns that student achievement scores may have been affected by confounding variables beyond the implementation of formative assessment or the timeliness and/or quality of the feedback students received (Torres & Leite, 2014). Researchers did not include an examination into the link between the course objectives and the assessment instruments (Cole et al., 2017; Gibbs & Taylor, 2016). The students’ perceptions of those objectives, and their cognitive abilities to achieve them were not addressed as to how the achievement scores improved or not from using
formative assessment (Evans, 2013). Another limitation was the inability to have a control group due to institutions requiring students to be treated equally (Perera et al., 2014). Applying a quantitative method in researching the multiple variables prevalent in the implementation of formative assessment requires a long-term, comprehensive study to avoid relying on the conclusions from research with a limited scope (Roscoe, 2013).

**Qualitative Research**

Most of the research reviewed for this study used a qualitative method. The data collected also came from student and instructor surveys, questionnaires, and case studies (Cassells, 2018; Friedrich-Nel & MacKinnon, 2015; Patka et al., 2016; Randall & Zundel, 2012; Weurlander et al., 2012). This data was analyzed and/or interpreted through a phenomenological lens and, in addition, used observations, interviews, and discussions with students and instructors (Asghar, 2012; Pitt & Norton, 2017; Purcell, 2014; Taras & Davies, 2017; Wheatley et al., 2015). The qualitative research explored how the participants viewed formative assessment, feedback, and how its implementation impacted student engagement and academic achievement. The drawback of this methodological approach is the subjective nature of analyzing and interpreting the data and the possibility of bias creep introduced while performing observations, interviews, and discussions. The benefit of this type of research is the ability to connect with the subjective nature of the participants and analyze the impact it has on the implementation of formative assessment. Creswell (2013) described the results of a qualitative study as one that “includes the voices of the participants, the reflexivity of the researcher, a complex description and interpretation of the problem, and its contribution to the literature or a call for change” (p. 44).

The limitations expressed by researchers using qualitative methods were the varied perspectives of both instructors and students on how to define formative assessment, formative
feedback, and their expectations in regards to its implementation (Asghar, 2012; Taras & Davies, 2017). Students had different views on what their individual needs were in the learning environment, their interpretation of instructor feedback, and what motivated them to succeed academically (Pitt & Norton, 2017; Weurlander et al., 2012). It was also recognized that using small population samples, common to qualitative studies, impacted the significance of the participants’ cultural and educational background as well as the institutional setting.

Mixed Methods Research

Very few of the studies reviewed used a mixed-methods research approach which is more time-intensive as well as time-sensitive. Connecting qualitative data to the quantitative data requires researchers to broaden their scope and population. This allows the researcher to equally validate the results of both and integrate the hypotheses of the research questions for the quantitative and qualitative components of the design (Creswell, 2014). There are clear benefits to applying a mixed-methods approach to a phenomenological subject. One such benefit is that quantitative data collected can apply a trend analysis to the subjective nature of the topic (Johnson & Onwuegbuzie, 2004).

The following weaknesses and limitations were expressed by researchers using a mixed-method approach. The weaknesses of the quantitative study component were ameliorated by combining the subjective nature of the qualitative study. However, the limitations of not having a control group and expanding the scope institutionally were still shown as problematic in reaching any definitive conclusions. The weaknesses of including the qualitative study component were still in making the direct link between the individual participants’ understanding of formative assessment, the students’ cognitive abilities, and the course objectives (Grosas et al., 2016; Koke et al., 2017; Lefroy et al., 2015). Another weakness of combining methodologies revealed the
participants’ shifting perceptions of formative assessment as the student scores were tabulated (Fook & Sidhu, 2013; Mulder et al., 2014; Owen, 2016).

**Method of Choice**

A review of the literature pointed to applying a phenomenological approach using hermeneutics in a qualitative study (Glesne, 2011). This study used interviews and a focus group to gather data from which to interpret what was observed through an experienced lens (Stahl, 2005). Using interviews and a focus group of 10 instructors, across disciplines at two different institutions in the Pacific Northwest allowed me to describe the current level of implementation of formative assessment.

Conducting individual, face-to-face interviews with the instructors allowed me to record and analyze their individual lived experiences with formative assessment. These interviews also revealed how feedback was given, as well as the resulting effect on motivation and learning. Facilitating the focus group with six of the instructors allowed for their perceptions to be re-examined through a collective experience. The collected data was then interpreted through the lens of what is considered best practices in formative assessment as illustrated in the conceptual framework shown in Figure 1.

**Synthesis of Research Findings**

A synthesis of the literature compiled for this review revealed some commonalities and gaps in the current research. The findings among the studies showed a consensus that formative assessment in higher education is considered an integral part of teaching (Fook & Sidhu, 2013). Presenting feedback in some form was shown to be an important component as well (Frost & Connolly, 2016). Through evaluating the literature’s abstracts and keywords, I found that the concepts of student motivation, effective learning, academic achievement, and student
perceptions were addressed much less frequently than formative assessment (Taras & Davies, 2017). The result appeared to be a gap between implementing formative assessment and how it is perceived by students and its impact on authentic student learning (Asghar, 2012; Taras & Davies, 2017). I will explain how the literature described the implementation of formative assessment as well as the different ways instructors delivered feedback to their students. I will also address how students perceived formative assessment and the feedback they received in relation to their academic achievement and motivation to learn.

While the research literature substantiated a consensus regarding the importance of implementing formative assessment in the classroom environment, studies were mixed in relation to the means of accomplishing it. This revolves around the purpose for such an assessment. The literature reported on the research of specific types of formative assessments that were purposefully implemented within specific parameters of time and then analyzed its effectiveness through instructor and student surveys and interviews. A variety of formative assessment strategies were implemented to determine their effectiveness in improving student academic achievement (Asghar, 2012; Owen, 2016; Patka et al., 2016; Restrepo & Nelson, 2013; Roscoe, 2013). Much of the research focused on measuring the effectiveness of formative assessment from the ensuing summative assessment results and student grades (Koke et al., 2017; Man Sze Lau, 2016). Idika and Eke (2017) and Wormeli (2006), an expert on differentiated instruction, explained that formative assessment is a pedagogical concept requiring flexibility in its application in conjunction with differentiated instruction. Much research has been done on the metacognitive abilities and differences in how individuals process and retain new information for later recall and application (Darling-Hammond et al., 2003; Gardner, 1983, 1993; Vygotsky, 1962). The impact of implementing formative assessment is dependent as much
on when as how it is implemented because of the metacognitive differences among the students (Man Sze Lau, 2016). Because of the variability of using formative assessment during teaching, discovering a pattern of effective and/or ineffective practices is difficult (Bubb et al., 2013). There is no one strategy that educators can point to as a definitive measure to assure student success (Evans, 2013).

The purposeful application of instructor feedback to students during or after formative assessment is implemented shows a range of communication strategies (Lefroy et al., 2015; Mulliner & Tucker, 2017; Patka et al., 2016; Randall & Zundel, 2012). As with formative assessment, effective instructor feedback is dependent on its purpose. Some of the literature that described feedback addressing the students’ strengths and needs were reported to be more appealing to the students (Fook & Sidhu, 2013; Frost & Connolly, 2016; Grosas et al., 2016; Jacoby et al., 2014; Lefroy et al., 2015; Owen, 2016; Patka et al., 2016; Restrepo & Nelson, 2013). Other literature considered instructor corrections, scores, and grades as forms of feedback that students could use to improve their academic performance in the future (Wanner & Palmer, 2018; Weurlander et al., 2012; Zimbardi et al., 2016). Feedback, for the purpose of improving student learning, must be varied, based on criteria determined to support student success, and presented often (Hattie, 2012; Hattie & Timperley, 2007). Hattie (2012) explained further that instructors must be prepared to expect misunderstandings of the subject matter. Because of the varied ways in which students learn and the underlying motivations for learning, these studies offered no clear patterns concerning effective or ineffective feedback (Evans, 2013).

**Critique of Previous Research**

The main criticism of the previous research was a lack of recognition about the subjective nature of how formative assessment is implemented, and how the follow-up feedback was
perceived and used by students (Cole et al., 2017; Jones & Blankenship, 2014; Mulliner & Tucker, 2017; Pitt & Norton, 2017; Randall & Zundel, 2012). I will describe how these other variables in the research, regardless of the method used, strained the validity and reliability of the results. Additionally, most of the research designs were focused on specific strategies of formative assessment and/or specific types of feedback the instructors or students engaged in. I will summarize the overall findings and concluding recommendations, then relate these in a logical manner, supported through the literature, to the relevance of my research question.

Formative assessment that promoted dialogue between the instructor and students was found to be beneficial in guiding the learning process (Lopez-Pastor & Sicilian-Camacho, 2016; Idika & Eke, 2017; Man Sze Lau, 2016; Torres & Leite, 2014). The student(s’) perception of their instructor and the subject matter had a significant influence on how they performed on the assessments and used the feedback they received (Jones & Blankenship, 2014; Pitt & Norton, 2017; Randall & Zundel, 2012). The reverse is also evident in that the instructor’s perception of student engagement in the learning process during formative assessment impacted the quality of the feedback they presented to the students (Cole et al., 2017; Mulliner & Tucker, 2017).

The apparent gaps in the literature pointed to a lack of focus on student learning and how students perceived their ability to understand the material and make adjustments based on the feedback they received (Asghar, 2012; Evans, 2013; Mulliner & Tucker, 2017). Student perceptions of whether the instructor was providing academic support via feedback appeared to be connected to their motivation to succeed (Asghar, 2012; Jacoby et al., 2014; Pitt & Norton, 2017; Randall & Zundel, 2012; Wheatley et al., 2015). Depending on grades alone as a measurement of student learning is a deep-seated practice in higher education which is difficult to overcome (Weimer, 2013). It is critical to continue the research of best practices of teaching
and learning in higher education if universities are expected to draw and retain a robust and
diverse student population (Crosling & Heagney, 2009).

The data from this literature was collected primarily from case studies, surveys, and
interviews. Surveys and interviews were dependent on the researchers’ expertise in formative
assessment strategies, theories of learning and behavior, and some understanding of the academic
discipline subject to the study (Bransford et al., 2004). The results were overwhelmingly
supportive of implementing formative assessment strategies that were clearly connected to the
expected criteria of the course (Idika & Eke, 2017; Kaminskiene & Stasiunaitiene, 2013; Man
Sze Lau, 2016; Torres & Leite, 2014). There was a consensus that more formative assessments
were recommended because they seemingly had a positive impact on the students’ summative
assessments (Koke et al., 2017; Owen, 2016; Petrovic et al., 2017). The combination of the
results pointed to some similar recommendations that 1) engaging students in the assessment
process transferred the responsibility of their learning to them (Evans, 2013; Fook & Sidhu,
2013; Lefroy et al., 2015; Lopez-Pastor & Sicilian-Camacho, 2016), 2) blending formative
assessment with instruction using a variety of strategies enhanced the learning process while
improving the quality of teaching (Owen, 2016; Purcell, 2014; Randall & Zundel, 2012;
Restrepo & Nelson, 2013; Torres & Leite, 2014, and 3) that quality and timely feedback
contributed to improved student motivation and learning (Pitt & Norton, 2017; Weurlander et al.,
2012; Wheatley et al., 2015).

The validity of the collected data from each research study reviewed was limited to the
context and parameters of the study. How formative assessment was implemented and evaluated
in a mathematics or science course was not easily transferred to a humanities course due to the
varied nature of the subject, the instructors’ mindset of how to teach, and the students’
motivation to take such courses (Thomas & Hornsey, 2014; Wheatley et al., 2015). Reviewing the literature’s conclusions reinforced the subjective nature of how instructors and students view their responsibilities in the teaching and learning environment (Torrance, 2012). Much of the literature reflected the “sage on the stage” approach to teaching in higher education where the instructor teaches, the students listen, and learning is the expected conclusion (Grosas et al., 2016; Owen, 2016).

**Summary of Chapter 2**

The purpose of this literature review was to provide a conceptual framework and a review of formative assessment practices in higher education. This included an examination into the implementation of formative assessment, the use of instructor feedback, and the impact it may have had on student academic achievement. The conceptual framework developed for this study was based on the widely accepted teaching and learning cycle, focusing on its application of formative assessment (Marzano et al., 2001). This framework illustrates a purposeful approach to implementing formative assessment and instructor feedback to improve student learning, providing the students an opportunity to make adjustments in their coursework, and for the instructor to adjust their teaching to improve student learning (Chappuis & Stiggins, 2017). A review of these components in the literature created a body of evidence to support additional research into the implementation of formative assessment practices in higher education. This study provided a baseline for instructors in higher education to adjust how they determine their students’ learning during instruction by combining formative assessment strategies with formative feedback, which creates the opportunity to impact student academic achievement. The following chapter presents the methodology and data collection sequence used to conduct this study.
Chapter 3: Methodology

In researching how formative assessment was implemented by instructors in higher education, it was necessary to determine how instructors defined their experience of using formative assessment, how they decided to apply it, and how students perceived it. Identifying these experiences provided a basis for determining why they may or may not have been effective in increasing the students’ comprehension. Analyzing the instructors’ responses to the data they received from these assessments provided insight into their perceptions about how formative assessment should be used. Feedback provided to the students as a result of formative assessment indicated how the instructors’ communicated the validity of the assessment results (Darling-Hammond et al., 2003; Jones & Blankenship, 2014; Randall & Zundel, 2012). The purpose of this descriptive study was to explore the current pedagogical methods of formative assessment used in higher education across disciplines. The research question was: How are collegiate instructors using methods of formative assessment to inform their instruction?

Methodology

A review of the literature for this study pointed to using a non-positivist philosophy in a qualitative research study. Using a qualitative phenomenological approach is the opposite of the philosophy of naturalism, or positivism. Naturalism posits that all phenomena can be examined objectively with testable conclusions (Guignon, 2012). Applying the method of hermeneutics takes an interpretive view of the phenomena experienced by individuals or people groups, whereas the objective analysis of one’s experience discounts the historical element of that experience (Gadamer, 1975; Glesne, 2011; Laverty, 2003; Ricoeur, 1975). Gadamer (1975) stated that it is the interpretation of an experience that results in understanding, as opposed to understanding being loosely affiliated with an interpretation. An individual’s varied experiences
are influential to his beliefs and interactions with others within varied environments (Gadamer, 1975). This hermeneutic phenomenological study used interpretations of the participants’ meanings from their experienced perspectives to help create a baseline of findings for this and future research, whereby different treatments can be applied in analyzing affected outcomes (Dash, 2005).

Phenomenology uses the participants’ descriptions of their experiences, which creates meaning for them (Goble & Yin, 2014). The differences in personal experiences reflect one’s prior experiences, which in turn shapes future expectations (Ricoeur, 1975; Stahl, 2005). Individual metacognitive characteristics set people apart in their perspectives even if within a larger, cohesive activity, and purpose. People live their lives and make choices by evaluating available options in accordance with their personal experiences and observations of life outside of their domain (Ricoeur, 1975). From such points of reference, individuals construct meaning from which they process future life decisions (Laverty, 2003).

This constructivist approach, assessing how people assimilate new experiences with their prior knowledge and experiences, was first introduced by the psychologist Jean Piaget (1957). Vygotsky (1962) then expanded on this approach to explain how knowledge with meaning is attained. People’s lived experiences, whether individual or as a group, contribute to the ongoing development and variable meanings applied to such phenomena. The phenomenon of teaching in higher education is variable and dependent upon the participants’ prior knowledge and experience with that teaching and learning environment (Barnett, 2000; Mascolo, 2009; Reder, 2007).

Applying hermeneutics to the phenomenon of teaching in higher education required a careful interpretation of the participants’ interviews (Seidman, 2006). Hermeneutics was
developed and promoted by the German philosopher Friedrich Schleiermacher in the early 19th century as a theory of methodology for sociological interpretation (Mantzavinos, 2016). Schleiermacher went beyond the traditional practices of how religious and ancient philosophical texts are interpreted by recognizing that interpreting text was dependent on understanding the author’s personal and foundational experiences as well as the contextual framework surrounding the creation of the text (Mantzavinos, 2016). Semantics, the literal meaning of a text, must be recognized as only part of the complexity of text interpretation, just as part of a text cannot be sectioned off without regard to the whole in applying an accurate meaning behind it (Mantzavinos, 2016). Applying the method of hermeneutics to phenomenology creates a conduit for providing the contextual meaning of an individual’s or group’s experience (Ricoeur, 1975).

Using the transcriptions from the participants’ interviews and the focus group discussion provided the text and afforded contextual explanations to assist in interpreting individual phenomena (Seidman, 2006).

**Research Design**

This hermeneutic phenomenological research design was structured to describe the experiences of collegiate instructors and interpret their attributed meanings in how formative assessment was used during instruction. Heidegger’s hermeneutic circle was used as the interpretive lens for understanding the lived experiences of the participants (Peoples, 2017). The hermeneutic circle begins with the whole, breaks it down into an analysis of the parts, and reforms into the whole from a synthesis of the parts as shown in Figure 2 (Gadamer, 1975). The essence of formative assessment is for the whole to be defined, providing a preunderstanding of the components and purpose of formative assessment (see Figure 2).
RESEARCH QUESTION: “How are collegiate instructors using methods of formative assessment to inform their instruction?”

Formative Assessment: “the formal and informal processes teachers and students use to gather evidence for the purpose of informing next steps in learning” (Chappuis & Stiggins, 2017, p. 21)

Figure 2. Heidegger’s hermeneutic circle is adapted here to portray interpretation from a preunderstanding of the whole as grasped through understanding the parts which leads to a revised understanding of the whole (Gadamer, 1975).
To fully understand formative assessment, its components and purposes must be defined. These components were examined through an interpretive analysis of the lived experiences of the instructors in the learning environment of higher education. The participants were interviewed as to their individual experience with formative assessment, including the feedback given to the students and how it was received by them. The focus group added to the data with additional descriptions of the participants’ combined experiences. Transcriptions of the interviews and focus group dialogues were coded for clusters of meanings and themes to determine the central underlying meaning of the participants’ experiences (Flipp, 2014).

Using a case study to describe formative assessment in higher education was not conducive to interpreting the participants’ experiences across disciplines. Case studies are generally used to investigate a single event or situation over a period of time, focusing on a single group or individual. Much of the literature on formative assessment in higher education is focused on a single discipline, single instructor, or a single class (Asghar, 2012; Carter & Bathmaker, 2017). This singularity made it difficult to extrapolate relevant findings to apply across disciplines and institutions. Gathering data would have required multiple cases making it more difficult to reliably distill the results into valid conclusions. Everyone’s experiences are influenced by their cultural surroundings, their prior experiences, and their preconceived ideas of what is teaching and learning. Therefore, the discrete nature of teaching and learning called for a study with a more flexible means of interpreting the experiences of the participants. Hence, applying the method of hermeneutics provided this researcher with a broader foundation from which to interpret the lived experiences of the instructors that participated in this study.
Research Setting

The instructor participants for this research came from two separate institutions of higher education in the Pacific Northwest. One institution is a comprehensive state university, and the other a community college. The comprehensive university is in a rural, small-town environment but is only 2 hours away from a major metropolitan area. Its student population draws from both rural and urban areas of the Pacific Northwest resulting in a diverse environment with nearly half being students of color and about two thirds of the students are receiving either federal or state grants. The community college is also in a rural environment, and two hours away from a major metropolitan area, but with more limited, specialized discipline offerings providing skill certifications as well as general education courses which prepare students to transfer to a 4-year university.

The university was founded over a century ago as a state teacher’s college and gradually transformed to become a 4-year comprehensive (non-research) public state university. In keeping with its founding as a normal school, most of the students enroll in education majors, as most of the K–12 public schools in the state employ its teaching graduates. The university is also nationally recognized in music and the sciences, specifically geology and physics. The institution offers a significant number of undergraduate and masters degrees in nearly 50 programs to over 10,000 students per year. The average student-faculty ratio is low, and almost a third of the students receive State Need Grants for tuition with the majority of the students being state residents. The university is competitive with the other state schools academically where the average high school GPA of accepted students is just over 3.00 with a high acceptance rate. Nearly one third of the student population are students of color. The host community is primarily an agriculture and ranching community creating a diverse population with regards to higher
education. The campus employees mostly reside within the city that serves the needs of both the rural and urban populations.

The community college is in a small rural town. The institution offers about 20 associates degrees in the liberal and technical arts, as well as the sciences, which can lead to technical certifications or university transfer degrees. On average, there are 3,500 students per year, with nearly one third who are students of color and nearly half of the students are designated as non-traditional. The average student-faculty ratio is low. Many of the certificate degrees prepare students to enter the workforce with specific skills for more immediate job placement based on industry standards. The host community is an older small town whose economy, formally in the lumber industry, is now centered on the college and primarily light industrial businesses.

Sample, Sampling Method, and Related Procedures

The sample for this study consisted of six and four instructors each, from the university and the community college respectively, for a total of 10 instructors representing a range of disciplines. Instructors from the teacher education programs were excluded. The participants from each institution were selected through the purposeful sampling method of maximum variation from those who volunteered to participate. The maximum variation sampling method was to facilitate heterogeneity in the participant population which allowed the researcher to guide the diversity of the participants chosen (Creswell, 2013; Palinkas, Horwitz, Green, Wisdom, Duan, & Hoagwood, 2015; Suri, 2011). The criteria of sufficiency and saturation were dependent on the variation of the target population. The university sampling consisted of five instructors with a Ph.D. and one with a Masters. This sample included tenured and tenure-track faculty with a range of teaching experience from two to 10 years, as well as men and women as represented by the university target population. However, only one minority instructor was
included due to responses from the participant solicitations. Using a diversity of participants removed the potential to connect the type of participant to their teaching practices (Seidman, 2006). The community college sampling was comprised of four instructors who had a range of five to 26 years of teaching experience, two of them with an advanced degree. An email was sent to each institution to solicit volunteer instructors (see Appendix C). Each volunteer participant was asked to fill out a consent form to be a part of this study (see Appendix D).

**Instrumentation**

Phenomenological research uses interviews and focus groups as a means for collecting data on the participants’ lived experiences (Creswell, 2013). Guided interviews and focus groups using an agenda provide a level of dependability and consistency. After the participants completed the demographic questionnaire, the researcher used a guide for the semistructured interviews and a focus group agenda to maintain a collaborative structure for peer discussions. These instruments were developed in part from my own experience as a teacher and a learner as well as conversations with both my peers and my students at the institution where I currently teach.

**Demographic Questionnaire**

The participants each received a demographic questionnaire (see Appendix E) to provide a personal and historical context for their perspectives. An individual’s previous experiences are a significant influence on his perspectives, motivation, and future decisions (Mezirow, 2000). Understanding the contextual background allowed the researcher to tailor any follow-up questions prompting the participants to reflect on prior decisions and motivations. The demographic questions were based on my experience as an instructor in higher education and conversations with my peers.
Interview Guide

An interview guide was used for the individual, face-to-face interviews (see Appendix F). The guide contained questions regarding the present experiences of the participants as well as questions for the participants to reflect on their experiences. In interviewing the participants to determine their lived experience, I was striving to eliminate any questions which were considered judgmental, leading, or in any way influential from my preconceived expectations.

Focus Group Agenda

A focus group agenda was used for the focus group discussion (see Appendix G). The agenda began with the participants introducing themselves to each other. The facilitator discussed the purpose of the focus group to have a collaborative discussion of their lived experiences in using formative assessment in their classrooms. Next, there was an opportunity for the participants to follow-up on their thoughts from the individual, face-to-face interviews. Then the facilitator used prompts to initiate discussion amongst the participants in the group. Following a set agenda encouraged the facilitator and the participants to remain focused and gave participants an opportunity to express themselves amongst their peers.

Data Collection Methods and Procedures

A hermeneutic phenomenological study requires collecting data on a phenomenon using the participants’ lived experience regarding said phenomenon, so one can interpret the meaning as described by them (Ricoeur, 1975). The four steps for data collection were: (a) invitation to instructors to participate in this study, (b) completion of a demographic questionnaire by the volunteer participants, (c) face-to-face individual interviews with the 10 chosen participants, and (d) facilitation of the focus group with the six participants from the university who all were
willing to continue their participation in the study. The individual interviews and the focus group were both audio recorded for later transcription by the researcher.

**Invitation to Participate**

The first step was to email a request to the office of human subjects at each institution for permission to conduct research on their campus with the Institutional Review Board approval from Concordia University-Portland (see Appendix B). This request asked the office to disseminate an email invitation to the college deans to be sent out to the instructors as they deemed appropriate to meet the inclusion criteria (see Appendix H). The invitation to the instructors asked for a response within two weeks of its receipt to the researcher’s email. When there were not enough respondents to meet the population sample noted, a second invitation was emailed again to the office of human subjects to be forwarded to the college deans.

**Demographic Questionnaire**

The second step was to email a demographic questionnaire to those who responded to the invitation (see Appendix E). This request asked the respondents to return the questionnaire within two weeks of its receipt to the researcher’s email. The questionnaires received were reviewed using the purposeful sampling of maximum variation to choose participants for this study according to the predetermined qualifying parameters. The names of the chosen participants were only used for the purpose of making contact to arrange a time to conduct the individual, face-to-face interviews. The chosen participants were emailed a consent form to participate in the study which was returned at the time of the interview (see Appendix E).

**Face-to-Face Interviews**

The third step was conducting individual, face-to-face interviews with the chosen participants using semistructured interview questions (see Appendix F). After obtaining the
completed consent form from the participant to be a part of this study, the interviewer began recording. Each participant interview was conducted in the instructor’s campus office, with university participants’ interviews lasting about 40 minutes and the community college participants’ interviews lasting about an hour. The interviewer used the interview guide (see Appendix E) for initial questions and prompts and asked follow-up questions to clarify the participants’ answers with more in-depth descriptions and examples. The interviewer recorded notes on the interview guide in the event the recorder failed to work properly during the interview.

These interviews allowed the researcher to record the lived experience of the participants as opposed to seeking answers to questions of preconceived ideas or expectations of the phenomena (Seidman, 2006). The type of interview for this research was a semistructured interview method using open-ended questions. The individual interview was to gather data on the instructors’ current experiences of formative assessment and to ask them to reflect on the meaning of their experiences (Seidman, 2006). This interview process facilitated the collection of a cumulative body of data built on a sequential narrative experience. Not only was the data used to interpret the instructors’ individual experiences, but how they experienced formative assessment in the teaching environment, and their beliefs on its effectiveness in student academic achievement.

**Focus Group**

The fourth step was to facilitate the focus group with the six university participants. The participants were all asked at the time of their interview if they would be willing to continue to participate in a focus group. When they all confirmed their willingness to participate, a formal announcement was sent informing them of the date, time, and place of the focus group session.
The focus group was video recorded and conducted for 60 minutes in a conference room on campus, with an audio recording as backup. Using an agenda, the facilitator began by presenting the purpose of participating in the focus group and what the participants may expect (see Appendix G). A list of prompts was presented to the participants in the beginning, which allowed them to begin considering their responses. The facilitator provided time to allow the participants’ conversation to reach a satisfactory conclusion before moving on to the next prompt. Follow-up questions from the facilitator were for the purpose of providing clarity of their responses.

The prompts for the participants’ discussion were open-ended to elicit additional individual thoughts from the interviews. The participants were prompted to have a conversation with each other about their experiences, exploring whether they are similar or how they differ. Doing so provided additional experiential data for interpreting how formative assessment occurs in the college teaching and learning environment (Stahl, 2005).

**Purpose of Sequence**

Conducting the individual, face-to-face interviews first allowed the researcher to understand the lived experiences of each participant separately. An in-depth interview process goes beyond a simple question and answer session to embrace the embodiment of the participants’ interpretation of their experiences (Seidman, 2006). The focus group was essentially a group interview which allowed the participants to interact with each other, giving them an opportunity to examine the meaning of the participants’ individual experiences through a collective lens (Nagle & Williams, 2013). Conducting the focus group after the individual interviews provided each participant the time to reflect on their interview before hearing about the other participants’ experiences. The time-lapse between the interviews and the focus group
session removed the influence of peers, however unintended, allowing the participants to explore and arrive at their experiential meaning.

Data Analysis Methods and Procedures

Using Heidegger’s hermeneutic circle discussed in Chapter 2 (see Figure 2) as a framework, the interpretation of the participants’ experiences began with a preunderstanding of what constitutes formative assessment based on research-based best practices currently applied in teacher preparation programs (Gadamer, 1975). A review of the literature of formative assessment in higher education shows content courses using a variety of formative assessment practices with varied success (Asghar, 2012; Jing, 2017). The research for best practices in formative assessment has been primarily focused on the K–12 educational arena (Kaynardağ, 2019; Marzano et al., 2001). This pedagogical basis for formative assessment translates in application to a preunderstanding for this study of what constitutes best practices in higher education (Barnett, 2000; Raman, 2016; Reder, 2007; Saroyan & Amundsen, 2004). The participants’ experiences were analyzed through the lens of this preunderstanding of formative assessment.

After the researcher transcribed the interview and focus group recordings, the transcripts of the participants’ experiences were compiled and organized for analysis and interpretation. Each interview documented the lived experiences of using formative assessment in the classroom. The focus group discussion recorded any additional personal perspectives the participants may have recognized through the discussion with their peers. The transcriptions of the participants’ experiences were coded by chunking and using constant comparison, looking for patterns and their relationships with each other. Initially, the transcripts were coded by description for the occurrence of the participants’ described actions related to formative
assessment and feedback. Additional descriptive coding was applied to the participants’ described responses. Next, the instructors’ responses were coded by strategies of formative assessment. Analytic coding was used to develop thematic categories and look for linking patterns between the participants’ actions and responses with the types of formative assessment used or experienced (Richards & Morse, 2007). The participants were also examined for whether their perspectives evolved from the individual interview to and during the focus group discussion. Furthermore, patterns of linkage between the instructors and how their students responded to the feedback they receive revealed commonalities and contrasting viewpoints. Some of the coded topics were based on the preunderstanding of formative assessment while allowing for unanticipated themes to emerge from the data. A synthesis of the coded data formed the interpretation of the participants’ experiences.

The next step in the hermeneutic circle was the interpretation of the transcribed data that was collected (see Figure 2). The demographic questionnaire provided a historical basis for interpreting the participants’ responses to the interview questions and the focus group discussion as well as provided background information on the participants. Interpreting the meaning of the participants’ lived experiences required a vigilant awareness of my own experiences to avoid bias. The interpretation was derived using the preunderstanding of formative assessment as a reference. Defining and describing the participants’ experiences began with the individual instructor and was enhanced by the collaborative group arriving at an amalgamation of experiential meanings.

**Validation of the Research Design**

In determining the credibility and dependability of a qualitative study, the researcher must recognize its limitations. The participants and researchers in a qualitative study must
navigate the vagaries of human nature to interpret or discover credible and dependable meaning from the collected data. Eisner (1991) created standards of credibility for developing a structured corroboration by collecting different types of data from multiple sources. Different data sources should provide evidence that may or may not produce patterns that substantiate an interpretation of collected data. These standards aid in achieving a high level of confidence in the interpretations and observations from which conclusions can be credibly made. Lincoln and Guba (as cited in Creswell, 2013) refer to the dependability in the conclusions from a qualitative study, expressing the need to seek confirmability through a comprehensive analysis of the research methods used. Collecting data using interviews and a focus group is inherently subjective due to the interpretations of the participants’ experiences and the meanings they ascribe to those experiences. The conclusions reached in this study relied on the researcher creating a structured method for collecting the data to minimize the subjectivity thereby increasing the dependability. The intention was to answer the research question and to provide suggestions that are usable by future researchers and educators.

**Credibility**

Credibility refers to the internal validity of the research data collected. Triangulation is a way to assure that a conclusion from research is supported by a valid data collection. The credibility of the research is dependent on valid data as well as the integrity of the resulting inferences. It is also important to determine if some of the data collected prove the opposite of the researcher’s assertions (Hammersley & Atkinson as cited in Schwandt, 2007). A triangulation of sources and theory were applied as defined by Patton (2002) where the data from the different perspectives of the participants was interpreted. In a qualitative research design
using phenomenology, credibility comes from whether the participants’ experiences are believable and trustworthy.

The credibility of this study relied in part on the standardization of how the participants were chosen, as well as in the construction of the interview questions, which in turn contributed to internal validity (Seidman, 2006). The selection of the participants used the purposeful sampling method of maximum variation of the population (Creswell, 2013; Palinkas et al., 2015; Suri, 2011). Using the same interview questions for all participants elicited data from equal starting points (Seidman, 2006). The focus group discussion was facilitated using open-ended questions to avoid any leading questions which prompted the group to explore their collective experiences (Nagle & Williams, 2013). It is equally important to note that the transcripts of both the face-to-face interviews and the focus group’s discussion are accurate, operating as the primary source documents to be interpreted.

Including instructors from institutions which are different from each other geographically and institutionally contributed to a triangulation of the data. These different perspectives created a more complete picture of how formative assessment is currently utilized in the classroom. The focus group discussion provided an additional combined perspective that arose from the participants comparing and contrasting their individual experiences with each other. The resulting triangulation of the data reinforced the study’s validity and created a more persuasive conclusion.

**Dependability**

Research is considered to be dependable if the results can be consistently replicated and therefore reliably used to make future decisions. The dependability of this study was derived, in part, from the consistency and rigor of the researcher’s interview process. It was important to
follow a predetermined structure of how and where the participants will be interviewed (Seidman, 2006). It was also important to remain as objective as possible while asking any follow-up questions with the interviewees, focusing on greater detail and clarification of responses rather than leading them to a subjective conclusion. The focus group was conducted to allow for the same amount of participation from each member. Facilitating the focus group discussion required open-ended prompts which allowed for the individual participants to reflect on their own experiences while considering and responding to the experiences of the other participants in the group.

**Transferability**

The value of any research study lies in the ability to apply the results towards a constructive change in a similar or different context. The transferability of this study relies on a relatively objective evaluation and summation of the gathered data. The accurate transcriptions of the participant interviews and focus group discussions were critical to making legitimate conclusions (Creswell, 2013). The external validity of this study was limited by the smaller sample size and by using populations from only two institutions that are both located in the Pacific Northwest. Furthermore, the inherent transferability issues of this qualitative study occur because of the intrinsic variability of an instructor to teach effectively, as well as a student’s learning style and motivation to succeed. Each instructor had different levels of experience teaching, and different innate abilities to convey and formatively assess student learning to promote success.

**Limitations**

There are always limitations in research due to resources or participants, and methodology which may affect the credibility, dependability, and transferability of the results.
The specific limitations in this study were affected by the participants and methodology. When the participants referred to previous experiences, their recollection was not necessarily precise or entirely reliable due to recall bias. The instructors were limited to their perceptions and could not be relied upon to interpret others’ experiences without being influenced by their own. In addition, the instructors’ understanding of the course outcomes was limited by their personal expectations. Conducting a qualitative study is inherently limited by the subjective nature of reporting and interpreting the data. Using a phenomenological framework to describe the lived experiences of the participants was limited by this researcher’s interpretation of the phenomena. Interpreting the phenomena through hermeneutics was limited by the interpretive skills of the researcher and the lens used to interpret.

**Range of Likely Findings**

I expected that this study would show a range of findings due to the different levels of instructional knowledge and experience, as well as the differences in student cognitive abilities and motivation. A few instructors naturally integrated formative assessment into their classroom environment, providing student feedback that promoted continuous learning and motivated the learner to succeed. The general expectation was that most instructors would not use formative assessment as a tool to gauge and support student learning before implementing any summative exams because most non-education instructors have not been trained as teachers (Price, 2006). These expectations supported the problem statement that collegiate instructors outside of teacher education typically do not know how to use methods of formative assessment in higher education to gather evidence of learning during the teaching & learning process or why it may inform their instruction and have an impact on student learning; hence, achieving student learning outcomes becomes problematic (Asghar, 2012; Jensen, 2011; Scott-Webber, 2012).
Ethical Issues and Responses

Interpretive research, which uses both hermeneutics and phenomenology, is inherently ethical because each concept relies upon the other to arrive at a sound conclusion (Ricoeur, 1975; Stahl, 2005). Aside from any structural issues in research design or execution which might have affected its validity or reliability, performing a qualitative research study where the participants’ experiences were recorded and interpreted with regard to the stated phenomena, supported a conclusion upon which other researchers may build (Creswell, 2013). The views of each participant were respected throughout the interview process and during the focus group. This researcher exercised extreme care to ensure anonymity and confidentiality. Any personal information provided was coded so it could not be linked to the individual instructor. In the transcriptions, a code was used in place of the instructor’s name. All data was stored on the investigator’s personal computer, secured by password, and not uploaded to any cloud service. All personal information, recordings, and transcripts were kept private at all times and all study documents and data were to be destroyed 3 years after the conclusion of this study.

Conflict of Interest Assessment

No substantive personal or professional connections existed between me and the participants in this study. The comprehensive university from which most of the participants were chosen is also where I taught as an adjunct instructor in the teacher education program. None of the participant instructors were connected to teacher education. The community college employed the sister of a university coworker in the student life and involvement center. There was no personal or professional connection between me and the participants. Any other personal or professional connections that may have existed were completely unknown to me.
Summary of Chapter 3

The purpose of this hermeneutic phenomenological study was to explore the current pedagogical methods of formative assessment used in higher education across disciplines. The research question for this study was: How are collegiate instructors using methods of formative assessment to inform their instruction? This was a descriptive qualitative research design for a hermeneutic phenomenological study to understand the lived experiences and perspectives of the participants. In the quest to ascertain the current understanding and use of formative assessment in higher education, semistructured individual, face-to-face interviews with instructors were conducted at two different institutions. In diminishing the impact from the inherent limits of this qualitative research study, a purposeful sampling of maximum variation method was used for choosing the instructor participants from the different types of higher education institutions. After interviewing the participants, additional information was gathered through a facilitated focus group which allowed the participants from one of the institutions the opportunity to clarify their own experiences or adjust their perspectives while they discussed them with their peers. The participants were encouraged to freely express themselves without being overtly subjected to any treatment or judgment of their lived experiences by this researcher. The transcripts from the participants’ provided the data by which the meanings behind their experiences were interpreted. The following chapter presents the collection of the data, how it was coded and sorted, and the themes which emerged to answer the research question.
Chapter 4: Data Analysis and Results

The research question for this study asked how collegiate instructors are using methods of formative assessment to inform their instruction. I used a hermeneutic phenomenological research design for a hermeneutic, phenomenological study to understand the lived experiences and perspectives of the participants. The purpose of this qualitative study was to explore the current pedagogical methods of formative assessment used in higher education across disciplines and why collegiate instructors may or may not choose to use them. This chapter details how the research data was gathered from participant interviews and a focus group, transcribing both, and coding the transcripts using constant comparison. Analyzing the coded data for emerging themes provided a basis for synthesizing and interpreting the participants’ experiences as a whole through the predetermined lens of formative assessment, defined as “the formal and informal processes teachers and students use to gather evidence for the purpose of informing next steps in learning” (Chappuis & Stiggins, 2017, p. 21).

To ascertain the current understanding and use of formative assessment in higher education, I conducted interviews and a focus group with instructors at two institutions of higher education. My role as the researcher was to ask questions to elicit participant responses on what specific formative assessment strategies they used to determine student learning, including how they utilized feedback throughout their assessment, what adjustments they may have made to their teaching as a result, and if they believed the process was successful. I endeavored to allow the participants to answer my questions freely without judgment on the strategies they chose. At the beginning of each interview, I explained my background of becoming a teacher before I had any professional training, the purpose for seeking my doctorate, and my reasons for conducting this research. Upon completion of each interview, I provided some basic explanations of what
formative assessment is, its purpose in teaching, and some suggestions and encouragement in their goal of supporting student success.

Description of the Sample

A total of 10 instructors volunteered to be interviewed for this study. Solicitation emails for volunteers for tenure-track or tenured professors were sent to two different institutions of higher education. Six of the instructors teach at a comprehensive state university in the Pacific Northwest, a four-year teaching institution, and the remaining four instructors teach at a 2-year community college for associates degrees and certificate programs. The sample included instructors specializing in a wide variety of content across colleges within each institution. Each volunteer completed a Qualtrics survey to gather demographic information. Qualtrics (2020) is a web-based survey tool used to conduct surveys and other data collection activities.

The demographic data is presented exactly as reported by the participants and shown in Table 1. All names are pseudonyms to protect privacy. The participants are identified as instructors from either the university or the community college. Each participant was asked to report their age range, sex, and how they described their ethnicity. Of the 10 participants, one identified as Asian, one as European, and the remaining eight as white. Additionally, each participant was asked to state the highest degree they have earned, how many years they have taught in higher education, and the content they taught. While it was preferred that the participants’ years of experience of teaching in higher education would be three to five years, one of the university instructors had been teaching for less than three years in safety management but had many more years as an employee in the application of safety management in business. This instructor’s specialty contributed to the diversity of disciplines for this study.
Table 1

Participant Demographics

<table>
<thead>
<tr>
<th>Name</th>
<th>Highest Degree</th>
<th>Years Teaching</th>
<th>Content Taught</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Four-Year University Faculty (4YU)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cathy</td>
<td>Ph.D.</td>
<td>5–7</td>
<td>Physics &amp; Astronomy</td>
</tr>
<tr>
<td>Stephen</td>
<td>Ph.D.</td>
<td>5–7</td>
<td>Physics</td>
</tr>
<tr>
<td>Jim</td>
<td>Ph.D.</td>
<td>10–12</td>
<td>English Language Arts</td>
</tr>
<tr>
<td>Angela</td>
<td>Ph.D.</td>
<td>3–5</td>
<td>Public Health &amp; Epidemiology</td>
</tr>
<tr>
<td>Julie</td>
<td>Masters</td>
<td>Under 3</td>
<td>Safety Management</td>
</tr>
<tr>
<td>Brenda</td>
<td>Ph.D.</td>
<td>5–7</td>
<td>Mathematics</td>
</tr>
<tr>
<td><strong>Two-Year College Faculty (2YC)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Terry</td>
<td>Masters</td>
<td>5–7</td>
<td>Diesel Mechanics &amp; Equipment Technology</td>
</tr>
<tr>
<td>Susan</td>
<td>Ph.D.</td>
<td>17–20</td>
<td>Music</td>
</tr>
<tr>
<td>Kelly</td>
<td>Masters</td>
<td>8–10</td>
<td>Business Management</td>
</tr>
<tr>
<td>Barbara</td>
<td>Ph.D.</td>
<td>25–30</td>
<td>English Language Arts</td>
</tr>
</tbody>
</table>

The data collected from the participants regarding their interest in studying and teaching in their chosen field is presented in Table 2. It is important to note that while each participant had varying degrees of training in how to teach through their institutions’ faculty development seminars, Barbara also received teacher training for the K–12 school system at the beginning of her career. Also, of note, Kelly became dean of the College of Business and is no longer teaching in the classroom as of September 2019. Table 2 shows the participants’ interests in their field and why they chose to teach. The language used is their own taken from their survey responses.
### Participants’ Interest in Field of Study and Teaching

<table>
<thead>
<tr>
<th>Name</th>
<th>Content Taught</th>
<th>Interest in Field</th>
<th>Interest in Teaching</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cathy</td>
<td>Physics &amp; Astronomy 4YU</td>
<td>Fascinating, brings out the curiosity in everyone</td>
<td>Teachers, not NASA scientists fueled my passion and curiosity</td>
</tr>
<tr>
<td>Stephen</td>
<td>Physics 4YU</td>
<td>Enjoyed it since high school</td>
<td>Always wanted to teach at the college level</td>
</tr>
<tr>
<td>Jim</td>
<td>English Language Arts 4YU</td>
<td>For the love of language</td>
<td>More comfortable in higher education than in industry</td>
</tr>
<tr>
<td>Angela</td>
<td>Public Health &amp; Epidemiology 4YU</td>
<td>Detective work to help people in real-time without patient contact.</td>
<td>Educating the public is a favorite part of working in the field, so began teaching</td>
</tr>
<tr>
<td>Julie</td>
<td>Safety Management 4YU</td>
<td>To protect the health &amp; safety of members of society</td>
<td>To give back to my industry by shaping the next generation of safety professionals</td>
</tr>
<tr>
<td>Brenda</td>
<td>Mathematics 4YU</td>
<td>Love all fields of science &amp; math is the theme bringing them together, enjoy looking for patterns and connections</td>
<td>Enjoy the connections made with students, helping them learn about tools used to explore our field, and grow as adults, learning who they want to become</td>
</tr>
<tr>
<td>Terry</td>
<td>Diesel Mechanics &amp; Equipment Technology 2YC</td>
<td>Shortage of technicians nationally, makes great money, freedom to work anywhere</td>
<td>After a work-related injury &amp; rather than leaving the field decided to help in training new technicians</td>
</tr>
<tr>
<td>Susan</td>
<td>Music 2YC</td>
<td>Passionate about music since taking piano lessons at age 4</td>
<td>Enjoy watching students and realize their passion for music</td>
</tr>
<tr>
<td>Kelly</td>
<td>Business Management 2YC</td>
<td>Owned business and recognize that management either makes or breaks an organization</td>
<td>Wanted to become a dean, then realized as a teacher I could make a significant impact in the lives of students and local businesses</td>
</tr>
<tr>
<td>Barbara</td>
<td>English Language Arts 2YC</td>
<td>So much to know about the interplay of rhetoric and composition with endless research possibilities</td>
<td>Engaged with the varieties of topics and perspectives that come forward in humanities in general and specifically composition &amp; literature</td>
</tr>
</tbody>
</table>
Research Methodology and Analysis

No single strategy can assess student learning because of the subjective nature of teaching and learning. The Conceptual Framework of Formative Assessment in Higher Education (see Figure 1, Chapter 2) illustrates how successful learning is dependent on different components within the cyclical framework. Effective formative assessment is dependent on understanding the variable of student instruction, the variety of tools an instructor may use to assess that understanding, the ability of students to sufficiently express their understanding, and the instructor’s interpretation regarding the evidence of learning gathered through formative assessment. Applying the interpretive method of hermeneutic phenomenology afforded me a way to interpret each instructor’s experience and then compare them to each other to determine emerging themes.

Hermeneutic Phenomenology

The data gathered for this research was derived from individual, face-to-face interviews with each instructor participant at both the 4-year university and the 2-year college and a subsequent focus group with the same six instructors from the 4-year university. The four instructors from the 2-year college did not participate in a focus group due to the logistics of location and availability. The interview questions and the focus group prompts sought to elicit the participants’ lived experiences and perspectives in how they applied formative assessment in the classroom. The application of Heidegger’s hermeneutic circle as an interpretive lens was used to analyze the data as it relates to the preunderstanding of formative assessment (see Figure 2).
Recording and Transcribing

Each interview was recorded using two separate recording devices to ensure a complete recording was obtained. One device was a GPX Digital Voice Recorder and the other a Samsung Galaxy S8 cellphone. The focus group was recorded using the same cell phone and MAGIX Camera MX online video recorder which captured the group as a whole and assisted in identifying who was speaking. Handwritten notes were also taken in the event any technical issues arose with the recording devices. All of the individual interviews and the focus group discussions were transcribed by this researcher using OTranscribe (Muckrock Foundation, 2017), a free open source web app in which each recording is uploaded and can be transcribed using pause, rewind, and fast forward to allow the transcriber to type without taking your hands off the keyboard. Between both recording devices, the transcriptions were completed with only a couple of spots where the words were unidentifiable. It was determined by me, the transcriber, that those inaudible areas of the recording were not significant to the interview.

Coding. Each transcript was coded using the method of constant comparison. While expected themes were predetermined before collecting the data, a more detailed list of codes was developed while reading each transcript, adding to the list as different experiences were discovered. The text was coded with terms that related specifically to the study’s research question. Upon completion of an initial coding of each transcript using the comment tool in Word, the coded text of the document was copied into an Excel spreadsheet. Each transcripts’ coded text was sorted by the initial codes. The coded transcripts of each interview were then color-coded by discipline. All 10 coded transcripts were then combined and re-sorted again by the initial code. This action produced a summary of coded text for all 10 interviews combined. The transcript of the focus group was coded and sorted in the same manner as the coded text of
the individual interviews. The focus group coded text was then combined with the previously combined coded text of the interviews after applying the same color-coding process to each discipline.

**Coding memos.** After coding and sorting each transcript, the transcripts were read again to determine if there were additional textual passages that directly related to the study’s research question. While rereading each transcript and initial coding, a coding memo for each transcript was created that summarized the emerging story of each instructors’ experiences according to the answers and explanations connected to the questions asked in the interview. The same process was applied to the focus group transcript to determine what story emerged from the combined, reflective discussion. Following up on the emerging themes detailed in the coding memos, the combined coded transcript was revisited to combine similar codes according to those themes while maintaining an awareness of the expected predetermined themes. Each code was constantly compared to other codes to determine where they fit within the emerging themes as well as how they contributed to answering the study’s research question. A combined coding memo was then created to summarize the emerging themes as well as any outliers in the data.

**Summary of the Findings**

A synthesis of the emerging themes required a deliberate process of determining how the themes answered the study’s research question. A synthesis of the combined codes was merged into four distinct, main themes: (a) formative assessment strategies, (b) instructor feedback, (c) student and instructor motivation, and (d) reteaching and remediation. Each main theme was supported by subthemes made up of like-codes. These themes contributed to answering the research question about how collegiate instructors are using methods of formative assessment to inform their instruction within the conceptual framework of formative assessment in the higher
education classroom, and its predetermined definition of gathering evidence for the purpose of informing next steps in learning.

**Presentation of the Data and Results**

Organizing a presentation of the data required a collating of the codes by theme and instructor. The occurrences of each code were tallied and organized by theme and sub-theme. Each sub-theme was then compared to each other within the main theme. From this comparison, I was able to make a graphic for each theme portraying the subthemes in relation to each other. The collated data of subthemes by each instructor provided a framework for describing the participants’ lived experiences as gathered in the interviews and focus group. The data is also represented graphically based upon the tally of occurrences of each code to illustrate trends within the data.

**Theme 1: Formative Assessment Strategies**

All participants reported using a mix of strategies for formative assessment to measure or determine student learning during their course but described using assignments and class discussion the most often, facilitated group work a little less often, and used quizzes and other means of assessment sparingly. While the participants described the different strategies they used, it was necessary to ask questions about how they taught their class, whether it was presentation or demonstration oriented, or whether they engaged students in activities. Their responses helped me to drill down and discover how they determined the level of student learning based on how they used formative assessment in the classroom (see Figure 3).

**Assignments.** Most of the strategies used by the participants to gauge student learning were reportedly assignments given to students either through online discussion boards, writing assignments, or reading assignments requiring them to come to class prepared to present a
summary in their own words. The assignments ranged from minor low-stakes assignments which may or may not have been graded to more complex, benchmark assignments. Both physics instructors gave students daily assignments to complete online. The instructors then assessed the students’ responses to determine their level of understanding of the given concept so they could address misunderstandings in the next class. Brenda, the mathematics instructor, also gave the students daily assignments but they were a combination of online and paper assignments of mathematics problems. Brenda used them as daily check-ins with the students for which the assignments were only marked as complete or incomplete.

**Figure 3.** Formative assessment strategies described by participants and compiled based on coding frequencies.

The two English Language Arts instructors used assignments as a means for gauging student learning for approximately half of the time. These assignments took the form of both short reading assignments and longer writing assignments. The reading assignments were primarily used to determine the students’ level of comprehension whether in literature, informational text, or rhetorical writings. The writing assignments were usually a progressive
assignment where the students were drafting and revising throughout the course to culminate in a final written assignment.

The music instructor taught a music theory class where her students were expected to complete assignments in a workbook for the written concepts that they turned in daily. The instructor also required students to make recordings to demonstrate their sight-singing skills. In a different music class, her students completed weekly reading assignments with online “questions that are free-response that require them to do a little critical thinking and think about things” (Susan, personal communication, November 15, 2019).

In the business class and the public health class, students generally worked on short in-class writing assignments to be peer-reviewed during the same class time. The safety management class and the diesel mechanics class were both lab-intensive classes. Most of the assignments for these two classes were completed in a lab setting to demonstrate student understanding of working with the equipment and materials necessary to the discipline.

Class discussions. The second most used strategy of formative assessment occurred during class discussions between the instructor and the entire class. These discussions were often structured as a review of prior material or during the presentation of new material. The description of how class discussions were used to assess students’ learning depended on the instructor. The mathematics- and science-based instructors used whole-class discussion to work through procedural concepts as well as to explore theoretical and real-world applications. These activities gave students the opportunity to ask questions and the instructor would then ask the students leading questions to determine learner understanding and extend the discussion. The mathematics and safety management students would work on equations together which helped the instructors monitor student thinking, making sure “people are getting the answers right and
tracking how to do the process” (Julie, personal communication, October 17, 2019). Cathy, one of the physics instructors who also teaches astronomy, would ask students what questions they had from the reading. She would ask “what’s a concept or a question or an example problem that you would like to go through at the review session” (Cathy, personal communication, October 24, 2019). She did not know if that was the best way because the students may all have had a different question or problem they wanted to go through. “I just start with one and we go through everybody’s problems. I don’t know if that’s the best way, because maybe this one person doesn’t need to see 80% of the other stuff” (Cathy, personal communication, October 24, 2019). Stephen, the other physics instructor, wrote down the learning objectives for the day, posing them as questions to begin the lesson. He explained how he “pauses for questions a lot, if the class seems a little too quiet, I’ll stop and have them do the next step” (Stephen, personal communication, October 17, 2019).

The diesel mechanics instructor used whole-class discussions most of the time. While he used outlines to keep himself on track, it was important to him “if they don’t understand what we’re going over, we’re going to stop and we’re going to go over it” (Terry, personal communication, November 15, 2019). He was a “big fan of calling my students up to the front of the class” to draw specific diagrams and then explain them to the rest of the class. It did not matter if they were right or wrong because he helped them work through the problem in front of the class. He believed this helped them explore what they knew and what they did not know by creating an environment where they were questioning and learning together to have a better chance of success.

The English Language Arts instructors focused on engaging their students in whole-class conversations about the reading and writing activities assigned to them before class. Depending
on the course objectives, they used class time to breakdown how an author used style, rhetorical writing strategies, or simply facilitated a question and answer period to guide the discussion. The music, business, and public health instructors also reportedly used class discussion for at least a quarter to a third of their formative assessment activities which allowed for real-time data of student understanding.

**Group work.** Almost a quarter of the formative assessment strategies described by the participants occurred during some form of group work. Much of the whole-class discussion described previously was followed by dividing students into groups or partners. The instructors used this time to observe students working together and listen in on their conversations while monitoring the given activity. The group work activity ranged from simple group discussion of a prompt by the instructor to a preplanned lab activity.

The mathematics- and science-based instructors used group activities to further student understanding of the given instruction and concepts. The group work also served as a practice session to work on mathematics problems together or as a hands-on lab activity with students for helping each other to complete tasks or problem-solve. The instructors then monitored the groups, answered individual questions as they came up or, corrected students as they listened to them working things out in their groups. Stephen liked to “do think, pair, share, and I do tutorials, just to build this network that they start working together” (Stephen, personal communication, December 19, 2019). Brenda, the mathematics instructor, described using group work,

this is the first time anyone’s ever told them that they were right; or looking around, wait, you don’t know how to get started either? It’s not just me? That’s why I just love the
group work because I think it just reinforces the little ways in which all of us are struggling and that’s okay. (Brenda, personal communication, October 21, 2019)

The public health instructor explained how she used group work for at least half of her teaching and assessment activities with many projects in the field. As a professional degree, hands-on, practical application projects required the students to go into communities such as “creating a health communication plan for the university” (Angela, personal communication, October 22, 2019). In the diesel mechanics courses, the students had one hour of lecture per day with three to five hours of associated lab time.

The business instructor used group work in part to teach engagement and leadership activities with rotating group leaders. She explained, “so part of the assessment of the leader is, were they controlling the conversation, were they keeping their team on task, were they allowing somebody to manipulate the room and not letting the quiet people, you know, engage the quiet people” (Kelly, personal communication, November 15, 2019). She monitored the group work with a sheet to check-off the levels of student contribution and participation. The music and English Language Arts instructors used group work to interact with the material and then present those discussions to the whole class, which provided a starting point for a whole-class conversation.

**Quizzes and other.** The instructors described using quizzes rarely as a formative assessment strategy. If used, the quizzes were online, low-stakes, and intended to give the instructor a quick check-in of student learning and to show if the students were engaging with the materials outside of class. Due to the variation of content taught by the participants, there were some additional formative assessment strategies used that were unique to the instructor, the content, or the classroom environment. The music and diesel mechanics instructors both relied
quite a bit on observations of student performance. Peer assessment and self-reflections were used in the English Language Arts and business classes. Stephen, one of the physics instructors, developed a system he called a “lo-fi clicker where we just have students answer questions using a card that has an A, B, C, or D on it where they fold the card and hold it up showing their answer” (Stephen, personal communication, October 17, 2019). He also had begun using exit tickets to have the students answer the day’s learning objective.

**Theme 2: Instructor Feedback Resulting from Formative Assessment**

The feedback each instructor gave to their students throughout the course was a direct result of the formative assessments they implemented. The instructors each presented their view of how to give students feedback, the expectations of how the feedback might be accepted and used, and whether they believed it was effective in student academic achievement. The interview questions attempted to learn how they delivered feedback to students, what the feedback entailed, and when the students received it (see Figure 4).

<table>
<thead>
<tr>
<th>HOW IT IS GIVEN</th>
<th>WHAT IT ADDRESSES</th>
<th>ITS TIMELINESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>60% Verbal</td>
<td>80% Needs</td>
<td>50% Next Day</td>
</tr>
<tr>
<td>40% Written</td>
<td>20% Strengths</td>
<td>50% Immediate</td>
</tr>
</tbody>
</table>

**Figure 4.** Instructor feedback practices resulting from formative assessment as reported by the participants and compiled based on coding frequencies.
How the feedback is given. Feedback took several forms: written comments on student work, a personal conversation during office hours, during group work or lab setting, or whole-class discussion of the assignments or quiz. When asked how they responded to the formative assessment data, some of the instructors included scores or grades as a form of feedback. While all the participants reported giving students feedback beyond a grade, most of the feedback the instructors reportedly gave was written as a response to assignments and/or quizzes. However, the amount of written feedback did not always correlate with the formative assessment strategies the instructors implemented. Some of the instructors would write comments on some of the written assignments for future class discussions.

The English Language Arts instructors reportedly gave feedback on their students’ written drafts. Jim explained that he “likes to give comments on drafts before they’re due, because again, then I get to talk about it without talking about the grade. And it’s just amazing how if I comment on something before it’s due and they do what I think is important, then the grade goes up” (Jim, personal communication, October 25, 2019). Kelly, the business instructor, described her written feedback in such a way “that asks them more questions, . . . if you answer those questions in another paper or in the comments on another paper, they can earn some points back” so the students learn to read the feedback if they lost points (Kelly, personal communication, November 5, 2019). The mathematics teacher explained how she used feedback “as a means to start a conversation. . . . I want them to improve . . . and resubmit it with a summary with how they took and used that feedback to get better” (Brenda, personal communication, October 21, 2019).

The students also received verbal feedback either in the classroom or when they went to see the instructor during office hours. This took place during whole-class discussion, group work
during class, or a simple question and answer period conducted by the instructor as a response to prior written assignments. The diesel mechanics instructor was the only participant reporting that he preferred to use verbal feedback over written feedback by a large margin which does correlate with his use of assignments as a formative assessment over a class discussion. The rest of the participants were roughly the same in describing giving written feedback at about 60% more than they did verbal feedback in response to their formative assessment strategies based on the coded transcript data. Julie, one of the instructors who mentioned using quizzes more often than anyone else, runs the metrics and I see where we have problems . . . the next time that we have class, the first 10 minutes we are going over where I saw deficiencies in understanding because in person going over the stuff works because they are all there. (Julie, personal communication, October 17, 2019)

Barbara, one of the English Language Arts instructors, began her classes asking what questions the students had about the reading assignments and “whatever they couldn’t find, whatever didn’t make sense we go back over” and in referring to the writing draft assignments she wanted to meet with them “so we can talk our way through what’s there. It doesn’t do me much good to write a bunch of stuff in a margin if it’s not what’s helpful for them . . . my goal is constant feedback” (Barbara, personal communication, November 14, 2019).

**What the feedback addresses.** When asking the instructors how they responded to the formative assessment results, the answers were 4 to 1 addressing student needs over student strengths. Most of the feedback instructors reportedly gave to students was corrective in nature, addressing student needs for improvement. The feedback described where the students went wrong in their thinking, what components were missing in their work or thought processes, and
what they needed to do to improve their work. Addressing student strengths took the form of “good job,” “I like what you did here” (Julie, personal communication, October 17, 2019) and generally a tone of encouragement to keep working hard.

In addressing student needs, all the instructors described beginning most of their feedback in the form of questions rather than simply communicating the mistakes the student made. Barbara, one of the English Language Arts instructors, explained that her written feedback was not evaluative, telling the students their thinking was wrong but was posed as “what does this mean, this is an interesting idea, did you mean this or did you mean this or did you mean something else?” (Barbara, personal communication, November 14, 2019). The physics instructors both used group office hours to address their students’ struggles in understanding the concepts taught in class or from the reading/writing assignments. In Stephen’s explanation of these office hours, he stated, “it’s to specifically guide their learning about where their weaknesses lie and what my priorities are” (Stephen, personal communication, October 17, 2019). Cathy explained that when students worked in groups, she told them “as soon as you get stuck just raise your hand, I’ll come around. So, I’m coming around specifically to groups that have raised their hand” (Cathy, personal communication, October 24, 2019). The safety management and mathematics instructors both reported that they gave feedback for corrective purposes where they either corrected the students’ work or specifically told them what they did wrong. The diesel mechanics instructor emphasized the importance of giving corrective feedback for safety reasons when working around machinery. He reported that he was honest with them, “when somebody makes a mistake . . . we’re going to fix this and then we’re going to talk about it” (Terry, personal communication, November 15, 2019).
The instructors also described giving feedback that detailed their students’ strengths or how they challenged them to extend their knowledge, although this was reported less than the feedback for student needs. The mathematics instructor explained how she told students “this is the best thing I saw in your group” so other students could see other ways of doing the work (Brenda, personal communication, October 21, 2019). Cathy, one of the Physics instructors, also used what she heard from group work that was really good to bring forward for class discussion. The music instructor used in-class work to “keep an eye on their areas of opportunity and where they’re doing well and come up with strategies” (Susan, personal communication, November 15, 2019). Barbara, one of the English Language Arts instructors, also encouraged students to take their work to the next level and stated: “I always challenge them to challenge the expert” (Barbara, personal communication, November 14, 2019). All the participants believed in giving positive in addition to corrective feedback to varying degrees.

Timeliness of feedback. The instructors reported that the point in time in which they gave their feedback to students depended entirely on the formative assessment strategy they used. The range of time was primarily considered to be immediate or the next day. For the online quizzes some of the instructors used, feedback was automatically given in the form of a grade. Rarely did the participants report giving feedback beyond the next day unless it was for an extended written assignment. The extended assignments were usually given by the English Language Arts instructors as writing drafts with the explicit expectation that the students used the feedback for revision. Stephen, one of the Physics instructors, used the in-class group work for the students to give each other immediate feedback in addition to his responses because “that’s as important as classroom learning” (Stephen, personal communication, October 17, 2019). In the diesel mechanics classes, the instructor gave immediate feedback throughout every
class “to get to where my students need to get that day” (Terry, personal communication, November 15, 2019).

**Theme 3: Student & Instructor Motivations**

Student response to the feedback given by the instructors was described as decidedly mixed (see Figure 5). There was clear frustration among all the participants that not all the students acted on the written feedback or even read it. Jim, one of the English Language Arts instructors, said

in an ideal world if I felt completely confident that students would read my feedback and . . . deal with it . . . I would just [mark] complete/incomplete. But . . . for some . . . they’re just going to see the grade. And if they see that’s an A they’re going to assume that . . . I’m just going to keep marching in that direction. They’re not necessarily going to see the comments. (Jim, personal communication, October 25, 2019)

![Figure 5. Student and instructor motivations/struggles using formative assessment and feedback described by the participants and compiled based on coding frequencies.](image-url)
**Student preferences.** The instructors reported that about half of the students used the feedback to improve their class performance and their grades. Brenda, the mathematics instructor, explained that to encourage student improvement, she built into the assignment rubric “20 points out of 100 [for] resubmission” (Brenda, personal communication, October 21, 2019). In response to the verbal feedback delivered in the classroom, the instructors reported that students clearly preferred learning together through group work or class discussion where students used and integrated the feedback given into the learning process at that time. The physics students who showed a motivation to improve their overall grade in the class were also the same students who elected to attend group office hours. The diesel mechanics students also attended voluntary lab classes to practice applying what they learned in class beyond normal classroom hours. All the participants reported that some students purposefully engaged in group activities when reviewing concepts that they were previously confused with. Barbara, one of the Language Arts instructors, explained how her students were actively “doing things together, we’re looking at things together, we’re working in small groups, so that’s a constant, it feels like it’s in constant motion which I think works fairly well” (Barbara, personal communication, November 14, 2019). The participants also explained that some students did not seek outside support through office hours, either individually or as a group, nor did they actively engage in the class discussions to improve their learning. Brenda, the mathematics instructor, explained how there are students who struggled but she felt at a loss to find a way to support them because, as she stated,

> even though life has happened to our students, the difference between real-life things that would impact us vs. this apathy, I’ve had to sort of distinguish because I can help one but
I can’t invest my emotional energy into the other, there’s nothing I can do that’s going to change that. (Brenda, personal communication, December 6, 2019)

**Important to instructors.** All the participants expressed frustration in their knowledge of how best to assess their students, give them feedback, and positively affect their academic achievement. The participants recognized their lack of training and a significant lack of institutional support for that training. The mathematics instructor shared her frustration by stating that “I think I’m doing it but maybe I’m doing it wrong . . . if we had professional development, . . . ways and time to go see others’ classrooms, if we had time to work together to develop the best of them” (Brenda, personal communication, October 21, 2019). Some of the other participants explained how they have spent time researching pedagogy to find better ways to facilitate their students’ learning.

Every participant expressed the need to build trust with their students and the benefits that trust would bring to student learning and motivation. Stephen, one of the physics instructors, held group office hours as a way to build a community where the students could be open and vulnerable for their learning, stating “probably one of the biggest priorities on those first few days is really developing that student relationship of trust and kind of respect going both ways” (Stephen, personal communication, October 17, 2019). The English Language Arts instructors used writing to help them get to know their students better and get “a sense of their voice” (Barbara, personal communication, November 14, 2019). Terry, the business management instructor, recognized the importance of assessing students based on the evidence but at the same time struggled with allowing them to suffer consequences of not engaging in the learning process. She explained her reticence this way, “So, I think that’s the hardest part for me in assessment is assessing rigorously but with compassion when I give students feedback” (Terry,
personal communication, November 15, 2019). The diesel mechanics instructor used group work to help students build confidence in their learning and themselves and explained “I will push students’ buttons and their limits so that they know where their limits are. . . . I feel they get more out of that than if I just let them skate by” (Terry, personal communication, November 15, 2019).

**Instructor difficulties.** When the participants were asked what they believed impacted their ability to use formative assessment effectively, there were two overarching themes: time limitations for assessing and giving feedback and the need for better planning to align assessments to the course objectives. All the instructors expressed frustration in not having adequate time to assess their students with usable feedback and with how much time it takes to give students feedback. Stephen, one of the Physics instructors, stated “you have to write these things, come up with them, grade them or at least read them. But that is what it is, you have to figure that out’” (Stephen, personal communication, October 17, 2019). Jim, one of the English Language Arts instructors, stated that “it’s just really hard to find time to give them a draft and feedback on every assignment” (Jim, personal communication, October 25, 2019). Angela, the public health instructor, explained how she tried to make her feedback individualized, including positive comments which she stated: “takes a lot more time” because she wants them to “know that I read what they actually wrote and it’s not just a generic” (Angela, personal communication, October 22, 2019). They also all recognized the need to improve their planning, beginning with aligning their teaching and assessments to valid and clear course objectives. Stephen, the physics instructor, talked about the need to structure lessons and assessments consistently so the students would know the class expectations and could engage meaningfully. The mathematics teacher recognized that planning upfront would help her be aware of when and
how she did check-ins with students. Jim, the English Language Arts instructor, recognized that making objectives that made sense to the students was much more useful. Developing the assignments so they would teach the students to meet industry standards was something that Julie, the safety management instructor, was concerned with. And in the business management class, Kelly planned her teaching objectives to identify the types of assessments that would reveal “any big gaps” in student learning, because “some quality assessment is better than none” (Kelly personal communication, November 15, 2019). Stephen, one of the physics instructors, explained his use of objectives and noted that “by having the learning objectives on the board [students] say, if I hear those words, that’s when I’ve got to key in, it gives them some priorities about what I’m thinking” (Stephen, personal communication, October 17, 2019).

**Theme 4: Instructor reteaching and recommendations**

The participants were asked as part of the research questions, how they used formative assessment to inform their instruction. Their responses ranged from how they structured their written feedback to how their verbal feedback was presented, as well as how they used classroom time to reteach and support student learning. While most of the instructor support came in the form of feedback and reteaching, many of the participants also recommended outside support and resources for students (see Figure 6).

Instructor comments on the written assignments were primarily to guide students’ learning. The participants explained how they used feedback on student assignments and quizzes for minor corrections to student answers or to clarify student understanding such as when Julie, the safety management instructor, would write in the correct APA citation on an assigned paper. Terry, the diesel mechanics instructor, stated that he did not always write the correct answer but chose to ask the students additional questions to help them figure out the correct answer. If there
had been a need for a more in-depth conversation with the student, they would have requested or suggested the student meet with them during office hours.

![Reported Instructor Reteaching and Recommendations](image)

**Figure 6.** Instructor reteaching and recommendations using formative assessment to inform instruction as reported by the participants and compiled based on coding frequencies.

The participants also reported that much of the formative assessment and feedback that took place in the classroom provided opportunities for them to reteach material when students were struggling. Stephen, one of the physics instructors, explained using verbal feedback to coach or guide the students instead of just telling the students what they needed to do differently but instead “here’s the part of your thought process I like and here’s what I don’t like” (Stephen, personal communication, October 17, 2019). The reteaching did not necessarily need to be a complete redo of the original instruction, but a time to give additional explanations, clarifications, or breaking down the material in different ways such as when Julie, the safety management instructor, explained how she “slows the class down, also if the way that I am explaining it isn’t working I will try to find a different method of explaining it” (Julie, personal communication, October 17, 2019). Some of them extended the initial instruction with new
examples or materials including video. Jim, one of the English Language Arts instructors, explained that his feedback would become the lecture “where they’ve sort of helped me create this lecture with key concepts” (Jim, personal communication, October 25, 2019). Additional practice sessions were other ways some of the instructors supported student learning as Stephen reported that,

> if an entire class is having trouble, then I can really step back and dedicate a day or two for deliberate practice where you try to identify if there is something really specific they’re having problems with and just stop and spend time on that specific thing.

(Stephen, personal communication, October 17, 2019)

All the participants talked about their use of institutional resources such as tutors, disability support, or social support services. Referring students to tutors that were available on campus was the most common recommendation reported by the participants. Each institution had tutoring centers on campus to help students with basic writing and mathematics skills. Angela, the public health instructor, recommended the writing center and she “actually had two tutors that were assigned to my class to help” (Angela, personal communication, October 22, 2019). The physics instructors reported that they referred approximately 10% of their students to physics tutors that were available on campus, who were usually physics majors with senior standing. The diesel mechanics program had tutors that the instructor recommended where the tutor actually sat in class with the student and then worked with them in a 1-hour study hall at the end of the day. A couple of the university instructors recommended students to peer-assisted learning groups that were available on campus that focused on a specific course test preparation, and helped students with study habits.
All the participants explained how they had referred students to either disability services for learning disabilities or student support services when other things in a student’s life interfered with their success. The community college instructors reported that their students were more likely to need student support services because many of them were non-traditional students with families and jobs that put a strain on their ability to remain focused on their schooling. Kelly, in business management, reported that many of her students were in school for worker retraining because they were laid off from a company that downsized. Other students were trying to get an education in a field that would get them a better paying job or “a single mom who’s just fled an abusive relationship and has these three kids and she’s struggling” with the school work (Kelly personal communication, November 15, 2019).

**Aggregation of Data**

The data collected from the face-to-face interviews and the focus group was collated by the codes applied to the transcripts. The codes were then summarized by the themes previously discussed. A count of the occurrences of the data codes by theme was completed to show the emphasis the participants placed on discussing each topic in relation to each theme (see Figure 7). The data from the coded transcripts for the 10 instructors were then divided into the two general disciplines of mathematics- and science-based content and humanities. Six instructors taught the mathematics- and science-based courses of Physics, Mathematics, Safety Management, Public Health, and the Diesel Mechanics disciplines. The other four instructors taught the humanities courses of English Language Arts, Business Management, and Music disciplines. The data for two of the predominant themes that emerged from the coded transcripts, the formative assessment strategies, and instructor feedback, were re-sorted by discipline as shown in Figures 8 and 9. This re-sorting was to determine thematic trends based on discipline.
A final re-sort of the coded transcript data was by the institution for the same two themes of the formative assessment strategies and instructor feedback as shown in Figures 10 and 11.

**Thematic trends.** The face-to-face interview guide and the focus group agenda had only one question each regarding the formative assessment strategies used and which of them were found most useful in determining their students’ level of understanding of the material. Based on the coded transcript data, the combined interview and focus group transcripts reflected that the participants discussed the formative assessment strategies for just over a quarter of the time based on the coded transcript data (see Figure 7).

![Occurrence of Combined Codes by Theme as Reported](image)

**Figure 7.** The occurrence of combined codes by theme based on coding frequencies in the transcripts.

The individual and focus group participants were asked in two questions the purpose of giving student feedback, the expectations of its use, and when it would be given. Their responses based on the coded transcript data to those questions were reflected in the coded transcripts nearly one third of the time. In regards to the instructors’ response to the assessment data they gathered, they were asked in both the face-to-face interview and the focus group how they proceeded when they discovered students were struggling with the concepts and if a student’s academic success
was in peril. The combined coded transcripts reflected their responses to these questions at less than one fifth compared to the rest of the coded themes. The interview guide had one question on how the instructors thought the feedback was working with the added prompt from the interviewer to ask why they thought it worked. The coded transcripts of the combined interviews showed responses to this question occurring one quarter of the time.

**Formative assessment strategies by discipline.** The formative assessment strategies used varied between the two general disciplines (see Figure 8). The combined coded transcripts revealed that the instructors of the humanities disciplines focused on assignments for nearly half of their formative assessments compared to less than one third in the mathematics- and science-based instructors. The mathematics- and science-based instructors reported the use of class discussions and group work nearly as much as their use of assignments, except for the diesel mechanics instructor, Terry, who reported nearly two thirds of his assessments were conducted.

![Reported Formative Assessment Strategies by Discipline](image)

*Figure 8.* A comparison of formative assessment strategies by discipline as described by the participants and compiled based on coding frequencies.
using class discussions. The humanities instructors described using class discussions for nearly a quarter of their formative assessments but reported using group work less than 10% of the time, with the music instructor, Susan, who did not describe using group work hardly at all in her assessments. Instead, the humanities instructors reported using a combination of other formative assessment strategies such as peer-assessments, self-reflections, and observations.

**Formative assessment strategies by institution.** The same allocation of data for formative assessment strategies was re-sorted according to whether the instructor taught at the university or the community college (see Figure 9). This re-sort revealed that assignments, group work, and quizzes as a means of formative assessment were more prevalent among the university instructors than those interviewed from the community college. The community college instructors reported using class discussion by 10% more than the university instructors.

![Reported Formative Assessment Strategies by Associated Institution](image)

*Figure 9. A comparison of formative assessment strategies and the participants’ associated institution as described in the data and compiled based on coding frequencies.*

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interviewed. The English Language Arts university instructor, one of the physics university instructors, and the mathematics university instructor all reported giving their students assignments for nearly one half of their assessments. The safety management university instructor and the public health university instructor reported using group work as a formative assessment strategy for one third and one half respectively. All the instructors interviewed from the community college reported that they used group work at around 10% of the time. The English Language Arts community college instructor reportedly used assignments for nearly one half of her formative assessments while the other community college instructors described using assignments between 15% and 30%. The diesel mechanics community college instructor explained how he used class discussion for nearly two thirds of his formative assessments with the rest of the community college instructors reported using it for about one third of the time.

**Instructor feedback by discipline.** The re-sort of the coded and combined transcription data for instructor feedback by discipline revealed similarities in how the feedback was given and what the instructors’ feedback addressed. The transcripts were coded for whether the instructors as grouped by discipline reported giving their feedback in writing on assignments or used other tangible evidentiary assessment tools or if they gave their feedback verbally to the whole class, individually, or during group work. Figure 10 presents the data for how the feedback was reportedly given for the mathematics- and science-based disciplines and the humanities disciplines. The mathematics- and science-based instructors discussed giving more verbal and less written feedback than the humanities instructors. Both disciplines reported giving more written feedback than verbal but with the humanities instructors by a larger margin. One of the physics instructors and the diesel mechanics instructor described giving verbal over written feedback by a margin of about 5 to 2.
When the instructors were asked what their feedback addressed, based on the coded transcript data, both disciplines described giving more needs-based feedback than feedback on student strengths. The humanities instructors reportedly gave about 25% more feedback addressing students’ needs and about 95% less than the mathematics-science-based instructors in addressing student strengths. The English Language Arts instructors reported addressing students’ needs more than the all the rest of the instructors interviewed, apart from the mathematics instructor who also described her feedback as addressing needs about four times more than student strengths.

![Reported Instructor Feedback by Discipline](image)

*Figure 10. A comparison of instructor feedback by discipline as described by the participants and compiled based on coding frequencies.*

**Instructor feedback by institution.** The same combined coded transcripts for instructor feedback was re-sorted by the institution and presented in Figure 11. The data shows that the university instructors described giving written over verbal feedback to their students by a margin of 3 to 1. The community college instructors reported giving verbal in relation to written feedback by a small margin of 5 to 4. The combined data from the instructors for both disciplines
described that their feedback addressed student needs over strengths. The data for the community college instructors shows feedback nearly four times more for needs over strengths and the university instructors described giving feedback about three times more for needs over strengths.

**Figure 11.** A comparison of instructor feedback and the participants’ associated institution as described in the data and compiled based on coding frequencies.

### Summary of Chapter 4

The results of the study were gathered from two institutions of higher education in the Pacific Northwest by conducting face-to-face interviews and a focus group. A detailed and systematic process of coding the transcripts from the interviews and the focus group were consolidated using constant comparison that revealed themes with which to answer the study’s research question of how collegiate instructors are using methods of formative assessment to inform their instruction. The data was then sorted by consolidated codes and further sorted by emerging themes by participant, discipline, and institution. The emerging themes all relate to the
study’s conceptual framework of Formative Assessment in the Higher Education Classroom (see Figure 1, Chapter 2). The collated data also aligns with the previously developed attributes used to review the literature on the implementation of formative assessment in higher education. The following chapter presents my analysis and discussion of the data, how it relates to the literature, and my recommendations for further research.
Chapter 5: Discussion and Conclusion

Chapter 5 presents a summary and discussion of the findings from the data collected and detailed in Chapter 4. This will include how the results relate to the literature reviewed in Chapter 2 and discuss the implications for practice, policy, and theory. I will also explain how the results of this study support my recommendations for future research, as well as my final thoughts regarding my beliefs on the importance of this topic and this study.

Summary of the Results

The following is a summation of the research results and discussion of how their relationship to the purpose and problem statements answers the research question: How are collegiate instructors using methods of formative assessment to inform their instruction? The purpose of this research was to explore the current pedagogical methods of formative assessment currently used in higher education across disciplines. The main problem my study addressed is that collegiate instructors outside of teacher education typically do not know how to use formative assessment to gather evidence of learning during the teaching and learning process or why it may inform their instruction and have an impact on student learning (Asghar, 2012; Jensen, 2011; Scott-Webber, 2012). This chapter further considers how this study contributes to pedagogical research and support for instructors and program directors in higher education to improve student achievement. The results of this research may provide other instructors’ insights for creating opportunities to evaluate their learners’ understanding and academic progress to support student success.

This research was conducted as a qualitative phenomenological study to understand the lived experiences and perspectives of the participants using the theory and methodology of hermeneutics. To determine and understand the current use of formative assessment in higher
education, I conducted 10 interviews and a focus group with instructors spanning a range of disciplines from two different institutions of higher education. An initial analysis revealed a lack of pedagogical support for faculty, leaving instructors struggling to figure out on their own how to better support their students’ learning. While these instructors were intent on improving their approach to teaching, I hope that this hermeneutic phenomenological study will serve as a foundational point for institutions in higher education to support their faculty in applying best practices in teaching.

**Discussion of the Results**

Each participant expressed their eagerness to be interviewed about how they determined whether their students are learning and how the students responded to the results of their formative assessments. In responding to the interview questions, the participants described their teaching style and how they believed it was working in their classes. Each instructor’s method of teaching included a variety of strategies for determining whether their students were learning the material, struggling with the content, or apathetic towards the class (see Figure 3, Chapter 4). The data I collected from the participant interviews and focus group revealed several thematic threads: 1) formative assessment strategies used by the instructors, 2) different ways the instructors delivered feedback to students on the formative assessments, 3) students’ response to the feedback and, 4) instructor use of the assessment data to inform their instruction. As the themes emerged while coding the transcripts, they naturally aligned with the study’s conceptual framework of Formative Assessment in the Higher Education Classroom (see Figure 1, Chapter 2). I purposely chose to interview instructors from a range of disciplines to discover if there were commonalities or differences in the use of formative assessment because of the type of discipline. I also purposely chose to interview instructors from two different types of institutions.
in higher education to discover if the institutional structure contributed to how formative assessment strategies were applied. The following discussion will reveal that while there were differences between instructors, the differences were not intrinsically tied to either the subject that was taught or the institution where it was taught.

**Theme 1: Formative Assessment Strategies**

The first question I asked the participants in the interviews was how they determined student learning during the course. In response, each instructor explained how they conducted their classroom activities, their different teaching methods, and the strategies they used to collect data on their students’ learning. The study’s data revealed that the most common means of assessing students was through using assignments to produce student work. Not surprisingly, the English Language Arts instructors both gave students writing assignments due to the nature of the discipline. Surprisingly, while the instructors also used class discussion to clarify student understanding, they did not report having students work in groups very much. The two physics instructors were significantly different in how they assessed their students. Stephen used a wide range of formative assessment strategies evenly and Cathy based most of her data collection from daily reading and writing assignments (Cathy, personal communication, October 24, 2019; Stephen, personal communication, October 17, 2019). The mathematics instructor used daily assignments and quizzes as is normal in that discipline but she also used a great deal of group work and class discussion to shore up student understanding of the concepts. The public health instructor and the safety management instructor, who were the two instructors with the least amount of teaching experience in higher education, did not rely on assignments as much but focused on using class discussions and group work to formatively assess their students because of the application-based nature of the disciplines. The music and business instructors followed a
more traditional mode of instruction and assessment using both assignments and class
discussions equally. However, the music instructor did not discuss assessing her students during
group activities at all but instead reported that she spent quite a bit of her time assessing her
students through observations because music is a performance discipline. The diesel mechanics
instructor was the most interesting interview because he relied on class discussion much more
than other methods by teaching and assessing individual students in front of the class for the
benefit of the whole. While he used a small number of assignments for the basic factual
knowledge of diesel mechanics, he spent much of his class time talking with his students about
the subject material.

In comparing the formative assessment strategies by institution, the main difference
based on the coded transcript data was that the amount of group work used by the instructors at
the university was about five times more than used by the community college instructors. The
difference lies in the math and science, lab-based nature of the university instructors’ courses
over the more humanities-based courses of the community college instructors interviewed.
Accordingly, the data reflected that the community college instructors used class discussion
instead of group work more than the university instructors.

**Theme 2: Instructor Feedback Resulting from Formative Assessment**

The interviews progressed to discuss how the instructors responded with feedback to the
formative assessments of their students. In response, each instructor explained when and how
they gave feedback to their students. All of the instructors explained that they tried to give
feedback to their students as soon as possible, whether it was during class discussion or group
work or the next day on written assignments. The English Language Arts instructors both
reported that some of their feedback was delayed because of the extensive notes they wrote on
their students’ written drafts so the students could revise their writing using the feedback.

Barbara, the community college English Language Arts instructor, explained she used “continuously recursive formative assessments” (Barbara, a personal conversation, November 14, 2019) as part of her students learning the writing process.

The interview questions prompted the instructors to explain when their feedback was written on student work or verbally delivered in person. Of the two English Language Arts instructors, Jim, the university instructor, gave more written feedback than Barbara, the community college instructor (Barbara, personal communication, November 14, 2019; Jim, personal communication, October 25, 2019). As mentioned previously, Barbara was the only instructor that had received any formal training as a high school teacher. This training plus her 26 years of experience in higher education enabled her to expand her teaching and assessment strategies beyond the stereotypical English Language Arts classroom (Barbara, personal communication, November 14, 2019). Barbara clearly preferred to engage verbally with her students to assess their level of understanding of the concepts being taught. Other than the diesel mechanics instructor, the remaining instructors, regardless of institution, gave written feedback more than verbal feedback in response to formatively assessing their students. The outlier was the diesel mechanics instructor who preferred speaking with his students either in groups or one-on-one to explain what they needed to correct in their work.

Follow-up questions were asked of each instructor about what their feedback addressed, whether it was corrective in nature, identified as needs, or whether they gave feedback to their students on the strengths revealed in the formative assessments. Most of the instructors gave students 50% more feedback on needs than on student strengths. Brenda, the university mathematics instructor, and Jim, the university English Language Arts instructor, reported
focusing on student needs over strengths by about 80% (Brenda, personal communication, October 21, 2019; Jim, personal communication, October 25, 2019). Brenda explained how it was important to correct the students’ conceptual thinking in mathematics so they could move forward in the major (Brenda, personal communication, October 21, 2019). Jim stated he spent much of his time editing and commenting on his students’ writing assignments so they could apply the revisions towards the final paper (Jim, personal communication, October 25, 2019).

**Theme 3: Student and Instructor Motivations**

The interview guide included a question on how the instructors thought the feedback they gave to the students was working. The participants were all clearly frustrated that some of the students would not read the written feedback. Angela, the university public health instructor, explained it this way:

> There are people who are going to disregard [the feedback] anyway and they’re going to just do what they want to do, so I’m not sure that any amount of feedback or changing the type of feedback, I don’t know that it would affect their choices at that point. (Angela, personal conversation, October 22, 2019)

This lack of student engagement with the written feedback often led to instructors choosing to give more feedback in class verbally rather than in writing. It became apparent through the instructor interviews that students became more engaged in their learning if they could practice or discuss course concepts within groups where they actively used the instructors’ feedback. Brenda, the mathematics instructor, described how students were working in groups together to solve problems on their whiteboards which “just reinforces the little ways in which all of us are struggling and that’s ok” (Brenda, personal conversation, October 21, 2019). Regarding the students who did act on the written feedback they received, the instructors were not clear if
student motivation was to just get a better grade or to authentically improve their conceptual understanding for the sake of learning. In either case, the instructors reported that they tried to connect with their students to obtain that authentic learning experience. All of the participants expressed a need to build trust with their students and to create an environment where the students would seek them out if they were struggling in the course.

The interviews clearly revealed a level of commitment by the participants to seek outside resources in supporting their teaching and learning activities as well as their desire to reach each student, struggling or not, in their classroom. Stephen, one of the physics instructors, reported that he “basically went through a lot of the physics education research stuff to try and figure out what are best practices” (Stephen, personal conversation, October 17, 2019). Every one of the participants expressed frustration in how best to assess their students and give useful feedback that would ultimately support their students’ learning. I was surprised to hear most of the instructors bring up the subject of learning objectives since that is generally a phrase used by education professors. They all understood the importance of having course objectives but were not as familiar with having specific lesson objectives with which to align their assessments and teaching activities. Jim, the university English Language Arts instructor, stated that “half the trouble is, we make objectives that make so much sense when we wrote them and then it comes time to teach . . . and you’re like, who the hell wrote this, this doesn’t make any sense” (Jim, personal conversation, October 25, 2019). At the end of each interview, I asked the instructors if they had heard of the phrase backwards design (Wiggins & McTighe, 2005). A couple of them had read about it while looking for different ways to teach their content successfully. I then explained the concept of designing their instruction beginning with their goal, then determining the evidence they wanted to see to know their students met the goal, and then planning their
instruction so that the students would produce the evidence as a result of their teaching. When the instructors in the focus group were asked if they had any thoughts from the prior interviews, a couple of them mentioned how they had subsequently been more purposeful in making sure their assessments aligned with what they had taught the students. In the focus group discussion, when asked how they determined student learning and how they responded to students who were struggling, much of the discussion focused on their frustration with students not reading the feedback or simply choosing not to apply it to improve.

**Theme 4: Instructor Reteaching and Recommendations**

Much of the written feedback the instructors made was in the form of reteaching and directed comments to guide their students’ learning. The instructors also described how they provided additional instruction while delivering their verbal feedback to students in either a group setting or to the entire class. Reteaching by the instructors was in the form of clarifying or re-explaining a concept, introducing new examples, or using different materials and strategies, all dependent on the amount of feedback required for the whole class. Stephen, one of the physics instructors, explained how he sometimes redesigned his “activities and all the kind of small assessments to try and close that gap to bring students into that place where I was actually teaching everyone” (Stephen, personal communication, October 17, 2019).

In the individual interviews, I asked each instructor what steps they took, if any, when they recognized students who were not on track to succeed in the course. There were two answers which were given by all participants. First, they talked about how they held regular office hours for students to come for additional help with the class. Second, they reported how they referred students to the various campus resources for either tutoring or to access the other support services provided.
Some of the written feedback included the recommendation to come and see the instructor during stated office hours. The two university physics instructors held office hours in a classroom or the student lounge and encouraged students to take advantage of the extra teaching and practice opportunities with other classmates. The community college English Language Arts and business instructors both told their students that they would be available in the classroom for half an hour before class to provide additional instruction if they were struggling. The community college diesel mechanics instructor provided extra lab hours on Fridays for students to practice applying the knowledge and skills they learned. All the instructors explained how they held regular office hours and encouraged students to come to see them if they were having problems with a particular assignment or the class in general.

All the instructors recommended the student support services on campus. Some of them went beyond their normal office hours to find ways to support their students’ learning while others referred students to the academic or social services available. The last prompt in the focus group agenda asked if the instructors believed that the success of their students differed depending on the subject matter and if so how. The responses ranged from a resounding affirmative from the university public health and safety management instructors because of the unusual content, to an emphatic no from Cathy, one of the university physics instructors (Cathy, personal communication, October 24, 2019). The other university physics instructor and math instructor were non-committal in their answers suggesting that it depended on the students and their prior experience with the subject being taught. Jim, the university English Language Arts instructor, explained that much of a student’s success depended on the genre being taught and the student’s comfort level with that genre, such as the student “who’s writing poetry might not be great at technical writing or vice versa” (Jim, personal communication, October 25, 2019).
Brenda, the university mathematics instructor, discussed how her student success was more dependent on the course level they were taking (Brenda, personal communication, October 21, 2019). The most interesting comment came from Cathy, one of the physics instructors, who unequivocally stated she did not believe it made any difference in the subject matter. She explained:

There’s no correlation between the grades of these different groups. It’s not that these physics majors and astronomy minors are getting all the high grades and everybody else is getting the low grades. It’s very much, like, who is applying themselves. I think the success of the students is far more correlated to just their personal study habits. (Cathy, personal communication, December 6, 2019)

Discussion of the Results in Relation to the Literature

The following discussion compares the results of this study to the literature review preceding the collection of data. This discussion first addresses the attributes’ lenses from which the research literature was reviewed as it related to this study’s research question: How are collegiate instructors using methods of formative assessment to inform their instruction? First, the following attributes will be compared to the data results from the participant interviews and the focus group: 1) The Purposeful Gathering & Evaluation of Evidence of Acquired Knowledge During the Learning Process, 2) The Resulting Motivation of Learner to Improve Academically, 3) Instructor Feedback During Learning, and 4) Student Perception of Assessment and Feedback (see Chapter 2). Second, this section will also discuss the Conceptual Framework of Formative Assessment (see Figure 1, Chapter 2) developed to form a base from which I began to narrow the research topic and focus to the different components of formative assessment relevant to the problem statement (Ravitch & Riggan, 2017). I will also compare the participants’ responses in
this study to how they correlate with each component of the conceptual framework which are: (a) classroom instruction, (b) formative assessment, (c) evidence of student learning, (d) instructor feedback to the student, and (e) reteach or adjust instruction.

**Attribute 1: The Purposeful Gathering & Evaluation of Evidence of Acquired Knowledge During the Learning Process**

The research literature referenced different methods of formative assessment, when and how they were used during instruction, why they were used, and whether they were considered useful according to a predetermined need. The methods of formative assessment instruments used in the literature review included exit tickets, student surveys, low-stakes assignments, personal conversations one-on-one or with groups, as well as peer- and self-assessments through reflections or journal writing (Asghar, 2012; Owen, 2016). These methods correspond with the data gathered in this study. All participants talked about using one form or another of these assessments to gather evidence of student learning. The timing and the means by which the participants in this study implemented their formative assessment methods differed from the previous research in that the connection to a predetermined need was different. The instructors in this study collected work from their students or asked them on a daily basis if they had questions. Brenda, the mathematics instructor, described how she tried,

> to do a lot of in the moment assessment of where we are and what I need to adjust what we’re covering. . . . I collect work every day to just sort of see, I don’t grade it, I just look at it . . . are you getting stuck on previous material or are you getting stuck on what I’m teaching you right now? (Brenda, personal communication, October 21, 2019)

In contrast, some of the previous research in the literature review focused attention on using these assessment methods as study tools for pending exams or summative assessments rather
than during the learning process to inform instruction (Houston & Thompson, 2017). However, other research in the literature review examined when to implement formative assessment within the course timeline to be most effective (Cassells, 2018; Lopez-Pastor & Sicilian-Camacho, 2016). Using formative assessment as a part of the learning process was recognized in some of the literature as an important way to monitor comprehension (Lopez-Pastor & Sicilian-Camacho, 2016; Poth, 2018). This was evident in Stephen’s physics class where he reported that “in class immediate assessment tends to work the best for me . . . that tends to be one of the primary tools to assess who’s kind of on it and who’s not” (Stephen, personal communication, December 6, 2019).

**Attribute 2: The Resulting Motivation of Learner to Improve Academically**

The research literature addressed how students responded to the feedback they received from the formative assessment methods that were implemented by their instructors. Students generally responded positively when instructors gave their students feedback and were motivated to increase their understanding of the instruction (Pitt & Norton, 2017; Wheatley et al., 2015). Julie, the safety management instructor, also reported on the positive response to feedback, “the ones who got it wrong are keenly interested in what went wrong because the material is repeated so they need to know it” (Julie, personal communication, October 17, 2019). The research literature also showed how some instructors used formative assessment with accompanying feedback to instill confidence in students who were struggling (Frost & Connolly, 2016; Jacoby et al., 2014). Other students were shown to be more concerned about their grades and viewed any assessment with a negative connotation, resulting in student responses focused primarily on improving their grades. The data from my research showed both mindsets to be present in the participants’ classrooms. The instructors described students with an intrinsic motivation for
improving their understanding as well as students with the extrinsic motivation for merely improving their grade in the class. Julie, the safety management instructor, described the conflicting mindsets when some of her students told her they wanted the quizzes to be worth more saying “you have to make this matter to me or I don’t want to do it. You have to hold me accountable. . . . I just didn’t take it seriously” (Julie, personal communication, October 17, 2019).

Attribute 3: Instructor Feedback During Learning

The research literature included an examination of the feedback instructors delivered to their students resulting from the application of formative assessment. I reviewed the literature for the types of delivery instructors used in giving feedback, the timeliness of the feedback, and the focus of the feedback. The types of feedback used by instructors in the literature varied between individual feedback on student assignments to whole class communication for clarifying conceptual course material (Mulliner & Tucker, 2017; Patka et al., 2016). The data from my study revealed similar types of feedback that addressed students individually and to the class in general.

My research revealed a variety of how feedback was delivered, separated into verbal feedback during personal, group, or whole-class discussions, and written feedback on individual assignments and quizzes. Giving verbal feedback allowed the instructors’ students to ask follow-up questions resulting in a deeper, more authentic understanding of the material. Students did not have the same opportunity to ask clarifying questions when feedback was delivered in written form. This resulted in much of the feedback being reiterated and clarified further in face-to-face interactions with the instructor during office hours or in the classroom the next day.
While much of the research literature referenced the ideal time to deliver instructor feedback, the consensus was that it should be timely for it to be useful to the students so they could make adjustments in their learning and for the instructor to reteach when deemed necessary (Taras & Davies, 2017; Thomas & Hornsey, 2014; Wanner & Palmer, 2018; Zimbardi et al., 2016). The data from my research did not show the instructors were concerned about when best to deliver feedback. I believe this is because they all strived to give students feedback daily when possible. The math and science classes reportedly gave immediate feedback during group work as the students were engaged in the day’s class activities. The humanities classes used their class discussions to give feedback. However, some of the participants did not necessarily deliver feedback the next day on written assignments, citing the time it takes to give quality feedback that students can use.

The focus of the feedback referenced in the research literature was addressed as a process to support students' academic understanding and progress leading to a final exam (Koke et al., 2017; Lopez-Pastor & Sicilian-Camacho, 2016; Petrovic et al., 2017). The literature showed that some instructors used feedback to address student strengths as well as needs promoting a self-reflective mindset (Frost & Connolly, 2016; Grosas et al., 2016; Patka et al., 2016). The data from my research clearly revealed that all the participants were invested in supporting their students’ academic achievement and used feedback to advance that goal. However, this study’s data also showed a significant portion of the feedback delivered addressed student needs over their students’ strengths. I sensed that the participants believed and hoped this would create a self-reflective mindset in their students, but they were not confident that was realistic nor that it was a consistent result. Susan, the business management instructor, described how she prompted reflective thinking,
I tend to give feedback that asks them more questions . . . if they took the time to read the feedback and answer some of those questions and go a little bit deeper in their thinking then they earn some points back. (Susan, personal communication, November 15, 2019)

Attribute 4: Student Perception of Assessment and Feedback

The research literature addressed whether the formative assessment methods implemented and the accompanying feedback was of value to either the instructor or the student, whether the student found the feedback useful, and whether the students actually used the feedback they received. Some of the research literature showed that students responded positively to formative assessment when they were given the opportunity to demonstrate their understanding and reflect on their learning (Gibbs & Taylor, 2016; Koke et al., 2017; Restrepo & Nelson, 2013). In other research, some of the instructors or students did not see the value of formative assessment because they did not understand how it affected student academic achievement or its pedagogical application (Houston & Thompson, 2017; Owen, 2016; Taras & Davies, 2017). The data collected in this study revealed similar opinions of students regarding the perceived value of formative assessment. Angela, the public health instructor, explained the apathy from students this way,

I had several students like yeah, whatever, there’s very little, if I don’t redo this or make changes for the next version of this then there’s very little, I’m not going to miss very many points. And so, then I started making it, the following year, if you didn’t make the corrections, I wouldn’t grade it, I wouldn’t read it . . . because it’s not worth my time.

(Angela, personal communication, December 6, 2019)
The participants also shared that they did recognize the value, but at the same time, they were not sure if they were applying methods of formative assessment effectively.

In the research literature, students described feedback as useful if they received it in a timely manner and if they understood it. The students in the research literature were more likely to respond positively to instructor feedback if the instructors addressed both of the students’ strengths and needs and explained how to use the feedback to improve (Jing, 2017; Lopez-Pastor & Sicilian-Camacho, 2016; Pitt & Norton, 2017). The participants’ responses in this study revealed they did not seem to recognize the importance of addressing both strengths and needs in their feedback but did respond when asked that they always tried to be encouraging. During the interviews and focus group, the instructors were passionate about supporting their students’ academic achievement and they worked hard at using feedback as a reteaching tool for improving understanding. Kelly, the business marketing instructor, explained how she would beg them to participate, stating “I will assume the grade you are earning from the effort you put in is the grade that you want”, but she still said she would go out of her way to “chase them down” and try to help them succeed (Kelly, personal communication, November 15, 2019).

Lastly, whether instructors in the research literature believed their students used the feedback was mixed, with the recognition that how feedback was delivered determined whether students used it or not (Evans, 2013; Mulliner & Tucker, 2017). Many instructors and students in the research literature showed how they both tend to fall back on using grades or other scoring marks as feedback to any assessment (Wanner & Palmer, 2018; Zimbardi et al., 2016). The literature correlates with the participants’ responses in this study; the instructors expressed frustration when students did not act on the feedback they were given, did not pay attention to it, or even read it. A couple of the instructors kept referring to the students’ grades as a form of
feedback but also recognized the need to reach out and deliver additional support if the grades were substandard.

The Conceptual Framework of Formative Assessment

The conceptual framework was developed to aid in reviewing the literature and illustrates the teaching and learning cycle, of which formative assessment is an integral part (Marzano et al., 2001). Formative feedback as a component of formative assessment is the means by which teachers facilitate the understanding of new knowledge, as well as motivate and promote continued learning (Chappuis & Stiggins, 2017; Darling-Hammond et al., 2003). The first component of classroom instruction varies depending on the discipline and the different concepts taught within that discipline. The instructional method used helps determine the most effective method of formative assessment to apply during instruction (Joyce et al., 2015). The second component of formative assessment provides for a method chosen by each instructor which is intended to elicit specific evidence of student learning described in the third component, which will determine the type and focus of feedback most useful for the students (Chappuis & Stiggins, 2017; Darling-Hammond et al., 2003). With the fourth component, the application of feedback should address both a student’s strengths and needs, which translates to encouraging and corrective feedback (Mulliner & Tucker, 2017). The fifth component illustrates how the instructor can apply different strategies, introduce different materials, or simply make adjustments in their instruction to clarify concepts with which a student may struggle (Sambell et al., 2012). I will discuss how these five components align with the data collected from the participants’ interviews and the focus group.

Classroom instruction. Participants in this study described through the interviews and focus group how they conducted their classroom to teach the concepts of their discipline. They
all used a variety of instructional methods from direct instruction and lecture to inquiry group work, class discussion, and Socratic seminars. In addition to instructor-facilitated teaching, outside reading was used to convey a more complete picture of the required learning. Angela, the public health instructor described her teaching in this way: “I have them do a reading before class and then we do a little bit of lecture and then they do small group discussions about the reading and then we do a large group discussion about the reading” (Angela, personal communication, October 22, 2019). All these modalities led the participants to apply the formative assessment method that best fit the learning experience.

**Formative assessment.** The participants in my study explained the different methods of formative assessment they used during their teaching. The lab intensive disciplines of physics, safety management, public health, and diesel mechanics instructors used a lot of observation to determine student learning with much class discussion. Terry, the diesel mechanics instructor, combines observation with class discussion and described it this way: “Let’s go plug in the sensor and show me how you’re going to test it because writing it on paper doesn’t count when you’re in the shop” (Terry, personal communication, November 15, 2019). The mathematics, business, and English Language Arts instructors used a significant amount of daily assignments to assess student learning. The music instructor used a mix of assignments and observations explaining “I use a wide variety of methods, both to figure out where they are coming in and where they are coming out and how far they went” (Susan, personal communication, November 15, 2019). Every participant expressed how they tried to use a variety of strategies, including new methods they had never tried before, to help them get a good idea of how their students were doing in the course.
Evidence of student learning. This study’s participants did not specifically talk about how they determined what evidence of student learning they were looking for. However, they did recognize the need to have specified learning objectives for their courses. At the conclusion of each interview, I explained the concept of backwards design that I teach to my education students (Wiggins & McTighe, 2005). In backwards design, I told them how planning their teaching with the goal in mind was important, but equally important was to plan for the evidence they hoped to see so that their instruction would be focused on eliciting the evidence to meet their goal. Stephen, one of the Physics instructors, stated in the subsequent focus group that he began to think about that alignment of assessing what he taught and planning his lessons that way (Stephen, personal communication, October 17, 2019). While all the instructors believed they were teaching their course’s stated objectives, I do not believe they understood the importance of planning their lessons with predetermined evidence. Jim, the university English Language Arts instructor, told me of a conversation he had with an instructor from the university’s school of education while collaborating on a writing class for education students (Jim, personal communication, October 25, 2019). He believed that he needed to give weekly quizzes, yet when asked by the education instructor why, his answer was because he just thought he needed to. The education instructor then asked Jim what evidence he expected to gather from the quizzes, and that is when he understood the importance of having purposeful assessments to collect goal-oriented evidence of learning.

Instructor feedback to the student. Each participant in my study explained how he or she delivered feedback to their students based on the evidence they received from applying formative assessment during the course. It was clear from the interviews and focus group that all the participants were diligent in giving feedback to students because they were invested in their
students’ success as described by Angela, the public health instructor, “and I’ve done all kinds of
crazy things to make sure that students succeed and sometimes it works and sometimes it
doesn’t” (Angela, personal communication, October 22, 2019). Some of the instructors spent the
time to give feedback even when they suspected the students were not going to act on it or even
read it. I was encouraged by this mindset of not giving up on their students even with their
frustration of trying to figure out how to motivate their students. Julie, the safety management
instructor, explained the frustration very well:

The ones who know they don’t understand are actually way easier to work with . . . I will
explain, I’ll find a way, or try to explain it to them in a different way . . . try to work with
their learning style a little bit. But those are the ones who are trying and get that they
don’t understand. So that’s the trick that I’m still trying to figure out, how do I get them
to understand they don’t understand it. (Julie, personal communication, October 17,
2019)

**Reteach or adjust instruction.** This study’s participants discussed the different ways
they responded to the evidence they received from applying formative assessment methods
during teaching. Some of them used the feedback they delivered as the primary means to clarify
or explain where students were incorrect in their conceptual understanding. Other instructors
described how they used the data gathered from the different formative assessments to inform
their instruction for the next lesson. All the participants found there were times when it was
necessary to reteach a significant portion of a lesson if most of their students were struggling to
understand. Stephen, one of the physics instructors, explained that:

if an entire class is having trouble, then I can really step back and dedicate a day or two
for deliberate practice where you try to identify if there is something really specific
they’re having a problem with and just stop and spend time on that specific thing.

(Stephen, personal communication, October 17, 2019)

Implications of the Results for Practice, Policy, and Theory

The purpose of this study was to gather data on how instructors in higher education were using formative assessment in their courses. This study was not limited to one discipline or one institution because, as an instructor in teacher education in higher education, teaching new knowledge, concepts, and facilitating the comprehension of both is the underlying definition of pedagogy regardless of discipline. Pedagogy, as defined in the Oxford English Dictionary (n.d., para. 3), is “The art, occupation, or practice of teaching . . . the theory or principles of education; a method of teaching based on such a theory”. The theoretical attributes developed from the literature review support my problem statement that collegiate instructors outside of teacher education typically do not know how to use formative assessment to gather evidence of learning during the teaching and learning process or why it may inform their instruction and have an impact on student learning (Asghar, 2012; Jensen, 2011; Scott-Webber, 2012). Based on the findings, several implications for teacher practice, higher education policy, and pedagogical theory are presented.

Implications for Practice

The results of this study for practice can be to support higher education instructors to increase their students’ academic achievement, which in turn can lead to increased motivation (Jankowski, 2016). This research was conducted to answer the question: How are collegiate instructors using methods of formative assessment to inform their instruction? I believed that it was important to answer this question first before beginning research on effective methods of formative assessment and make recommendations to instructors on how they should change their
teaching practices. This study may serve as a formative assessment baseline for instructors in higher education to adjust how they determine their students’ learning during instruction. While each discipline represented in this study had unique requirements in teaching their content, they all needed to determine the evidence they were assessing for, effectively respond to the evidence they gathered, and use that evidence to inform their instruction.

The data collected on the implementation of formative assessment reported by the participants was collated by the method by discipline. The most commonly used methods were assignments, class discussions, and in-class group work. While there is a common perception that assessments must be in the form of quizzes or tests, I maintain that anything you ask your students to write, say, or do, during the course of teaching, is an assessment of their learning. Written work, either in the form of daily assignments, quick-writes in class, quizzes, or extended writing assignments are different ways for students to express their understanding of the material taught to them. Class discussions, listening to students working together in groups, facilitating Socratic seminars, oral presentations, or a personal conversation with a student are all examples of determining a student’s level of comprehension of the course content. Requiring the performance of a skill or performing a specific activity or task allows students to demonstrate their cognitive and physical ability to meet the learning outcomes of the course.

Asking how each participant in this study determined student success in their course was followed up by asking them how they responded to the evidence they received with instructor feedback, reteaching, and other forms of support. Because formative assessment is for the purpose of gathering evidence of learning during the learning process, questioning the participants on how they followed up with their students was an important component of this study. Regardless of discipline, it became apparent that each instructor tried to establish the best
way to help their students succeed. All of them had tried different approaches to supporting their students as well as asking for support from their peers, participating in minimal pedagogical trainings, or purposely sought out strategies through education sites on the internet. This study reveals the importance of providing instructors in higher education pedagogical training and support to create a classroom environment of teaching and learning that effectively supports student academic achievement (Clouder, Broughan, Jewell, & Steventon, 2012).

**Implications for Policy**

Another result of this study may influence institutions of higher education to develop new policy guidelines for faculty development and training in improving instructors’ understanding and implementation of formative assessment. This, in turn, can contribute to the issue of student retention, which is a leading concern of administration in higher education (Crosling & Heagney, 2009; Weimer, 2013, 2017). As previously stated, the problem this study addressed is the lack of pedagogical knowledge instructors are required to have when contracted to teach. Outside the domain of teacher education programs, instructors with pedagogical training are a minority in higher education throughout the country (Jankowski, 2016). Instructors do not typically enter the world of higher education with an understanding of the teaching and learning cycle or have a variety of instructional methods in their repertoire (Kaynardağ, 2019). Collegiate instructors are hired to teach in the discipline for which they are trained. It is not expressly expected that they know how to use formative assessment to gather evidence of learning during the teaching & learning process which could inform their instruction and have an impact on student learning (Hutchings, 2016). Requiring new faculty orientation in formative assessment strategies as well as implementing periodic faculty development and support for instructors in higher education in
teaching and learning can directly be connected to improving student academic achievement, student motivation, and student retention (Raman, 2016; Weimer, 2013).

**Implications for Theory**

Lastly, the results of this study can add to the growing body of literature addressing the need for instructors in higher education to develop a teaching and learning environment on research-based pedagogical practices (Kaynardağ, 2019). Theories of teaching and learning have been around for millennia, however, teaching is an active process and not just the transference of knowledge from one to another. Learning is also an active process that is defined by the understanding of new knowledge, the application of that knowledge using reasoning and critical thinking skills, and the ability to combine newly attained knowledge with reasoning to create something new (Bloom, 1956). This study supports the theory of transformative learning as an adult, for students learning through discourse and integrating self-reflection thereby enhancing their critical thinking skills (Mezirow, 2000). There has been extensive research on teaching and learning to continually seek new and more effective ways to support student academic achievement, modify and accommodate students with specific learning needs, and to discover how the social and emotional state of students influences their ability to learn (Robinson, 2011). However, most of this research has been focused on the PK–12 classroom environment. Much of the research on the same aspects in higher education classrooms has been limited to either specific disciplines or how students parlay their degree from higher education into a successful career path. It could follow that this is because students in higher education should have already learned how to learn because of their PK–12 experience, advocate for themselves if they need accommodations, and be in charge of their own social and emotional state, after all, they are adults in the legal sense (Dužević, 2015, Mezirow, 2000). “Learning is a highly complicated
process that depends upon interactions among various individual and environmental factors” (Wang, Su, Cheung, Wong, & Kwong, 2013). I maintain that learning is a lifelong activity that should be nurtured beyond the PK–12 classroom, into the arena of higher education (Kaynardağ, 2019; Mezirow, 2000). This study supports the concept of applying the pedagogical components of formative assessment in higher education classrooms to increase student academic achievement. As instructors assess their students’ learning throughout the course, they then have the opportunity to correct student misconceptions, assist struggling students, and adjust their teaching based on the evidence they collect. While each student enters higher education with different motives and intentions, I would argue that they do not come to be frustrated or fail. Students apply themselves to their education with varying levels of effort and some succeed despite any lack of effort. On the flip side, each instructor teaching in higher education has different motives and intentions, but I would again argue that they do not set out to fail students. Instructors apply themselves to their task of teaching with varying levels of training and skills and some succeed despite any lack of training or skills. Purposefully integrating methods of formative assessment in higher education classrooms will ameliorate the students' lack of motivation and the instructors' lack of skills and enrich the student/instructor dynamics for an improved academic outcome (Huba & Freed, 2000; Jacoby et al., 2014). Mintz (2016) described the importance of creating a learning environment that addresses multiple pathways for students to succeed, stating:

as learning designers, instructors must specify what they want a student to know or to be able to do and, then, design activities that will help students attain that objective and devise assessments to measure whether the students have actually achieved mastery. (para. 9)
The results of this study can contribute to the theory for best practices in supporting students to get the most out of their higher education experience.

**Recommendations for Further Research**

This study was limited in scope to the formative assessment practices collegiate instructors were currently implementing in their classrooms. The interviews and focus group included questions about how and why they chose the methods they used and if they believed they were effective in improving student academic achievement. Extending this research affords instructors the opportunity to continue to improve their teaching and create a more effective learning environment that is conducive to increasing student academic achievement (Brownell & Tanner, 2011). I have three specific recommendations for further research into formative assessment practices in higher education.

First, I suggest using a hermeneutic phenomenological study to gather data from the students’ perspective of formative assessment practices in higher education. This study explored the instructors’ perception of their students’ perspective based on how their students used the feedback they received and the subsequent adjustments the students made to their learning practices. Teaching and learning is a collaborative activity that requires the input and understanding of the process by both the instructor and the student (Marzano et al., 2001; Mascolo, 2009; Piaget, 1971; Vygotsky, 1962).

My second recommendation for future research useful to administration in higher education would be to gather data from instructors before and after they have participated in faculty development and training sessions for formatively assessing student learning during a course. This would be a phenomenological before-and-after case study to determine the changes instructors make in their classrooms after participating in a training session (McDonald, 2010).
This would assist administrators in designing faculty development courses for new faculty hires as well as periodic training opportunities addressing specific pedagogical applications.

My third recommendation is a more in-depth look at how formative feedback is delivered by instructors to their students, the mode of delivery, the focus of the feedback, and the students’ use of the feedback. More reliable data could be gathered over a span of time, surveying both instructors and students using a hermeneutic phenomenological approach, to determine and compare each participant group, and their perceptions of the feedback (Darling-Hammond et al., 2003; Vygotsky, 1962; Wormeli, 2006).

Lastly, additional research could be focused on whether instructional activities and course expectations are issues that impact student retention in higher education (Crosling & Heagney, 2009). Conducting exit interviews with students may reveal existing institutional gaps in academic student support or provide insights for individual programs in better tracking of student achievement. The data gathered from the interviews could contribute to institutional policy decisions and further inform the faculty in higher education in developing strategies to improve student academic success.

**Conclusion**

The goal of this study was to build on the body of knowledge to support instructors in higher education by answering the research question: How are collegiate instructors using methods of formative assessment to inform their instruction? This question was answered using face-to-face interviews and a focus group with instructors from two different institutions of higher education across multiple disciplines. The research design for this study, illustrated in Figure 2, Chapter 3, was a hermeneutic phenomenological design using Heidegger’s hermeneutic circle (Gadamer, 1975). Using this design, I began with a preunderstanding of what constitutes
formative assessment based on research-based best practices currently applied in teacher
preparation programs (Gadamer, 1975). I conducted interviews and a focus group of the
participants to gather data on their personal experiences from their perspective. After
transcribing and coding the data, I analyzed it through the lens of the preunderstanding for this
study of best practices for formative assessment in higher education supported by previous
research (Barnett, 2000; Raman, 2016; Reder, 2007; Saroyan & Amundsen, 2004). From this
analysis, I answered the research question, detailing the different ways collegiate instructors
applied methods of formative assessment, used the evidence of their assessments for instructor
feedback and reteaching, and described the resulting factors of whether students used the
feedback and any barriers they faced in implementing effective formative assessment with the
accompanying feedback (see Chapter 4). The result appeared to be a gap between implementing
formative assessment and how it is perceived by students and its impact on authentic student
learning (Asghar, 2012; Taras & Davies, 2017). Effective teaching and learning is a cycle where
formative assessment spans both teaching and learning. After an instructor teaches, formative
assessment should occur to determine if their teaching was effective and students learned. If the
assessment evidence reveals sufficient learning did not occur, reteaching should then follow.
Formative assessment, instructor feedback, and reteaching is a fluid and dynamic engagement of
the teaching and learning process between the instructor and the student.

This study confirmed to me the need for institutions in higher education to provide
faculty development and training in effective teaching and learning strategies. It is incumbent
upon these institutions to support their instructors in applying research-based best practices in
pedagogy to fulfill the mission of educating students (Fullan & Scott, 2009). The instructors who
participated in this study were all grateful that I was researching this topic and actively expressed
an interest in knowing the results. They all expressed their desire to have more institutional support on how to formatively assess their students effectively and were open to different ways of delivering feedback to their students that would motivate them and enhance their learning.

My analysis falls short of the additional impressions I received from interviewing each instructor and conducting the focus group. Each instructor demonstrated a passion for their students to do more than simply learn the material presented, earn a grade, and move on to the next class or next phase of their life. These instructors showed they cared about whether their students learned because they see the bigger picture of their discipline and the potential for each student to apply their learning to future life endeavors. Effective teachers take a big picture philosophy into the classroom environment they create (Weimer, 2017). Teachers who are passionate about their discipline should apply the same passion in facilitating their students’ success. The best way to facilitate that success is by making adjustments in their teaching based on evaluating their students’ learning using formative assessment.
References


Appendix A: Argument of Discovery

Literature Claim Attributes

Attribute a: The Purposeful Gathering & Evaluation of Evidence of Acquired Knowledge During the Learning Process
Attribute b: The Resulting Motivation of Learner to Improve Academically
Attribute c: Instructor Feedback During Learning
Attribute d: Student Perception of Assessment and Feedback

Body of Evidence

Formative Assessment applied to gather & evaluate evidence of learning during instruction, with instructor feedback, effects student motivation and student perception of the value of assessment and feedback.

Warrant

Formative assessment with feedback from instructor communicates the academic progress

Complex Claim

Combining formative assessment strategies with formative feedback provides instructors and students the opportunity to evaluate academic understanding and progress.

The Argument of Discovery illustrates how attributes for this study come from the literature to support the claim (Machi & McEvoy, 2016).
Appendix B: Argument of Advocacy

Body of Evidence
Combining formative assessment strategies with formative feedback provide instructors and students the opportunity to evaluate academic understanding and progress.

Warrant
Formative assessment with feedback from instructor communicates the academic progress.

Thesis Claim
Combining formative assessment strategies with formative feedback provides instructors and students the opportunity to evaluate academic understanding and progress, which affords the opportunity to impact student academic achievement.

The Argument of Advocacy illustrates how the body of evidence derived from the literature for this study supports the thesis claim (Machi & McEvoy, 2016).
Appendix C: Email Permission to Conduct Research Study

I am writing to request permission to conduct research at __________. I am currently enrolled in the Doctorate of Education program at Concordia University-Portland and am in the process of writing my dissertation and preparing to begin my research. My dissertation is tentatively titled, “Key Pedagogical Practices for Formative Assessment in Higher Education”. My interest in this topic developed from my own teaching experience as a Senior Lecturer in teacher education at [information redacted].

I would like to recruit a combined total of five to six faculty from the _______ and the _______ programs. My research will include an individual interview and a focus group of those who volunteer to participate. After I receive IRB approval from Concordia University and if approval is granted by your institution, I will email an invitation for participation to you which can then be forwarded to the faculty by your college deans. I will choose my participants from those who volunteer. The chosen volunteers will be given a consent form to be signed and returned to me.

After I receive their consent form, I will send the chosen participants a demographic questionnaire. If they agree to continue, I will set up a face-to-face individual interview with each participant to last approximately 60 minutes in a quiet location on campus at the convenience of the participant. After all the participants have been interviewed, I will arrange a time and place to conduct a focus group with all participants who agree to continue. Each interview and the focus group will be audio-recorded for transcription to be used for my research. Individual names will remain confidential and only the participants’ responses will be documented. No costs will be incurred by either your institution or the individual participants.

Your approval to conduct this study is greatly appreciated. This approval will provide permission to Concordia University-Portland to publish my dissertation upon completion. I am happy to answer any questions or concerns that you may have. You may contact me at [redacted].

Thank you for considering this request in supporting me in my academic endeavor.

Sincerely,

Brita L. Williams
Concordia University-Portland, Doctorate of Education candidate
Cc: Dr. James Therrell, Dissertation Chair, Concordia University
Appendix D: Participant Consent Form

Concordia University-Portland Institutional Review Board
Approved: August 22, 2019; will Expire: August 22, 2020

**Research Study Title:** Key Pedagogical Practices for Formative Assessment in Higher Education

**Principal Investigator:** Brita L. Williams

**Research Institution:** Concordia University–Portland

**Faculty Advisor:** James Therrell, PhD

**Purpose and what you will be doing:**
The purpose of this descriptive study is to explore the current pedagogical methods of formative assessment used in higher education across disciplines and why collegiate instructors may or may not choose to use them. I expect approximately 12 instructor volunteers. No one will be paid to be in the study. We will begin enrollment on August 2019 and end enrollment on October 2019. To be in the study, you will need to: complete a demographic questionnaire; participate in an individual interview and focus group discussion. Each interview will take approximately 60 minutes as well as the Focus Group discussion. Doing these activities should take less than three hours of your time. No one will be paid for participating in this study.

**Risks:**
There are no risks to participating in this study other than providing your information. However, we will protect your information. Any personal information you provide will be coded so it cannot be linked to you. I will record interviews and focus group discussions. The recording will be transcribed by the investigator, and the recording will be deleted when the transcription is verified and complete. In the transcriptions, the investigator will use a code and not your name or any other personally identifiable information. You will not be identified in any publication or report. Your information will be kept private at all times and then all study documents will be destroyed 3 years after we conclude this study.

**Benefits:**
There may be no direct benefits to you for participating in this study. The information you provide may help instructors in higher education to improve their teaching practices and thereby help future students in higher education.

**Confidentiality:**
This information will not be distributed to any other agency and will be kept private and confidential. The only exception to this is if you tell us abuse or neglect that makes us seriously concerned for your immediate health and safety.
**Right to Withdraw:**
Your participation is greatly appreciated, but we acknowledge that the questions we are asking are personal in nature. You are free at any point to choose not to engage with or stop the study. You may skip any questions you do not wish to answer. This study is not required and there is no penalty for not participating. If at any time you experience a negative emotion from answering the questions, we will stop asking you questions.

**Contact Information:**
You will receive a copy of this consent form. If you have questions you can talk to or write the principal investigator, Brita L. Williams at email [redacted]. If you want to talk with a participant advocate other than the investigator, you can write or call the director of our institutional review board, Dr. OraLee Branch (email obranch@cu-portland.edu or call 503-493-6390).

**Your Statement of Consent:**
I have read the above information. I asked questions if I had them, and my questions were answered. I volunteer my consent for this study.

_______________________________                   ___________
Participant Name                        Date

_______________________________                   ________
Participant Signature                   Date

_______________________________                   ________
_Brita L. Williams_                   Date
Investigator Name

_______________________________                   ________
Investigator Signature                   Date

Investigator: Britt L. Williams_; email: [redacted]
c/o: Professor James Therrell, PhD
Concordia University−Portland
2811 NE Holman Street
Portland, Oregon 97221
Appendix E: Email Solicitation Letter

Dear Faculty Member:

My name is Brita Williams and I am a senior lecturer at [information redacted] and a doctoral student at Concordia University–Portland. This letter is an invitation to participate in a study I am conducting as part of my doctoral degree, under the supervision of Dr. James Therrell, Ph.D. This study has been approved by the Concordia University–Portland’s Institutional Review Board (IRB). If you agree to participate, I will follow up with a form for Consent similar to the content below.

Research in the area of teaching and learning in higher education supports the success of both faculty and students. The general mission of an institute of higher education is to prepare students to develop the knowledge, skills, and responsibility to lead creative and productive lives for the benefit of their community and beyond (Fullan & Scott, 2009). To prepare these students for success, the onus is on both the instructor and the student to determine what that success entails and whether the student is on track to attain it. The continuing research on how we learn has substantially contributed to the collection of best practices in higher education as well as the PK–12 learning environment, where the majority of students directly come.

The purpose of this qualitative study is to explore the current pedagogical methods of formative assessment used in higher education across disciplines and why collegiate instructors may or may not choose to use them. The research question proposed for this study is: How are collegiate instructors using methods of formative assessment to inform their instruction? This is a descriptive qualitative research design for a phenomenological study to understand the lived experiences and perspectives of the participants through the theory and methodology of hermeneutics. In the quest to ascertain the current understanding and use of formative assessment in higher education, semistructured individual interviews with instructors will be conducted. After interviewing the participants, additional information will be gathered through facilitated focus groups to allow the participants the opportunity to clarify their own experiences while discussing them among their peers. The transcripts from the participants’ will provide the data to interpret the meanings behind their experiences.

If you choose to participate in this study, an initial demographic questionnaire will be emailed to you with Qualtrics survey link and should take less than 5 minutes to complete. Please complete and submit the questionnaire within two weeks of receiving it. After receipt of your questionnaire, I will arrange a time for an individual interview with you. I will conduct the individual interview using set questions with the ability to ask follow-up questions for clarification. The interview is set to take 45–60 minutes in a private setting in the library on campus. At the time of the interview, you will be asked if you want to continue to participate in a focus group. The focus group will be conducted at a later date after the individual interviews are complete.
When there are a confirmed number of at least 4–6 of focus group participants, a formal announcement will be sent to you through email informing you of the date, time, and place of the focus group session. The focus group session should take no more than one hour of your time. There will be open-ended prompts for participant discussion to elicit additional individual thoughts from the interviews. The participant will be encouraged to have a conversation with their peers about their experiences. You will be given a list of the prompts at the beginning of the session to allow you time to consider your responses. I will provide time to allow the participants’ conversation to reach a satisfactory conclusion before moving on to the next prompt. Follow-up questions may be necessary for you to clarify your responses.

Thank you for considering taking part in my study. Your input is invaluable to the continued growth of the body of literature related to teaching in higher education. Please feel free to contact me with any questions. If you call me and I do not answer, please leave a message.

Sincerely,

Brita L. Williams
Appendix F: Demographic Questionnaire-Qualtrics Survey

The purpose of this study is to explore the current pedagogical methods of formative assessment used in higher education across disciplines and why collegiate instructors may or may not choose to use them. I expect approximately 12 instructor volunteers. No one will be paid to be in the study. We will begin enrollment in August 2019 and end enrollment in October 2019.

To be in the study, you will be asked to: complete a demographic questionnaire. Completing this questionnaire should take less than 20 minutes of your time. You will be invited to share contact information if you wish to enter the next phase of this research project. This information will be destroyed immediately after the conclusion of this research. All other study data will be held securely and then destroyed after 3 years.

There are no risks to participating in this study other than the everyday risk of your being on your computer as you take this survey. There may be no direct benefits to you for participating in this study. The information you provide may help instructors in higher education to improve their teaching practices and thereby help future students in higher education.

Your personal information will be protected. This survey is firewall and password protected so that only the researcher (me) can see your answers. I will keep this in strict confidence. The information/topic of the questions is not sensitive or risky. However, if you were to write something that might allow someone to possibly deduce your identity, we would remove this information and we would not include this information in any publication or report. And the data you provide would be held privately. All data will be destroyed three years after the study ends.

You can stop answering the questions in this online survey if you want to stop. Please print a copy of this for your records. If you have questions you can talk to or write the principal investigator, Brita L. Williams at email [redacted] or [redacted]. If you want to talk with a participant advocate other than the investigator, you can write or call the director of our institutional review board, Dr. OraLee Branch (email obranch@cu-portland.edu or call [redacted]).

Survey Questions:

What is your age?
25 to 39 years old
40 to 54 years old
55 years or older

What is your gender?

What is your ethnic identity?

What is the highest degree you have completed?

How many years in total have you been teaching in higher education?

What subjects do you teach at your current institution?

What academic levels do you currently teach?
Appendix G: Individual Interview Guide

1. How do you measure or determine student success during your course?
   a. Please describe the methods you use.

2. What is your purpose for giving feedback to your students?
   a. How do you expect your students to use it?

3. When do you give feedback to your students?
   a. Is it during class instruction, on assignments, or exams before the end of the course?

4. How do you think the feedback is working?

5. If you discover your students are not on track to succeed, what do you do if anything?

6. Describe the reasons why it may be difficult to conduct interim assessments or checks on your students’ understanding?

7. Describe what helps you in conducting interim assessments and why?
Appendix H: Focus Group Agenda

Introductions

Purpose of the focus group

Follow-Up Thoughts from Instructors regarding the Individual Interviews

Questions for Group Discussion - Instructors

1. What ways have you found the most useful in determining your students’ level of understanding of the material?

2. How do you respond to students when they express their frustration in grasping a critical concept even after you have taught it to them?

3. Do you believe that the success of your students may differ depending on the subject matter and if so how?
Appendix I: Statement of Original Work

The Concordia University Doctorate of Education Program is a collaborative community of scholar-practitioners, who seek to transform society by pursuing ethically-informed, rigorously-researched, inquiry-based projects that benefit professional, institutional, and local educational contexts. Each member of the community affirms throughout their program of study, adherence to the principles and standards outlined in the Concordia University Academic Integrity Policy. This policy states the following:

Statement of academic integrity.

As a member of the Concordia University community, I will neither engage in fraudulent or unauthorized behaviors in the presentation and completion of my work, nor will I provide unauthorized assistance to others.

Explanations:

What does “fraudulent” mean?

“Fraudulent” work is any material submitted for evaluation that is falsely or improperly presented as one’s own. This includes, but is not limited to texts, graphics and other multi-media files appropriated from any source, including another individual, that are intentionally presented as all or part of a candidate’s final work without full and complete documentation.

What is “unauthorized” assistance?

“Unauthorized assistance” refers to any support candidates solicit in the completion of their work, that has not been either explicitly specified as appropriate by the instructor, or any assistance that is understood in the class context as inappropriate. This can include, but is not limited to:

- Use of unauthorized notes or another’s work during an online test
- Use of unauthorized notes or personal assistance in an online exam setting
- Inappropriate collaboration in preparation and/or completion of a project
- Unauthorized solicitation of professional resources for the completion of the work.
Statement of Original Work (Continued)

I attest that:

1. I have read, understood, and complied with all aspects of the Concordia University—Portland Academic Integrity Policy during the development and writing of this dissertation.

2. Where information and/or materials from outside sources has been used in the production of this dissertation, all information and/or materials from outside sources has been properly referenced and all permissions required for use of the information and/or materials have been obtained, in accordance with research standards outlined in the Publication Manual of The American Psychological Association

Brita L. Williams

Digital Signature

Brita L. Williams

Name (Typed)

April 17, 2020

Date