

**Exploring Teachers' Perceptions of Formative Assessment, Feedback, and Leadership
Practices to Enhance Student Learning and Engagement in Ontario Schools**

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Chapter 1: Introduction

The primary goal of schools is to enhance student learning and academic achievement. Education focuses on teaching and also helps students develop the skills, attitudes, and abilities required for future success. The primary goal of public and private schools in Ontario, Canada, is to prepare students for higher education and a career. Therefore, schools are still seeking effective teaching strategies to enhance student learning, participation, and motivation. The use of formative assessment, feedback, student engagement, and motivation are among the key factors that influence student achievement, according to researchers. These methods can help teachers understand students' learning needs and provide better support. However, schools still struggle to consistently incorporate them into their classrooms. The recognition of these difficulties is crucial for enhancing teaching methods, improving student learning outcomes, and preventing student dropout. This study will explore how teachers and administrators support student learning and achievement through formative assessment and feedback.

Problem Statement

Education systems, both public and private, in Ontario, Canada, continuously seek high levels of student achievement and insure successful future path. Therefore, Toronto District School Board (TDSB) is one of the biggest boards in Ontario, there mission is "To enable all students to reach high levels of achievement and well-being and to acquire the knowledge, skills and values they need to become responsible, contributing members of a democratic and sustainable society" (Toronto District School Board, n.d.). And their vision for high school students includes "to shape a successful high school experience and future path" (Toronto District School Board, n.d.). Moreover, the Conference of Independent Schools in Ontario (CIS

Ontario) Vision and Mission focus on providing excellence in education and exemplary student programs through its school network.

Hattie explains that visible teaching and learning happen when learning is the clear goal of the lesson. The goal should be challenging but suitable for students. Both the teacher and the student check if the learning goal is achieved and how well it is achieved. Students practice intentionally to reach mastery. Feedback is given and also requested to improve learning. In addition, the learning process includes active, passionate, and engaged participation from both teachers and students (Arnold, 2011).

Education in the 21st century requires a learning approach that helps students develop important skills such as critical thinking, creativity, communication, and collaboration. Effective learning not only improves students' understanding but also helps them build positive attitudes and curiosity which are important for their lives and future careers (Ferdiansyah, Degeng, Kuswandi, & Praherdhiono, 2025). Within this context, some educational researchers emphasized the importance of formative assessment and effective feedback practices as essential strategies for improving teaching and learning. Formative assessment feedback was highly and positively connected to competency-based learning. Moreover, feedback is the most important element of formative assessment and not the mark; therefore, a graded assignment with feedback is considered a formative assessment; however, an ungraded assignment without feedback or with good work or well done is not considered a formative assessment (Gedye, 2015; Alt, Naamati-Schneider, & Weishut, 2023).

Formative assessments are ongoing evaluations that teachers use to assess students' understanding (Popham, 2006). Teachers provide students with feedback after these assessments, rather than assigning a grade (Popham, 2006). Formative assessment is when the information

from the assessment is used during teaching time to adjust instruction and support students better (Popham, 2006). Teachers use formative assessments to gauge students' understanding and provide feedback rather than a grade (Popham, 2006). Unlike summative assessment, summative assessments are for evaluation purposes; teachers use them to measure what students know and do not know and to provide a grade or a report card (Garrison & Ehringhaus, 2007). Summative assessments are periodic assessments used to assess what students know and what they do not know. Students receive their test marks or report cards at the end of a unit or term (Garrison & Ehringhaus, 2007). When implemented effectively, formative assessment allows students to reflect on their learning, recognize areas that require improvement, and develop strategies that strengthen their understanding of the subject matter (Chazi-Nacimba, Bastidas-Guerrero, Hurtado-Mora, & Chugchilán-Fauta, 2024).

Research has consistently emphasized the importance of formative assessment in improving student learning outcomes across a variety of educational contexts. Formative assessment practices can significantly enhance student achievement. Formative assessment aims to close the gap between the actual level of knowledge and the reference level, and feedback is a basic and necessary step. The finding suggested that formative assessment can produce substantial learning gains; however, teachers cannot use formative assessment practices in their classrooms frequently and effectively because classrooms are sometimes crowded and overcrowded. Moreover, formative assessments require a heavy workload (Büyükkarıcı, 2014). Moreover, another research found that formative assessment has a smaller impact on student achievement than many people believe (McMillan et al. 2013). When, Xuan, Cheung, and Sun (2022) concluded that formative assessment can improve students' achievement in different learning environments. The improvement is positive but not very large. The results also show

that when teachers use differentiated instruction, the impact on student learning is much stronger than when it is not used.

Feedback is a powerful tool that can positively or negatively impact learning and achievement (Hattie & Timperley, 2007). Hattie and Timperley (2007) define feedback as information provided by teachers or other sources (peers, books, parents, self, or experience) regarding aspects of a student's performance or understanding relative to learning goals. Therefore, the feedback is a consequence of performance. According to their research, feedback has a strong influence on student achievement when it is clear, timely, and focused on helping students understand how to improve their performance, and it has no impact in a vacuum; in other words, feedback should be addressed after a student responds to initial instruction (Hattie & Timperley, 2007).

Effective feedback aims to modify students' thinking or behaviour to improve their understanding and progress toward learning goals through providing guidance on their performance (Shute, 2008). Hattie and Timperley (2007) suggest that effective feedback addresses three basic questions that guide student learning: Where am I going? How am I going? And what should I do next? When teachers provide feedback that answers these questions, students can identify gaps in their understanding and adjust their learning strategies by using the teacher's explanations to remove misconceptions (Herman, 2013). Students play a key role in formative assessment because they can evaluate their own learning and adjust their actions to improve. Self-regulated learning describes the thinking and self-monitoring processes students use to control and improve their performance. Therefore, feedback is more effective when it focuses on the learning process rather than only on the final results, because this type of

feedback helps students learn more deeply and develop metacognitive skills, which means thinking about and managing their own learning (Panadero, Broadbent, Boud, & Lodge, 2019).

Student engagement is an important factor that impact academic success and learning outcomes, students who are engaged they will be able to promote their learning (Ebraliidze, 2023). Engagement theory explains that student engagement has three connected parts: cognitive, emotional, and behavioral engagement. These parts work together and support each other. When students are engaged, they think deeply about the content, feel positive emotions about learning, and take actions that help them learn. Behavioral engagement includes actions like attending class, participating in discussions, and completing assignments. Emotional engagement refers to feelings such as interest, enjoyment, and excitement about learning. Cognitive engagement involves the mental effort students put into learning, such as critical thinking, analyzing information, and connecting ideas (Ebraliidze, 2023). Several scholars have suggested that the availability of feedback can influence learning engagement, thereby increasing awareness of knowledge building and fostering critical thinking (Feng Q., Li W., Zhu X., & Li X., 2025). Feng et. al (2025) concluded that elaborated feedback resulted in greater participation and higher cognitive engagement. Engagement is an important factor in learner retention, but it is hard to measure. Research showed that, according to students' evaluations, the more effective teachers were associated with higher student engagement. Therefore, more engaging and interactive methods will increase teaching effectiveness (Stephenson, Bonnes, Sawatsky, Richards, Schleck, Mandrekar, Beckman, & Wittich, 2020).

Motivation is defined as the process of triggering and maintaining behaviour towards a goal (Urhanne & Wijnia, 2023). Motivation is essential in learning because motivation gives energy and direction to students' actions (Gopalan, Abu Bakar, Zulkifli, Alwi, & Che Mat,

2017). Urhahne and Wijnia (2023) stated that the mini theory proposes a self-determination continuum that ranges from intrinsic motivation to extrinsic motivation to amotivation.

Motivation can be intrinsic, when students study because they enjoy learning or like challenges, or extrinsic, when they study for rewards such as grades or praise, or when there is pressure.

Amotivation happens when intrinsic and extrinsic motivation are absent. A demotivated student will be unable to engage in the learning process and therefore will not be able to construct knowledge. Thus, both intrinsic and extrinsic motivation are important for constructing knowledge; highly motivated students can face challenges, understand how things work, and apply the knowledge they have constructed to real-world examples and problem-solving (Gopalan et al., 2017).

Self-Determination Theory (SDT) explains that people have three basic psychological needs: autonomy, competence, and relatedness. Autonomy means feeling that you choose and control your own actions. Competence means feeling capable and effective in achieving results. Relatedness means feeling connected to others. Research shows that when teachers create a learning environment that supports these needs and also includes novelty (new tasks and challenges), students develop stronger autonomous motivation. This motivation increases their intention to be physically active in the future. Teachers can support novelty by using new teaching methods, such as gamification, instead of only traditional approaches (Fernández-Espínola, Almagro, Tamayo-Fajardo, & Sáenz-López, 2020). Moreover, online learning challenges traditional ways of creating, applying, and sharing knowledge, as well as measuring learning outcomes (Fitzgerald, Bruns, Sonka, Furco, & Swanson, 2016). Many studies have established strong links between a positive learning environment and a range of student

outcomes; however, there is a scarcity of research that examined how teachers might establish such an environment (Aldridge & Bianchet, 2022).

Researchers found that higher-education students are seeking Artificial Intelligence (AI) for digital feedback, especially because AI offers faster feedback. Studies show that AI is effective in providing immediate, targeted feedback, helping students identify and fix learning gaps before summative assessments (Mammadova, Aliyeva, Mammadova, & Ismayilli, 2025). Researchers concluded that students who reported receiving more feedback experienced less difficulty with digital learning (Flores, Simão, Ferreira, Pereira, Barros, Flores, Fernandes, & Costa, 2024). Teachers should give timely, personalized feedback to students, as this helps create positive experiences with digital assessments. Students expect to get feedback quickly on any work they submit online (Ithindi & Shikalepo, 2022). Digital fabrication activities can help students develop twenty-first century skills and the seven transversal competences in the Finnish National Core Curriculum. These activities improve creativity, especially when teachers use an exploratory approach without giving strict instructions. Complex and multidisciplinary tasks encourage collaboration and problem-solving. Students also frequently use computers and digital tools to develop ideas, design projects, and search for information. Self-directed learning gives students freedom, which supports creativity. In addition, reflection during activities helps develop metacognitive skills, and repeating trials and errors helps students learn how to deal with uncertainty and improve their thinking (Iwata, Pitkänen, Laru, & Mäkitalo, 2020).

Gamification is the use of game design elements, such as points, badges, and levels, in activities that are not games. The purpose is to motivate people, increase participation, and keep users engaged for a longer time (Deterding Dixon, Khaled, & Nacke, 2011). Research shows that gamification often has positive effects. Many studies report that it can increase motivation,

engagement, and user participation. However, some studies show mixed results, and the effectiveness of gamification can depend on factors such as the users' motivations and the design of the system. In some cases, the positive effects may be temporary because users are attracted by the novelty of the game features (Hamari, Koivisto, & Sarsa, 2014). In education, gamification is generally associated with positive learning outcomes. It can increase students' motivation, engagement in learning tasks, and enjoyment of learning activities. However, some challenges may occur, such as too much competition between students or difficulties in evaluating tasks (Hamari et al., 2014). Research also shows that using game-based learning approaches can improve knowledge acquisition, content mastery, and student motivation (Subhash & Cudney, 2018).

Research indicates that school and district leadership play a critical role in connecting educational reforms to improved student outcomes. Among school-related factors that influence learning, leadership is widely considered second only to classroom instruction (Leithwood, Louis, Anderson, & Wahlstorm, 2004). In particular, leadership is especially important in schools facing significant challenges, where strong guidance and strategic direction are necessary for improvement. Although leadership responsibilities can be shared among various stakeholders within the education system, principals and superintendents remain the most influential actors in shaping school culture, setting instructional priorities, and supporting teacher development. Research further suggests that leadership practices that focus directly on teaching and learning are most likely to improve student achievement, as "the closer educational leaders get to the core business of teaching and learning, the more likely they are to have a positive impact on students' outcomes" (Leithwood et al., 2004). However, scholars emphasize that additional research is needed to better understand the processes through which leadership practices influence teaching

and learning, since identifying these mechanisms is essential for creating policies that effectively support school improvement (Leithwood et al., 2004). Similarly, Robinson, Lloyd, and Rowe (2008), argue that there is no single leadership style that guarantees success, as effective leadership strategies must be adapted to the specific context of schools and their stages of development. Current research provides stronger guidance for school leaders than in the past, but further studies are needed to determine which leadership practices are most effective across different educational settings and cultures (Robinson et al., 2008). Consistent with these findings, Hallinger (2011), emphasizes that leadership research should remain closely connected to classroom teaching and learning, particularly through instructional leadership approaches that focus on improving teaching quality and student achievement. Strengthening the recruitment, preparation, evaluation, and professional development of school leaders is therefore considered a cost-effective strategy for improving schools and supporting better learning outcomes.

Even though many studies support formative assessment and feedback, many schools still find it difficult to use these strategies effectively. Teachers often face practical challenges when trying to include formative assessment in their lessons. For example, limited time can make it hard for teachers to collect students' responses and give feedback during class (Van der Steen, Van Schilt-Mol, Van der Vleuten & Joosten-ten Brinke, 2023). Some teachers also feel that formative assessment activities take too much time and reduce the time available to cover the curriculum. Other factors, such as limited learning resources, weak technology infrastructure, and large class sizes, can also make it harder to use formative assessment effectively (Yan, Li, Panadero, Yang, Yang & Lao, 2021; van der Steen et al., 2023). Student engagement is also very important for academic success. Research shows that students' participation in learning activities, behaviorally, emotionally, and cognitively, helps improve their achievement

(Schnitzler, Holzberger, & Seidel, 2020). However, many students still become disengaged from school. Disengagement can appear through high absenteeism, behavior problems, and course failure. These factors are often strong predictors of students dropping out of school (Mac Iver & Mac Iver, 2009). Studies also show that many students leave school because classes are not interesting and they feel unmotivated. Some students also struggle academically or feel unprepared for high school (Johnston, 2010). These findings suggest that dropping out of school usually happens gradually as students lose interest, face academic difficulties, and do not receive enough support (Johnston, 2010).

Despite all the efforts, student dropout is a significant issue in Canada. In Canada, students complete high school around age 18. Among individuals aged 18–24 in 2021–2022, one in three grade 12 students attended a Canadian University. In Canada, 33% of the population aged 18 to 24 are in universities, 13% are in colleges, 4% are still in high school, 38% have joined the labour force, and 12% are neither employed nor in education (Zeman, 2023).

Theoretical Framework

This study is based on several theories that explain how students learn and how teaching practices influence learning outcomes. The theoretical framework mainly includes constructivist learning theory, motivation theory, feedback and change theory. These theories help explain how formative assessment and feedback can improve student engagement and academic achievement.

According to the Constructivist learning theory, students do not acquire knowledge by receiving it from the teacher; the teacher has a significant role (Kimmons, 2016); instead, they construct knowledge and meaning from their experiences (Bada, 2015). Learning is a continuous process of adding new knowledge to the existing knowledge that students already possess. By connecting new information with what students already know, students will construct knowledge

as they are exposed to new experiences (Kimmons, 2016). Steffe and Gale (1995) described knowledge as more about what remains constant in a person's experience, rather than about things, structures, or events in the world that exist independently.

Therefore, cognition, or mental construction, depends on students' motivation, beliefs, and attitudes, which prevent students from acquiring information and building knowledge. According to Gal and Ginsburg (1994), students' beliefs, ideas, and expectations can disrupt the class environment that the teacher makes, and sometimes this goes against what the teacher wants to achieve.

According to Oliver (2000), constructivism helps explain how students acquire knowledge; however, students need motivation to remain engaged and construct their own knowledge. Teachers who understand students' prior knowledge and support their learning can help students stay motivated and engaged. Constructivist classrooms demonstrate that students learn more effectively when they are actively engaged and take responsibility for their own learning. Moreover, Oliver (2000), found that students who only performed the browsing task achieved the lowest results, while those who completed the searching task did better. Those who completed the connecting task performed the best.

Motivation is defined as the process of triggering and maintaining behaviour towards a goal (Urhahne & Wijnia, 2023). Motivation is essential in learning because motivation gives energy and direction to students' actions (Gopalan, Abu Bakar, Zulkifli, Alwi, & Che Mat, 2017). Urhahne and Wijnia (2023) stated that the mini theory proposes a self-determination continuum that ranges from intrinsic motivation to extrinsic motivation to amotivation. Motivation can be intrinsic, when students study because they enjoy learning or like challenges, or extrinsic, when they study for rewards such as grades or praise, or when there is pressure.

Amotivation happens when intrinsic and extrinsic motivation are absent. A demotivated student will be unable to engage in the learning process and therefore will not be able to construct knowledge. Thus, both intrinsic and extrinsic motivation are important for constructing knowledge; highly motivated students can face challenges, understand how things work, and apply the knowledge they have constructed to real-world examples and problem-solving (Gopalan et al., 2017).

Formative assessments are ongoing evaluations that teachers use to assess students' understanding (Popham, 2006). Teachers provide students with feedback after these assessments, rather than assigning a grade (Popham, 2006). Formative assessment is when the information from the assessment is used during teaching time to adjust instruction and support students better (Popham, 2006). Teachers use formative assessments to gauge students' understanding and provide feedback rather than a grade (Popham, 2006). Examples of formative assessments include discussions, readings, answering questions, problem-solving, group thinking, in-class writing assignments, homework, formative tests, and short formative tests (Boston, 2002). Overachievers, or students with intrinsic motivation, participate in classroom discussions and take classwork seriously. However, students who rely on extrinsic motivation and those who are demotivated tend not to participate, take the discussion seriously, or complete the practice. A quote for Kingston and Nash (2011) stated by McMillan, who found that formative assessment has a smaller impact on student achievement than many people believe (McMillan et al. 2013).

Feedback Intervention Theory (FIT) also helps explain how formative assessment improves student learning. According to this theory, feedback helps learners compare their current performance with expected goals or standards. Feedback is defined as the interventions as "actions taken by an external agent to provide information regarding some aspect of one's task

performance” (Gaffeny, 2015, p. 111). In education, this external agent is often the teacher who provides comments or guidance about students’ work. Feedback Intervention Theory also explains that feedback is most effective when it directs students’ attention toward the learning task. Research explains that feedback improves learning when it focuses attention on the task and obtains successful results, rather than on the self, since students tend to focus negatively on themselves (Gaffeny, 2015). When feedback helps students understand how to improve their work, it encourages them to close the gap between their current performance and the expected learning goal. FIT suggests that learners adjust their behaviour by comparing feedback with their goals and identifying the difference between current performance and the desired standard. This finding suggests that feedback can support learning when it is clear, specific, and focused on the task (Larson, Patel, Evans, & Saiman, 2013).

Kotter’s change theory explains how leaders can successfully implement improvement initiatives in organizations such as schools. Kotter (2012) argues that successful change begins by creating a strong sense of urgency so that staff understand the need for improvement. After that, leaders should build a guiding coalition, develop a clear vision, and communicate this vision consistently to all members of the organization. Leaders must also remove barriers, provide training, and empower teachers to implement new practices. Kotter explains that change becomes successful when leaders create short-term wins, maintain momentum, and eventually embed new practices into the organizational culture. In the context of education, this model suggests that school principals play an important role in promoting formative assessment and effective feedback by creating a shared vision for improved teaching practices, supporting teachers with resources and training, and reinforcing these practices until they become part of the school culture and contribute to improved student achievement (Kotter, 2012).

Together, these theories explain how formative assessment and feedback support learning. Constructivist theory explains how students actively build knowledge, motivation theory explains why students engage in learning activities, and feedback theory explains how students improve their performance through guidance and reflection.

Significance of the Study

This study is important because it examines how formative assessment and feedback can improve student learning, engagement, and academic achievement in secondary schools in Ontario, Canada. Research shows that formative assessment helps teachers understand students' learning and adjust instruction during the learning process (Popham, 2006). When teachers provide clear and timely feedback, students can identify gaps in their understanding and improve their performance (Hattie & Timperley, 2007). However, researchers do not fully agree on the impact of formative assessment. Some studies suggest that formative assessment can significantly improve student achievement (Büyükkarci, 2014), while others report that its impact may be smaller than many educators believe (McMillan et al., 2013). Because of these mixed findings, scholars have emphasized the need for more research to better understand how formative assessment and feedback influence student learning in different educational contexts.

This study may help teachers better understand how formative assessment and effective feedback support student engagement and motivation. Engagement is an important factor in learning because students who actively participate in classroom activities are more likely to improve their academic performance (Schnitzler, Holzberger, & Seidel, 2020). Feedback also plays an important role because it helps students understand how to improve their work and move closer to the learning goals (Hattie & Timperley, 2007). By using formative assessment

strategies, teachers can provide continuous guidance that supports students' learning and helps them take responsibility for their progress.

The study may also help school principals and educational leaders understand how they can support teachers in implementing formative assessment and feedback practices. Research shows that school leadership plays a critical role in improving teaching and learning, especially when leaders focus directly on instructional practices and student outcomes (Leithwood, Louis, Anderson, & Wahlstrom, 2004). School leaders can support teachers by providing professional development, resources, and a school culture that encourages effective feedback and student engagement. Moreover, researchers said that more studies are needed to understand how school leadership affects teaching and learning and helps improve schools (Leithwood, Louis, Anderson, & Wahlstrom, 2004). They also note that no one leadership style works for every school, because it depends on the school's situation. More research is needed to find the best leadership practices to improve teaching and student learning (Robinson, Lloyd, & Rowe, 2008).

Finally, this study may contribute to efforts to improve student retention and educational pathways. Student disengagement, absenteeism, and academic failure are important predictors of students dropping out of school (Mac Iver & Mac Iver, 2009). Some students also leave school because they feel unmotivated or struggle academically (Johnston, 2010). In Canada, many young people move from high school to university or college, while others enter the labor force or leave education completely (Zeman, 2023). By improving formative assessment and feedback practices, schools may strengthen student engagement, increase retention, support successful transition to higher education, and reduce the risk of student dropout.

Context of the Problem

Schools in Ontario, Canada, aim to help students achieve high academic results and prepare them for higher education and future careers (Toronto District School Board, n.d.; CIS Ontario, n.d.). To achieve this, teachers use strategies like formative assessment, feedback, student engagement, and motivation to support learning. Formative assessments help teachers understand what students know and provide feedback to guide improvement (Popham, 2006; Hattie & Timperley, 2007). However, researchers disagree on its impact. Some studies show formative assessment greatly improves learning, while others find its effect smaller than expected (McMillan et al., 2013; Xuan, Cheung, & Sun, 2022).

Feedback is most effective when it is clear, specific, timely, and focused on helping students improve (Shute, 2008; Hattie & Timperley, 2007). It supports self-regulated learning, where students monitor and adjust their own understanding (Panadero, Broadbent, Boud, & Lodge, 2019). Student engagement, including cognitive, emotional, and behavioral aspects, is also essential for learning and retention (Ebralidze, 2023; Feng, Li, Zhu, & Li, 2025). Engaged students are more likely to stay in school, succeed academically, and transition to university (Stephenson et al., 2020).

School leadership plays a key role in improving teaching and learning. Principals guide teachers, support instructional practices, and implement initiatives like formative assessment and feedback (Leithwood et al., 2004). Yet, scholars emphasize that more research is needed to understand which leadership practices work best in different schools and contexts (Robinson, Lloyd, & Rowe, 2008). Improving leadership and teaching strategies can increase student achievement, retention, and successful transition to higher education, while reducing dropout rates (Johnston, 2010; Mac Iver & Mac Iver, 2009).

Purpose of the Study

The purpose of this study is to explore how teachers and school leaders use formative assessments, feedback, and innovative tools like gamification and interactive textbooks to help students learn better and achieve more (Popham, 2006; Hattie & Timperley, 2007; Hamari, Koivisto, & Sarsa, 2014; Iwata, Pitkänen, Laru, & Mäkitalo, 2020). The study also looks at how graded assignments act as catalysts, giving students feedback that helps them reflect on their progress and improve their learning (Gedye, 2015; Alt, Naamati-Schneider, & Weishut, 2023).

Another goal is to evaluate how school principals support these practices and whether their actions follow Kotter's change model, including creating urgency, setting a clear vision, empowering teachers, and making new practices part of school culture (Kotter, 2012; Leithwood et al., 2004; Robinson, Lloyd, & Rowe, 2008).

Finally, the study examines how these strategies affect student engagement, motivation, retention, and transition to higher education, while helping reduce dropout rates (Ebraliidze, 2023; Gopalan et al., 2017; Johnston, 2010; Mac Iver & Mac Iver, 2009). The findings aim to give practical guidance for improving teaching and leadership to support student success.

Research Questions

This study will explore the experiences and perceptions of teachers about formative assessment, feedback, and the role of leadership in improving student learning. The research will be guided by the following questions:

1. What do teachers think about the quality and amount of feedback they provide during formative assessment, and how does it affect student learning, achievement, and engagement?

2. What role does formative assessment and feedback play in improving student confidence, motivation, and academic success?
3. What challenges and barriers do teachers face when implementing formative assessment and providing effective feedback?
4. What strategies and tools (including educational technologies such as gamification and digital platforms) do teachers find effective in supporting formative assessment and feedback?
5. What influence do teachers perceive school leadership has on formative assessment practices, teaching quality, and student outcomes?

Chapter 3: Methodology

Research Design

This study will use the qualitative phenomenological research design to explore teachers' experiences and perceptions of formative assessment, feedback, educational technology, and the role of school leadership in improving student learning. Phenomenology helps researchers understand how participants experience a phenomenon and describe it in their own words (Creswell & Creswell, 2018, p. 50). For this study, the phenomenon is how high school teachers in Toronto understand and use formative assessments, feedback, and technology to impact students' achievement in their classrooms. The secondary school teachers who will be selected for this study are from public schools, mainly the Toronto District School Board (TDSB), and private schools, mainly the Conference of Independent Schools in Ontario (CIS Ontario). Including both contexts allows for a broader understanding of formative assessment and feedback practices across different educational settings. Teachers from CIS Ontario will be selected for their academic excellence. Independent schools have an approximately 100 percent transition rate from grade 12 to university (The Reading School, 2021). Understanding teachers' experiences in public and private schools can help us see how teachers support their students by using a variety of formative assessments, feedback, and technology to improve student learning progress and achievement. This will also provide insight into the larger goal of reducing dropout rates, especially during a period when many young adults aged 18 to 24 are neither employed nor studying (Zeman, 2023).

The qualitative phenomenological approach is suitable when the goal is to explore, describe and analyze the meaning in depth. The researcher explores how participants describe, perceive, judge, feel about, talk about, and make sense of their lived experiences (Marshall &

Rossman, 2021). Focusing on the participants' lived experiences guided the study, as the researcher sought to learn how teachers conduct formative assessments, provide feedback, and incorporate technology and explore their impact on students' engagement and motivation, and therefore on achievement and retention. In addition, the study investigates teachers' perceptions of the role of school leadership and principals in supporting formative assessment practices, improving teaching quality, and influencing student outcomes.

Since this study aims to explore the impact of providing individual feedback to students on students' achievement, to help students construct knowledge and improve their learning achievement, teacher should use individual formative assessment tools like graded classwork or graded homework, and to facilitate the inclusive process incorporating technologies, such as exam platforms like DigiExam, Exam.net, and Google Forms, as well as interactive e-textbooks, can support formative assessment practices and provide immediate feedback. And since not all participants will be using formative assessment, such as graded classwork or graded homework, or incorporating technology, a longitudinal study will be conducted to give these teachers a chance to try these tools and share their experiences about the impact of these tools on students' performance. Rajulton (2001) illustrated that longitudinal studies examine changes over time. "Longitudinal information concerns progress and change in status" (p. 170). Therefore, after conducting the phenomenological study, the initial interview, an optional interview will take place in three month to measure the changes that will take place after the teachers uses the graded classwork, graded homework, exam platforms, and/or interactive ebooks "This implies that the term 'longitudinal data' denotes repeated measurements of the same individuals over a time span long enough to encompass a detectable change in their developmental status" (pp.170-171).

To gain a deeper understanding of teachers' experiences, this study might use two structured interviews with each participant. The first interview will explore teachers' current practices and perceptions; however, the second interview is optional and will allow teachers who are not using graded classwork, graded homework, exam platforms, and/or interactive textbooks to use any of them if they want and to reflect on their experience in three months. The second optional phase of interviews is a longitudinal approach and is intended to support the phenomenological design by providing empirical evidence of the impact of individual feedback on each student's achievement. "Longitudinal studies can show the nature of growth, trace patterns of change, and possibly give a true picture of cause and effect over time" (Rajulton, 2001, p. 171).

Participants

Sampling

The target population of this study includes secondary school teachers in Ontario, Canada, and 5 to 10 teachers from various public and independent schools in Toronto. Participants will be recruited through professional networks and email invitations. Teachers from public schools, mainly the Toronto District School Board (TDSB), as well as from private schools, mainly the Conference of Independent Schools in Ontario (CIS Ontario), will be selected. According to Creswell (2018), the target sample size for qualitative phenomenography should be between 5 and 10 participants. This study will use purposive (or convenience) sampling, in which participants were selected based on their convenience and availability (Creswell & Creswell, 2018). Participants will be selected to share their experience with formative assessment, feedback, and technology practices in the classroom. Thus, purposive

sampling is appropriate because it ensures that all participants can provide relevant and meaningful information related to the research questions.

To be included in the study and selected for the first interview, participants must be secondary school teachers who have experience using formative assessment and providing feedback to students. Teachers who do not provide individualized feedback to each student, for example, teachers who do not use graded classwork or graded homework, and/or teachers who do not provide immediate individualized feedback to each student, for example, they do not incorporate technology practices, such as using exam platforms or interactive text books they will get an optional three-month period to try these tools and share their experience in the second interview.

Ethical Considerations

All ethical procedures will be followed. Participation will be voluntary, and no incentives will be given. Confidentiality will be maintained throughout the research. Each participant will sign an informed consent. Teachers will be informed of the study's purpose and their right to withdraw or skip any question they do not want to answer. To ensure confidentiality, participants' identities will not be revealed. Pseudonyms will not be used, and codes (Teacher 1, Teacher 2, Teacher 3... Teacher 10) will be used instead of real or pseudonyms in all transcripts and reports. Any identifying information will be removed from the data.

All interview data will be video-recorded using the Zoom platform with permission and stored securely. The recordings and transcripts will be kept in a password-protected file and will only be accessible to the researcher. Data will be used only for academic purposes related to this study.

Students will not be participants in this study, and this study will not cause any harm to any person, including the participants. No school intervention will take place. The interview questions relate to professional experience and do not involve sensitive personal topics. And participants will be treated with respect, and their responses will be handled carefully.

In addition, there is no conflict of interest; this research is not funded by anybody, and participants will not receive any compensation. Moreover, this study will follow Niagara University research guidelines and will be submitted for Institutional Review Board (IRB) approval before data collection begins.

Data Collection

Data will be collected through structured interviews. The first interview will include approximately 25 open-ended questions, and each interview should be completed in one hour. The second interview is optional and consists of 6 questions, and each interview should be completed in 15 minutes. Marshall and Rossman (2021) note that qualitative interviews aim to explore a topic in depth and detail, follow quality standards that researchers consider important, and allow greater flexibility so participants can express their experiences more freely.

The first interview will explore teachers' backgrounds and current practices in formative assessment. Teachers will be asked about their certification, subjects, grade levels, and years of experience. The interview will examine how they use different types of formative assessments (graded and non-graded), along with the quality, quantity, and fairness of the feedback they provide. The interview will also examine the use of educational technologies such as exam platforms (DigiExam, Exam.net, and Google Forms) or interactive ebooks (McGraw-Hill – Digital Learning Solutions) in supporting formative assessment and timely feedback. In addition, the interview will consider the role of school leadership in supporting and improving teaching,

assessment, and feedback practices. The interview will also explore how feedback influences student learning, achievement, engagement, motivation, behaviour, confidence, and performance. In addition, teachers will discuss how they manage their time when giving feedback, share class indicators such as averages, student failures, and Grade 12 university acceptance rates, and identify both challenges and opportunities related to providing effective feedback. An open-ended question will allow them to add any further relevant insights.

Teachers with no graded classwork, graded homework, exam platform, or interactive eBook experience will be invited to a second interview after three months. The second interview will focus on teachers' reflections on their engagement with the intervention to understand any changes in their practices and students' achievements over time. It will explore effective feedback strategies and their impact on student outcomes. The interview will focus on the changes that will take place after using formative assessments that require the teacher to provide immediate feedback to students, such as graded classwork and/or graded homework, and on incorporating educational technologies, such as exam platforms or interactive eBooks (digital learning solutions), to support formative assessment and timely feedback.

Data Analysis

This study will use thematic inductive analysis. According to Saldaña (2025), the themes were not chosen before the study but developed from the participants' own words. During inductive coding, the analysis begins with an open mind and generates new codes as the data are read for the first time. This inductive coding usually takes more time and is a standard data-driven method used in phenomenological qualitative approaches.

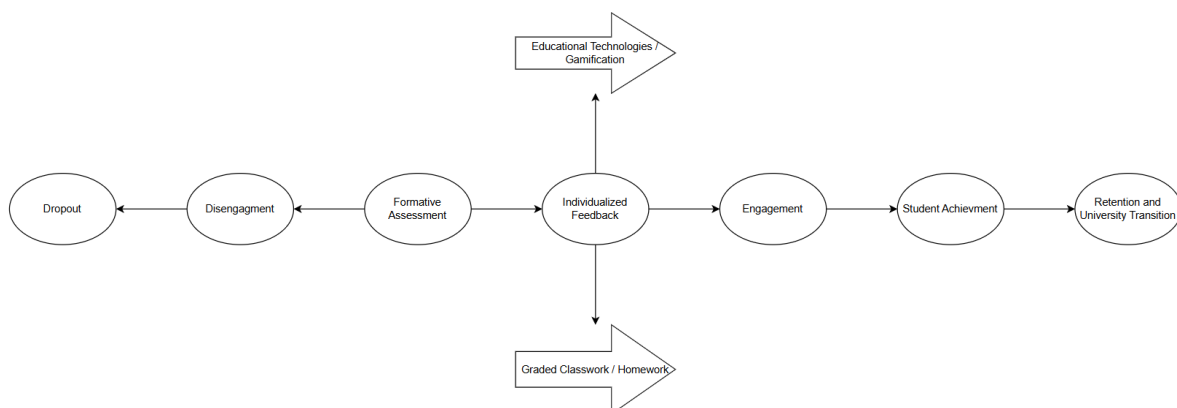
The first round of data analysis will be the familiarization step, during which the researcher will read each transcript multiple times to become familiar with the data. The second

round will be the initial coding (descriptive coding). According to Saldaña (2025), descriptive codes summarize in a word or short phrase the basic topic of a passage. Meaningful statements and terms will be highlighted and assigned descriptive codes. The researcher will prepare a comparative table in Microsoft Excel for each interview question, highlight the inductively derived codes, sub-codes, and preliminary themes in different colours and paste them into a Microsoft Word document.

The second-round pattern coding will be used to summarize the first-round codes and sub-codes. Pattern coding helps group codes into more meaningful units of analysis. Codes and sub-codes will be summarized into patterns that show similarities or differences across teachers, revealing larger patterns in the data (Saldaña, 2025). Then, patterns will be merged into preliminary themes. Themes will be reviewed and refined to ensure clarity and consistency. Finally, themes will be named and defined, and a code book will be prepared. These themes will capture the core meanings and answer the research questions.

Figure 1

Thematic coding concept map.



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