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# High School Teachers' Best Practices for the Use of Formative Assessment Strategies

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has been found to be complete and satisfactory in all respects,
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Walden University
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Abstract

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by

Leria Joy McKenzie

MEd, Endicott College, 2012

BA, University of the West Indies, 1996

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

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Abstract

Research has shown that only some teachers use learner-centered approaches in their

instruction. However, it is unclear why and how those teachers use such approaches in

their instruction. The purpose of this study was to examine one program—feedback, feed

up, and feed forward—to understand why and how teachers choose to use this learner-

centered instructional method. The study was framed by the concept of learner-centered

instruction. With basic qualitative methodology, semi-structured interviews were

conducted with 8 high school teachers from an island near the United States. The

collected data were analyzed using open and axial coding to reveal the themes and

patterns. Results indicated that teachers used the feedback, feed up, and feed forward

program's formative assessment strategies because this allowed them to make their

students central in the learning process. They believed that the use of these strategies

helped their students to improve their learning by teaching them the skills to set their own

goals, reflect on their learning progress and the progress of their peers, and determine

what actions to take to continue learning. Further, teachers indicated that they worked to

function as facilitators in their classrooms, continuously adjusting their instruction and

leveraging technology to provide students with opportunities to improve. The results of

this research can assist teachers and administrators in creating a learning environment

where students become independent, lifelong learners, thus contributing to positive social

change.

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Dedication

This dissertation was dedicated to my grandmother, Mabel Brooks, who left us on

August 8, 1998.

Mother of the district, you were my inspiration

Ably taught me to value education

Believed in me more than others

Eager to help everyone you meet, you

Left me a legacy that I now cherished.

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Thank you to all my colleagues in my current school district, the United Arab Emirates, who spent time reviewing my interview questions and offering words of encouragement when I felt overwhelmed by the volume of reading.

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Chapter 1: Introduction to the Study

Education in the 21st century has moved beyond acquiring knowledge and skills with school districts focusing more on students learning to become creators of knowledge so they can fulfill their responsibilities as societal change agents (Dolin, Black, Harlen, & Tiberghien, 2017). As a result, teachers have been mandated to focus on developing skills such as critical thinking, applying, synthesizing, and collaborating as a means of guiding students to become competent learners, capable of creating knowledge (Dolin et al., 2017). For this reason, there was a paradigm shift towards learner-centered teaching in which teachers became facilitators, as opposed to knowledge experts in the classroom. This change in the student-teacher interaction had led to more attention being placed on formative assessment as a means of improving learning (Dolin et al., 2017).

This latest trend, of focusing on students and their learning did not miss the attention of a strategic planning team on an island east of the United States. This group of consultants, with the support of the two public school principals in the district, have been campaigning for teachers to adopt a more learner-centered approach in their instruction. These school leaders believed that by shifting the focus, from the teacher and the content to the students and their learning, would result in increased academic outcomes (BSD Strategic Plan for Public School Education, 2017). To achieve this goal of higher academic outcomes, the school principals organized several professional development workshops on learner-centered instructions, formative assessments, and the role of feedback to prepare teachers for the transition to a more learner-centered method of delivering their instruction.

The strategic planning team also published the "Plan 2022" document (BSD Strategic Plan for Public School Education, 2017) to bring awareness to the steps taken to ensure that teachers understood that the tradition of finishing the curriculum would no longer be the focus of the teaching and learning process. There was a greater need to focus on learners developing their self-regulation skills so they could become creators of knowledge (Xiao & Yang, 2019). To this end, emphasis was placed on learner-centered instruction such as formative assessment that incorporated feedback, feed up and feed forward.

Although the proposed plan should have started transforming the teachers' method of delivery in the 2016-2017 school year (BSD Strategic Plan for Public School Education, 2017), no local research was provided as evidence to support the proposal. Two years later, the principals still had not seen any significant shift from the teacher-centered approach, although most teachers attended the professional development workshops on learner-centered instruction and formative assessment. Moreover, they were still not utilizing the strategies recommended by those who conducted the sessions (BSD Strategic Plan for Public School Education, 2017). As a result, the vision of the strategic planning team and the campaign effort of the principals were not being fulfilled, as most teachers continued to be the central figures in the classrooms.

This lack of progress towards the desired learner-centered teaching style was also evident in the principals' repeated request for the biannual professional development coordinators to include learner-centered teaching strategies. To support the vision of those who were advocating for teachers to transition to learner-centered teaching, my

goal was to provide research evidence on the benefits of learner-centered instruction. This evidence was grounded in what high school teachers indicated as the best practices for the use of formative assessment strategies, such as feedback, up, and forward, as a means of improving students' performance.

Because most research on the use of these strategies was conducted on small groups with specific characteristics, most researchers have advised against using their findings to generalize about the benefits of feedback, up, and forward (Jónsson, Smith, & Geirsdóttir, 2018; Murillo-Zamorano & Montanero, 2018; Pyper, 2018). According to researchers, the use of feedback, up, and forward requires further testing to confirm their reliability as strategies that are beneficial to students (Egelandsdal & Krumsvik, 2017; Karlsson, 2019; van der Kleij, 2019; Xiao & Yang, 2019). Against this background, the purpose of this investigation was to gain an understanding of what high school teachers indicated as the best practices for the use of feedback, up, and forward and why they did or did not use these strategies to help students improve their performance. This, in turn, provides evidence to confirm whether these strategies help to improve student achievement.

In this introductory chapter, I commence with a brief look at previous research that helped to establish a background to the issue; that is, what high school teachers indicated as the best practices for the use of feedback, up, and forward as a means of improving students' performance. I also explain the problem, conceptual framework, assumptions, and scope of the study to establish the purpose of the research and why it

was significant. Most importantly, I state the research question to provide a road map for this inquiry.

## Background

Formative assessment has the potential for improving students' performance significantly (Fu & Nassaji, 2016; Furtak et al., 2016; Huang, 2016; Marbach-Ad & Hunt-Rietschel, 2016). To establish a background on formative assessment and what high school teachers indicated as the best practices for using it to improve students' performance, several articles were examined. Researchers have discussed several dimensions of this process that were relevant to this study: the purpose of formative assessment, how teachers used it to transition from teacher-centered to learner-centered instruction, the importance of feedback in the formative assessment cycle, and what teachers and students perceived were the benefits of this learning strategy.

Research on the purpose of formative assessment stated that it is an iterant process that helps students to build their skills and improve their performance (Dolin et al., 2017; Furtak et al., 2016; Huang, 2016; Konopasek, Norcini, & Krupat, 2016). However, there have been arguments as to whether this strategy is a tool or a process (Dolin et al., 2017). Although most researchers have argued that formative assessment is a process, it is also a tool, such as when teachers give specific tasks that reveal where the students are and how much further they have to go to achieve their learning goals (Dolin et al., 2017). The most significant aspect of this process is that teachers and students are able to track the progress made towards learning outcomes and make adjustments during learning to ensure that their goals are achieved (Huang, 2016). Moreover, students who

track their growth through self-assessment are likely to demonstrate a more responsible

attitude towards their learning, which has led to greater learning gains (Huang, 2016).

Some researchers also underscored the collaborative purpose of formative assessment by

highlighting the importance of teachers and students engaging in a dialogue as opposed to

a monologue, which only provides students with feedback that they may or may not use

(Konopasek et al., 2016). The most crucial purpose of formative assessment is to drive

learning (Konopasek et al., 2016).

Other studies explored how teachers used formative assessment to transition from

teacher-centered to learner-centered instruction (Fu & Nassaji, 2016; Huang, 2016;

Marbach-Ad & Hunt-Rietschel, 2016). A few studies indicated that teachers who assisted

their students in setting goals, provided feedback on their progress towards these learning

targets, and guided them toward the next step in achieving the learning outcomes, were

giving students some control over their learning (Fu & Nassaji, 2016; Huang, 2016;

Marbach-Ad & Hunt-Rietschel, 2016). By engaging students in the learning process in

that way, teachers not only helped them to improve academically but empowered them to

become independent learners (Marbach-Ad & Hunt-Rietschel, 2016), which is the main

aim of formative assessment.

As a result of this shift toward learner-centered instruction, researchers have also

focused on the changing role of teachers and how this influenced the learners and their

learning (Marbach-Ad & Hunt-Rietschel, 2016; Patel & Laud, 2015). Teachers as

facilitators, which is indicative of the shift from teacher-centeredness, implies that

students are partners with the ability to construct knowledge that helps to move their

learning forward, as opposed to passive recipients of what the teacher knew (Marbach-Ad & Hunt-Rietschel, 2016). Further, teachers who play the role of guides not only lead their students toward fully understanding their purpose in the classroom but help them be more engaged, which contributes to significant gains in their academics (Marbach-Ad & Hunt-Rietschel, 2016). Similarly, when teachers have utilized feedback, up, and forward as part of the formative assessment cycle, they were able to gauge where students were in relation to their learning goals and address their needs; this, in turn, contributed to a more beneficial learning environment (Patel & Laud, 2015).

In addition to the changing role of the teacher from the central figure to the facilitator, formative assessment involves a changing role of the students (Marbach-Ad & Hunt-Rietschel, 2016; Patel & Laud, 2015). Students who are allowed to share power in the classroom have the opportunity to create knowledge. This creation of knowledge occurs when they have the opportunity to self-assess and engage with their peers in problem-solving. Additionally, students as partners means that they have a chance to control some of their learning, which gives them a sense of empowerment that leads them to become independent learners (Marbach-Ad & Hunt-Rietschel, 2016; Patel & Laud, 2015).

Some researchers have also examined the importance of feedback in the formative assessment cycle and suggested that this strategy is a vital link in helping to improve academic achievement (Ellis & Loughland, 2017; Fu & Nassaji, 2016; Konopasek et al., 2016; Huang, 2016). Although these researchers agreed that feedback was effective in driving learning forward, researchers like Ellis and Loughland (2017) and Konopasek et

al. (2016) have argued that this strategy is even more potent when complemented by feed up and feed forward. Feed up occurs when the teacher set learning goals to guide the students, and feed forward means that the teacher created an inquiry process that helped the students focus on where to go next as a means of creating knowledge (Patel & Laud, 2015). According to Ellis and Loughland, there has been too much focus on feedback in the form of monologues with little attention on feed up or feed forward that allows students the opportunity to dialogue with their teachers. Konopasek et al. also stated that there was a strong bias toward monologic feedback and that the use of feed forward strategies fosters student accountability—that is, students who receive feedback that guide them in setting new milestones feel more responsible for achieving those goals.

Studies on the benefits of feedback, up, and forward in formative assessment also explored the perspectives of teachers and students. In a study conducted by Fu and Nassaji (2016), both teachers and students expressed the view that formative assessment in the form of feedback played a major role in helping students achieve their learning outcomes. Marbach-Ad and Hunt-Rietschel (2016), who also focused on the perspectives of teachers and students, claimed that feedback gave students the support they needed to improve academically. Overall, these few studies on the use of feedback, up, and forward, not only underscored that teachers perceived these strategies as having a positive influence on learning but also that these strategies were beneficial in helping students become independent learners as they had the opportunity to take some control over their learning.

Although there was a myriad of research on the use of feedback in the context of telling students what was right or wrong in their work, or highlighting their strengths or weaknesses (Shrivastava, Shrivastava, & Ramasamy, 2018), there was little research on which strategies enhanced feedback and made the entire formative assessment process more beneficial (Ellis & Loughland, 2017). To address this gap, I used the present study to extend the research on the utilization of feedback, up, and forward as part of the formative assessment process by examining what high school teachers indicated as the best practices for the use of these strategies as a means of improving students' performance. The goal was to provide research evidence that was grounded in teachers' utilization of these strategies to guide their students in setting learning goals (feed up) and reflecting on where to go next to create knowledge (feed forward), which helped their students improve their academic performance.

## Problem Statement

After years of underutilizing feedback as part of an effective formative assessment cycle in the classroom (Konopasek et al., 2016; Patel & Laud, 2015), teachers began focusing on the needs of learners by using this strategy to improve academic outcomes (Dobrick, 2016; Konopasek et al., 2016; Patel & Laud, 2015). Further, the formative assessment process should extend beyond feedback to include feed up and feed forward, as the integration of all three strategies improves academic performance and helps students become creators of knowledge (Fisher & Frey, 2011; Hattie & Timperley, 2007; Nicol & MacFarlane-Dick, 2006). Students' growth and development are dependent on formative assessment that involves more than the feedback of the teacher,

letting students set goals to achieve additional knowledge when teachers create opportunities to develop this goal-setting mindset (Konopasek et al., 2016).

As research has increased on the belief that useful formative assessment should extend beyond the feedback of the teacher, investigations have emerged that describe what teachers perceived as the benefits of this process for their students (Dobrick, 2016). According to studies on the perspectives of teachers, feedback, up, and forward are the most beneficial strategies for students' learning growth (Dobrick, 2016; Ellis & Loughland, 2017; Jónsson et al., 2018; van der Kleij, 2019). Although negative feedback could influence students negatively (Gjerde, Skinner, & Padgett, 2018), dialogue is a significant aspect of the feedback process by establishing similar expectations, building students' confidence, and leading to a more positive attitude toward learning (Ellis & Loughland, 2017; Jónsson et al., 2018; Patel & Laud, 2015). Additionally, sometimes students do not respond to feedback and either ignore or reject the comments from their teachers (Gjerde et al., 2018). Thus, feedback—the comments the teacher give—must be complemented by feed up, in which teachers support students in setting goals, and feed forward, in which teachers guide students into their next step so that they can extend their learning (Dobrick, 2016; Ellis & Loughland, 2017; Jónsson et al., 2018; van der Kleij, 2019).

Other benefits of these formative assessment strategies include: (a) using feed up to provide clear and specific directions for students that keep them engaged, track their progress, help them to understand and work toward set standards, and give them a purpose for completing a task; (b) using feedback to improve the quality of work, to pay

less attention to grades, and to focus more on achieving learning goals by responding to comments given by the teacher; (c) using feed forward to promote reflection, encourage self-regulated learning, and empower students by giving them opportunities to take responsibility for their learning.

Although the findings of these researchers indicated that the utilization of feedback, up, and forward paved the way for improved performance in the classroom, there was no research to provide evidence that teachers on the island—that was the focus of this study—believed that these strategies improved student performance. To this end, my aim was to gain an understanding of what high school teachers indicated as the best practices for the use of feedback, up, and forward, as a means of providing evidence on whether they believed that using these strategies helped their students improve.

<h2 style="text-align:center">Purpose</h2>

The purpose of this basic qualitative study was to gain an understanding of what high school teachers indicated as the best practices for the use of feedback, up, and forward and why they did or did not use these strategies to help students improve their performance. By understanding why they did or did not use these strategies, I extended the research on feedback, up, and forward and how these strategies contributed to a more beneficial formative assessment process. To address the topic, I conducted interviews to provide rich, in-depth details about their use of feedback, up, and forward in the classroom and whether they perceived that these techniques were contributing to student improvement. The use of the basic qualitative study approach helped me to have a deeper

understanding of the importance of feedback, up, and forward, and what teachers on the island believed were the benefits of these strategies for their students.

## Research Question

What do high school teachers indicate as the best practices for the use of feedback, feed up, and feed forward as a means of improving students' performance?

## Conceptual Framework

The conceptual framework that guided this study was learner-centered instruction, with a focus on the utilization of the formative assessment strategies: feedback, feed up and feed forward, developed by seminal theorists Hattie and Timperley (2007) Fisher and Frey (2011), Nicol and MacFarlane-Dick (2006), and Weimer (2013). According to Weimer, the concept of learner-centered instruction emphasizes giving students more opportunities to become creators of knowledge; it was this belief of students creating knowledge that was foundational to this study. Further, Weimer outlined five fundamental assumptions of learner-centered instruction: (a) the role of the teacher is to facilitate learning instead of controlling it; (b) power should be shared so that students have some control over their learning; (c) the function of content is to build students' knowledge-base and develop their learning skills; (d) students are responsible for their learning, but teachers must create the environment that motivate them to accept their obligations; and (e) the process and purpose of evaluation is not only to promote learning but to develop self- and peer assessment skills.

In the work of Nicol and MacFarlane-Dick (2006), which laid the foundation for Hattie and Timperley (2007), they underscored that beneficial feedback that was given

during formative assessment led students to take ownership of their learning. These acts of students taking ownership and creating knowledge are the goals of teachers who embraced learner-centered instruction (Hattie & Timperley, 2007; Nicol & MacFarlane-Dick, 2006).

Although most research on learner-centered instruction seemed biased toward students in tertiary institutions (Ellis & Loughland, 2017; Huang, 2016; Patel & Laud, 2015), this concept is also applicable at the elementary level (Fisher & Frey, 2011). To extend the knowledge of this framework, I conducted this investigation into what high school teachers indicated as the best practices for the use of feedback, up, and forward.  I also investigated the benefits of using these strategies within the formative assessment process as they transitioned from teacher-centered to learner-centered instruction.

## Nature of the Study

The nature of this inquiry was a basic qualitative study approach. During this process, I gained a better understanding of what high school teachers indicated as the best practices for the use of feedback, up, and forward, as a means of improving students' performance. In choosing to use a semi-structured interview protocol with eight teachers, I had the opportunity to dig deeper into what they believed were the students' responses to feedback, up, and forward; as well as how these strategies helped their students become creators of knowledge that led to improved performance. Additionally, teachers were selected from the four core subjects—English language, mathematics, science, and social studies—to broaden the range of experiences as a means of adding credibility to the data. The data were analyzed to identify patterns and themes related to high school

teachers' best practices for the use of feedback, up, and forward and why they did or did not use these strategies to help students improve their performance.

## Definitions

The following terms and definitions were key concepts that were used in this investigation:

*Active learning*: Students actively participate in learning tasks to discover new findings and solutions to problems, as opposed to passively sitting listening to a teacher (Yeung, So, Cheng, Cheung, & Chow, 2017).

*Constructivism*: An approach to teaching and learning based on the theory that students learn by constructing meaning from their experiences (Bada, 2015).

*Feedback*: Information given about an individual's performance on a task that is meant to foster learning improvement in the future (O'Donovan, Rust, & Price, 2015).

*Feed forward*: The act of focusing on what improvement must be made to advance learning in the future (Ellis & Loughland, 2017).

*Feed up*: The act of setting goals to guide one's learning (Patel & Laud, 2015).

*Formative assessment*: Activities that provide evidence of students' learning needs during the process of completing a task that results in teachers and students making adjustments to address those needs. (Andersson & Palm, 2017).

*Guided inquiry learning*: Students are provided with opportunities to discuss their thinking and share ideas in response to open-ended questions that encourage their collaboration in creating new knowledge (McNair, 2017).

*Learner-centered instruction*: Teachers design learning activities, which focus on students' knowledge, skills, and attitudes, that actively engage them in finding answers to a problem (Williams, 2017).

*Scaffolding*: Teachers assisting students in having a better understanding of concepts so they can achieve success (Ryker & McConnell, 2017).

*Self-assessment*: Learners actively seek evidence of their strengths and weaknesses so that they can focus their efforts on aspects of their performance that need improvement (Ntombenhle & Christian, 2018).

*Self-directed or self-regulated learners*: Learners who plan and set goals, monitor and reflect on their progress, and modify their learning to achieve success (Andersson & Palm, 2017).

*Self-reflection*: Learners think about their performance on a task and try to understand what they need to do to progress or achieve their goals (Robinson, Neergaard, Tanggaard, & Krueger, 2016).

*Student accountability*: Students take responsibility for seeking and responding to feedback as a means of developing their competence (Konopasek et al., 2016).

*Summative assessment*: Test given at the end of a learning task to provide information about students' achievement when measured against a given benchmark (Gjerde et al., 2018).

## Assumptions

This study was based on a few assumptions or beliefs that were considered as factual but may not be accurate. The first assumption was that teachers were honest about

their knowledge of formative assessment when asked as a criterion for participation. Another assumption was that teachers were honest about using formative assessments with feedback, up, and forward as strategies, also as a criterion for participation in the study. The final assumption was that teachers were honest in their responses to the interview questions. Overall, it was essential to accept these assumptions to ensure the trustworthiness of the data and the analysis.

## Scope and Delimitations

The scope and delimitations of this study considered the boundaries created by the research problem. The scope of this investigation addressed the problem of underutilization of formative assessment strategies such as feedback, up, and forward in a small school district, and what high school teachers indicated as the best practices for the use of these strategies as a means of improving students' performance. The participants determined the scope of the study, which comprised of eight high school teachers in a district that had two public schools. Teachers from private high schools and other levels of education were not included in this inquiry. The scope was also determined by learner-centered teaching, which provided the conceptual framework for the research question, and did not include other methods of instruction. There were a few delimiting factors, which included the distance between the researcher and the research site (approximately 7000 miles), and available resources because the investigation was done by one individual with limited funds.

**Limitations**

The limitations of this study were related to the design because there were factors that were beyond my control that affected the results. One such factor was the small sample size of eight teachers in a district that employed approximately 700 teachers. Because one of the criteria required for participation was that teachers were utilizing formative assessment strategies, this criterion placed a limit on the number of teachers eligible to take part in this investigation. Another factor was the limited number of secondary schools in the district. The focus of this study was at the public high school level, and there were only two public high schools in the district. To address this issue of limited eligible participants, teachers were chosen from different subject areas to add richness, depth, and diversity to the data received.

Additionally, in my role as the key instrument in the research, I was responsible for coordinating the recruitment of participants, as well as collecting, interpreting, analyzing, and reporting all data; therefore, the potential for researcher bias was a possibility. Biases may also have occurred because I served in the district for 10 years, and I was familiar with some school leaders and teachers, as well as the curriculum and assessment practices. The fact that I was a former employee was also grounds for ethical concerns as it related to the type of questions used in the interview process.

The basic qualitative study approach also placed limits on the transferability of the results. Because the eight participants all resided in the same small district, the data collected can only be applied to that group and cannot be generalized to a larger population, unless other groups shared similar characteristics. Moreover, teachers

utilizing learning strategies such as feedback, up, and forward were individualistic; therefore, it would be limiting to generalize with these results. To counter these biases, I used memoing to record my reflections on the assumptions I made during the inquiry. I also asked knowledgeable colleagues to preview my interview questions to ensure that they were open-ended and not biased or leading, and I kept a recording of participants' responses to avoid errors in interpretation. Lastly, participants were asked to review a transcribed version of their interview to further assist with eliminating information that misrepresented their intended meaning.

## Significance

Academic performance is significantly influenced by feedback, up, and forward, which are vital links in the formative assessment cycle. (Dobrick, 2016; Furtak et al., 2016). Hence, teachers have been encouraged to utilize these strategies for helping their students become creators of knowledge, as this leads to better academic achievement. For teachers on the island, whose experiences in the classroom differed from their counterparts in developed countries, it was just as critical to employ strategies that help students improve their performance. Against this background, the goal of this research was to describe what high school teachers indicated as the best practices – for the use of feedback, up, and forward and whether students were benefitting – to support the usefulness of these formative assessment strategies.

The results of this study have the potential for positive social change for three groups: students, teachers, and school administrators. Students who were able to set goals that led to additional knowledge because their teachers created opportunities for them to

do so—through the use of feedback, up, and forward—have achieved better academic

performance (Konopasek et al., 2016). Teachers, on the other hand, may have a better

understanding of the factors that can help them successfully implement these strategies.

They, in turn, could share their experiences with other teachers who work in similar

settings and face similar challenges. Also, administrators can develop policies and

procedures that would help teachers to implement these learning strategies more

successfully. The combined effort of these three stakeholders can help to bridge the gap

between instruction and achievement of learning goals to ensure a more qualified and

productive society.

<div align="center">**Summary**</div>

In this opening chapter of the study, the objective was to present an overview of

the phenomenon of this investigation. The introductory paragraphs provided a brief

insight into the reasons why this study needed to be done, what could be done, and the

benefits for students and teachers who embraced formative assessment strategies such as

feedback, up, and forward in the context of learner-centered instruction. To this end,

several significant aspects of the topic—high school teachers' best practices for the use of

formative assessment strategies—were explained.

Commencing with the background that gave a summary of previous research on

the topic and included the gap in the knowledge, the next section explained the problem

with evidence of its relevance and the gap it addressed. Once the problem was clarified,

the purpose of the study was explained, which led to the framing of the research question

and a concise description of the conceptual framework in which the research was

grounded. The nature of the study, which gave a summary of the methodology to be used in this research, was followed by the definition of key terms, assumptions made that were critical to the issue being investigated, a description of the scope and limitations of the study and how such limitations were addressed. The final point was the significance of the study, which underscored how the research would contribute to the discipline and to positive social change.

In Chapter 2, I present a review of the literature, as well as the strategies used in the search for these resources. Additionally, I give a more thorough explanation of the conceptual framework and an analysis of current research on the utilization of formative assessment strategies such as feedback, up, and forward, and how these influenced the transition from teacher-centered to learner-centered instruction. Additionally, the literature I reviewed is used to give evidence about what strategies teachers were utilizing to help students develop their critical thinking skills to become creators of knowledge.

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Chapter 2: Literature Review

**Introduction**

Research has shown that feedback being underutilized has still been a major concern in many public schools despite decades of empirical evidence that revealed the benefits of this strategy (Konopasek et al., 2016; Patel & Laud, 2015; Pitt & Norton, 2017). Feedback, as part of the formative assessment cycle, could lead to significant improvement in academic performance if teachers focus on this strategy as a way of identifying and addressing the need of learners (DeLuca & Volante, 2016; Magno & Lizada, 2015). Formative assessment is a tripartite cyclical process inclusive of feedback, up, and forward (Fisher & Frey, 2011; Hattie & Timperley, 2007; Nicol & Macfarlane-Dick, 2006). In this three-part cycle, students who are able to set goals (feed up), accept and act on comments aimed at improving their learning (feedback), and focus on their next step (feed forward), benefit the most from the formative assessment process (Dobrick, 2016; Ellis & Loughland, 2017; Furtak et al., 2016; Magno & Lizada, 2015).

**Literature Search Strategy**

The literature search strategies that were employed to help illuminate teachers' best practices for the use of feedback, up, and forward in the formative assessment cycle, included several sources within the Walden Library and the Internet. The main search engine used to find resources for this study was the Walden Library Databases A-Z link. This link provided access to databases such as SAGE, ERIC, and ScienceDirect, and vendors such as PROQUEST and EBSCO. Google Scholar was also used to widen the search so that the depth of research on the topic was more comprehensive. During the

search for the available resources, the following key terms were used: *learner-centered teaching*, *learner-centered instruction*, *formative assessment*, *feedback*, *feed up* and *feed forward*. The use of filters such as peer-reviewed and dates helped to narrow the search to the most relevant and current sources. After selecting the most pertinent resources, each abstract was read, and the appropriate ones saved in a folder that was labeled according to the key term used to access them. Once this initial search was completed, all articles were read and evaluated for information that was relevant to the research topic. The final phase of this search was to peruse the references of the selected articles to find any other valuable resource that was overlooked. The process of selecting, reading, and analyzing appropriate resources was repeated to gather additional material. To complete the literature search, all resources were saved in a Mendeley library and synced to the Mendeley Web.

## Conceptual Framework

The conceptual framework that provided the foundation for this study was the learner-centered instruction using feedback, up, and forward developed by Hattie and Timperley (2007), which has been supported by other theorists who advocated for schools to become more learner-centered (Fisher & Frey, 2011; Nicol & Macfarlane-Dick, 2006; Weimer, 2013). For instance, Nicol and Macfarlane-Dick (2006) argued that the rationale behind learner-centered instruction is to support students in becoming self-regulated learners as this skill prepared them to become life-long learners. One of the assumptions behind this argument is that students are always involved in checking their progress and adjusting their performance in their attempt to achieve their academic goals

(Nicol & Macfarlane-Dick, 2006). Moreover, teachers' workload has increased due to larger classes, which has created a need to help students become more involved in monitoring and regulating their learning so that they were less dependent on their teachers (Nicol & Macfarlane-Dick, 2006).

Based on these assumptions, Nicol and Macfarlane-Dick constructed their self-regulated learner model that incorporated seven feedback practices that helped students develop their ability to set goals, monitor, and regulate their learning. These principles included teachers being clear on what was good performance, giving quality feedback, encouraging students to self-assess and building their self-esteem with positive comments, allowing teacher-student and student-student interactions to help improve performance, and using feedback to alter teaching strategies so that students' learning needs were addressed (Nicol & Macfarlane-Dick, 2006). Teachers need to create more opportunities for students to develop self-regulating skills, and one way is to utilize these seven feedback practices because these principles ensure that teachers' methods of instruction become more learner-centered (Nicol & Macfarlane-Dick, 2006).

Building on the work of Hattie and Timperley (2007), Fisher and Frey (2011) also argued that teachers who build a formative assessment system, by utilizing feedback, up, and forward are preparing their students to become independent learners who could take control of their learning. Like Nicol and Macfarlane-Dick (2006), Fisher and Frey expressed the view that supporting or guiding students towards assuming more responsibilities and taking more control over their learning are the ultimate goals of learner-centered instruction. In their gradual release of responsibility model, these

researchers claimed that teachers have a framework for incrementally shifting the responsibility for learning from the teacher to the students. Fisher and Frey's 4-step approach to the gradual release of responsibility instructional model identifies the first stage as clarifying the purpose of the lesson, which is similar to Hattie and Timperley's feed up. This is followed by "guided instruction" (Fisher & Frey, 2011) in which students receive feedback and support before they are given group work followed by independent work, the stages at which they synthesized and applied concepts learned. Independent work, which is equivalent to Hattie and Timperley's feed forward, is the phase at which teachers are able to assess whether independent learning had occurred.

Weimer (2013) also claimed that learner-centered instruction emphasizes giving students more opportunities to become learners with the ability to create knowledge, and this belief led to her positing five assumptions related to learner-centered instruction. First was the role of the teacher, which is to facilitate learning instead of controlling it. Second, power in the classroom is shared with the students so that they had some control over their learning. Third, teachers recognize that the function of content was to build students' knowledge-base and develop their learning skills. Fourth, teachers realize that the responsibility of learning lies with the students, but they (the teachers) must create the environment that motivated their students to accept their obligations. Finally, teachers understand that the process and purpose of evaluations are not only for promoting learning but also for developing self- and peer assessment skills that led students to take ownership of their learning (Weimer, 2013).

The philosophies posited by Hattie and Timperley (2007), Nicol and Macfarlane-Dick (2006), Fisher and Frey (2011), and Weimer (2013) emerged out of the learner-centered approach to instruction that formed the framework in which the research question for this study was grounded. Even though most research on learner-centered instruction seemed focused on students in tertiary institutions (Ellis & Loughland, 2017; Heim & Holt, 2018; Huang, 2016; Zeeman, Wingo, & Cox, 2018), this concept can also be applied at other levels of the education system to improve academic performance (McElhany, 2017). Therefore, this study used this framework to address learner-centered instruction at the secondary level and how this approach to learning influenced the performance of students.

## Literature Review Related to Key Concepts

One of the significant features of learner-centered instruction is the use of formative assessments, from which strategies such as feedback, up, and forward emerged. As stated by seminal theorists Hattie and Timperley (2007), teachers who hope to see significant improvement in the performance of their students should consider moving beyond the use of feedback to include these strategies in the teaching and learning process. In this section, I examine the key concepts to show what was already known about teachers transitioning to learner-centered instruction and their changing role, the use of guided inquiry learning (GIL) and formative assessment, students' perceptions of this assessment practice, and teachers use of feedback, up, and forward. Additionally, I synthesized research on several subthemes that explain the importance of what teachers

indicated as their best practices and how their students benefitted from strategies such as feedback, up, and forward.

**Transitioning to Learner-Centered Instruction**

Research on learner-centered instruction has been viewed from either the changing role of the teacher or the student (Cindrić & Pavić, 2017; Dole, Bloom, & Kowalske, 2016; Gan, Liu, & Yang, 2017; Heim & Holt, 2018). There were several benefits for teachers who make this paradigm shift (Patel & Laud, 2015; Rees & Roth, 2019). Moreover, strategies such as formative assessment inclusive of feedback, up, and forward, which are integral in a learner-centered classroom, have played a significant role in not only improving student performance but helping them become creators of knowledge (Blumberg, 2015; McElhany, 2017).

One of the main benefits of transitioning to a more learner-centered approach to instruction is that teachers witness greater learning gains in their students (Patel & Laud, 2015; Rees & Roth, 2019). Teachers who utilize learner-centered instruction are not solely responsible for disseminating information to students and assessing how much they learnt; rather, they guide the students in setting their own goals, working in groups to find information, and tracking their progress, with teachers giving periodic assessments that help in the tracking of the students' progress (Patel & Laud, 2015). Learner-centered instruction has led to improved performance and more embedded learning has occurred when students collaborate with their peers to solve problems (Rees & Roth, 2019).

Another benefit of teachers making the shift from the traditional teacher-centered style is that learner-centered instruction creates a more engaging classroom, which leads to better performance (Blumberg, 2015; McElhany, 2017). Learner-centered instruction places students in the position of partners with their teachers; consequently, they are more involved in their learning and this situation not only engage them but guide them into being more responsible for their learning (Blumberg, 2015). Shifting the paradigm also moves students from a state of apathy to one where they become excited and engaged, especially when they are allowed to express their individuality in their work (McElhany, 2017).

Researchers have also stated that students taking ownership of their learning is a benefit when teachers transition to learner-centered instruction (Blumberg, 2015; McElhany, 2017; Patel & Laud, 2015; Rees & Roth, 2019). According to these researchers, learner-centered instruction means that students are not only involved in the activities, but they contribute to content and form of assessment, which gives them a sense of ownership. This, in turn, leads to a heightened sense of responsibility to get the task done and higher levels of engagement, which promotes better understanding and results in improved performance (McElhany, 2017; Patel & Laud, 2015). Group work and hands-on activities are important features in learner-centered teaching, as these techniques give students a chance to interact with their peers and develop their thoughts, which leads to embedded learning (Rees & Roth, 2019).

Studies in learner-centered instruction have also suggested that shifting to this method of teaching is necessary because most students have responded positively to this

approach (Finelli et al., 2018; McElhany, 2017). In this mode of teaching teachers become guides who scaffold their students toward independent learning (Blumberg, 2015; Finelli et al., 2018), which moves them from a state of indifference to a place where they become eager to learn (McElhany, 2017). As a result of their eagerness, students are more willing to experiment with new ways of individualizing their work and were not afraid to seek assistance from teachers and peers (McElhany, 2017). Instructors who were dissatisfied with the traditional, instructor-led method of teaching and who decided to become facilitators discovered that their students were more engaged, and this led to significant improvement in performance (Blumberg, 2015).

On the other hand, some students may resist the initial effort of transitioning the learning but scaffolding and encouraging them can reduce or eliminate such challenges (Finelli et al., 2018). Resistance may also come from members of faculty who do not see the benefits of learner-centered teaching, but these resistors may need more evidence on the benefits of learner-entered instruction helping students improve (Blumberg, 2015).

Another area of research that was pertinent to this study related to the most appropriate phase for shifting to learner-centered instruction. There is no clearly defined learning stage for making the shift, but in tertiary institutions it should begin at student orientation (Zeeman, Wingo, & Cox, 2018). Allowing students to choose the times for their seminars has the potential of instilling autonomy and responsibility in the students. Students who are exposed to a learner-centered orientation demonstrate higher levels of readiness for classrooms that employed this teaching style. Furthermore, a learner-centered orientation provides students with the motivation and confidence needed to

transition to a learner-centered classroom and this preparation phase helped them to succeed (Zeeman et al., 2018).

Despite evidence on the benefits of learner-centered instruction, there are still too many teacher-centered classrooms (Blumberg, 2015; McElhany, 2017; Rees & Roth, 2019). As a result, students have little opportunity to contribute to the lesson (McElhany, 2017; Rees & Roth, 2019). In classrooms where the teachers are still the dominant figures, students are deprived of any prospect to be creative and to experience real learning (McElhany, 2017). Further, in teacher-centered classrooms, students are usually told what is right or wrong; therefore, they have no chance to engage in dialogues that contributed additional information to the lesson or to their learning (Rees & Roth, 2019). Against this background, researchers have advocated that teachers transition to a more learner-centered approach to instruction, which allows students to become the central figures in the classroom.

Overall, the research on teachers transitioning to learner-centered instruction revealed a change in the roles of teachers and students. Most researchers mentioned in this section have agreed that in learner-centered classroom teachers became facilitators, which allowed students to be the central figures in the learning process. Although there might be some resistance on the part of students and teachers, most who made the shift witnessed higher levels of engagement and performance; therefore, it is imperative that teachers embrace learner-centered instruction to help students to improve (Blumberg, 2015).

**The Changing Roles of Teachers and Students**

In teacher-centered classrooms, teachers are regarded as the experts in the room; consequently, they end up making all the decisions and more often doing all the tasks related to learning. Researchers have recommended that this role must be shared so that students have more practice with learning tasks than teachers (Dole et al., 2016; Gan et al., 2017; Patel & Laud, 2015). Students are the central figures in the learning process; therefore, teachers should focus on helping them become self-directed learners as this would allow them to develop a sense of independence and teachers would have no need to coerce them to get their work done (Gan et al., 2017). Moreover, teachers who have facilitated the learning and periodically assessed where the students were, as opposed to controlling their progress, have witnessed better results in performance (Patel & Laud, 2015).

Research into the changing role of teachers in classrooms underscored that students are the central focus with teachers taking on the persona of guides (Cindrić & Pavić, 2017; Gan et al., 2017; Patel & Laud, 2015). Teachers as guides is more beneficial in the learning process than the role of content experts (Nicol & Macfarlane-Dick, 2006; Weimer, 2013). The usefulness of teachers as guides results from the use of the feedback process as this procedure give the learners opportunities to do the learning (Gan et al., 2017). Furthermore, teachers who create rich learning environments for their students help them to develop a sense of autonomy, which motivates them to be more responsible and self-directed in their learning (Cindrić & Pavić, 2017; Gan et al., 2017). Students should not be led but guided in their learning as this is a more beneficial way of helping

them to progress. Therefore, it is critical for teachers to know where their students are in their learning so that they can guide them towards achieving the learning outcomes (Cindrić & Pavić, 2017).

Another important role of teachers is that of allowing students to share the power in the classroom as this privilege allows students to own the learning (Cindrić & Pavić, 2017; Gan et al., 2017; Heim & Holt, 2018). However, this partnership must be conducted in an ethically responsible manner (Heim & Holt, 2018). Students should never feel they are in total control; rather, teachers should be instrumental in the decision-making while inviting students to contribute to activities and assessments (Heim & Holt, 2018); for example, having a say in which method to be used to present a project. Moreover, teachers who train their students to make practical contributions to learning tasks and to track their progress (Dole et al., 2016; Patel & Laud, 2015) are giving them the opportunity to play a significant role in their learning.

In contributing to the belief that students had an important role to play in their learning, some researchers claimed that the learning process must include developing the learner's ability to self-assess as this skill makes learning easier (Dole et al., 2016; Gan et al., 2017). It is also argued that in the process of guiding students to where they need to go to achieve their learning goals, teachers should give them some autonomy to decide how best to get there (Dole et al., 2016; Gan et al., 2017); a view which was expressed by seminal theorists Nicol and Macfarlane-Dick (2006) in their self-regulated learning, and Hattie and Timperley (2007) in their feed forward concept. For instance, teachers need to

explain to students what 'doing well' means by clearly stating the standards and criteria, and then allowing them to explore new ideas in which they practice the relevant skills.

In the changing role of the student, teachers must see students as partners in the learning process (Cindrić & Pavić, 2017). One way of doing this is for teachers to give task-related feedback, which explicitly states what students are doing correctly or incorrectly and allowing them time to correct errors; rather than giving feedback about the self with comments such as 'smart student, you did great!' (Cindrić & Pavić, 2017) Additionally, students should not only be told how they are progressing but guided into what they can do next to improve their progress (Cindrić & Pavić, 2017). Further, the power-sharing role of students and teachers encourages students to engage in self-reflection, which gives them a chance to be more responsible for their learning (Cindrić & Pavić, 2017). Self-reflection is even more useful when students are guided into setting new goals that drive learning (Cindrić & Pavić, 2017); a view that is also implicit in Gan et al.'s (2017) belief that self-assessment makes learning easier. In the final analysis, researchers underscored the theorists' assumption that teachers who share power with their students are allowing them to become more responsible so they can claim ownership for their learning (Cindrić & Pavić, 2017; Gan et al., 2017; Heim & Holt, 2018).

**Using Guided Inquiry Learning**

Shifting the paradigm from 'sage on stage' to 'guide on the side' also requires pedagogical changes. One such change that supports learner-centered instruction is the use of GIL (McNair, 2017; Ryker & McConnell, 2017; Song & Wen, 2018; Tamari & Shun Ho, 2019). In GIL, students work together either as whole-group or small groups

with teachers acting as facilitators in the process (McNair, 2017). This strategy not only

helps students to become self-regulated learners but supports teachers whose desire is to

transition from a teacher-centered to a learner-centered classroom (Gan et al., 2017;

McNair, 2017).

GIL can lead to significant improvement in student performance because this

strategy takes the focus away from the teacher and places it on the students (Yeung et al.,

2017). Researchers postulated that the positive learning outcomes, which occurs during

the GIL process, are the result of students exchanging ideas with teachers and their peers,

reflecting on their work that results in higher levels of critical thinking, and actively

seeking their own solutions to problems (McNair, 2017; Ryker & McConnell, 2017;

Tamari & Shun Ho, 2019; Yeung et al., 2017). GIL as a performance enhancing strategy

not only allows students to improve their higher order thinking in analyzing information

and solving problems but strengthens their understanding and memory of concepts taught

(Tamari & Shun Ho, 2019). This improvement in critical thinking and reinforced memory

result in students having a more positive attitude towards their assignments and more

confidence in taking ownership of their learning (Tamari & Shun Ho, 2019).

Research into the use of GIL also reveals that this strategy gives students

opportunities to create, to collaborate, and to transfer knowledge to their peers (McNair,

2017; Tamari & Shun Ho, 2019). Against this background of sharing ideas and

experiences and explaining concepts to each other, learners get the chance to develop

their creativity and increase their learning (McNair, 2017; Tamari & Shun Ho, 2019).

GIL, "without exception" (Tamari & Shun Ho, 2019, p. 19), is a useful way of increasing

student's learning irrespective of the type of activity, course, or grade level. Additionally, teachers in inquiry-based classrooms must be prepared to scaffold the weaker students so that they too can move from their current level to a higher level in order to achieve learning growth (Ryker & McConnell, 2017).

Despite the benefits of using GIL, teachers who choose to use this strategy face challenges (Ryker & McConnell, 2017; Yeung et al., 2017). One such challenge is that teachers need to develop new skills to maintain their role as facilitators; for example, they have to become more observant, be prepared to answer unexpected questions and give constructive feedback that is relevant and timely and ensure that questions and prompts stimulate students' critical thinking skills (Yeung et al., 2017). A second challenge is that designing inquiry-based activities takes time and effort on the part of the teacher, but the reward of seeing students improve is well worth it (Ryker & McConnell, 2017).

**Utilizing Formative Assessment**

The research on the use of formative assessment uncovers several findings that are relevant to this study. One such finding that permeates most of the articles on this theme is that students are not receiving the full benefits of the formative assessment process because it is more about telling students about their strengths and weaknesses as opposed to helping them become creators of knowledge (Amua-Sekyi, 2016; Balakrishnan, 2018; Ellis & Loughland, 2017; Koray and Kahraman, 2019). Another significant finding is that sometimes learners do not fully understand their learning goals; therefore, they are unable to track their progress, which is vital in helping them take ownership of their learning (Ellis & Loughland, 2017; Koray & Kahraman, 2019).

Research also highlighted that formative assessment is a way of concretizing learning, which not only assists students in mastering concepts but helps them to reflect on their weaknesses and how to turn them into strengths (Balakrishnan, 2018; Koray & Kahraman, 2019).

Researchers also claimed that students need to dialogue more with instructors during the formative assessment process (Amua-Sekyi, 2016; Ellis & Loughland, 2017). This strategy in the form of a monologue is not as useful as when teachers and students interact to improve learning (Amua-Sekyi, 2016; Ellis & Loughland, 2017). Moreover, students do not receive the full benefit of formative assessment because they are either not active participants in the feedback process, which minimizes the effect of this strategy, or their teachers do not clearly articulate the learning goals to them so they can track their progress (Ellis & Loughland, 2017). As a result, monologic feedback leads to a heavy reliance on their teachers to know whether they were progressing (Ellis & Loughland, 2017). Meanwhile, students who do not have the opportunity to dialogue with their lecturers on how to improve their work are likely to experience less than satisfactory academic performance (Amua-Sekyi, 2016).

Another viewpoint was that formative assessment is not only critical for students to know their learning goals and how to get there, but it is even more important to know what to do next; that is, what other experiences can they add to improve their learning once they have achieved their goals (Ellis & Loughland, 2017). Prior to the belief that formative assessment should be used to drive learning beyond the set goals was the concern that feedback—as part of the formative assessment process—focuses on lower-

level thinking skills and ignores higher-level skills such as evaluation (Amua-Sekyi, 2016; Ellis & Loughland, 2017). To this end, students are not equipped with these evaluative skills and find it difficult to utilize them in summative assessments that require evaluation (Amua-Sekyi, 2016).

Research on how students can benefit more from formative assessment explores the use of games to reinforce their understanding of content (Balakrishnan, 2018). Games as an alternative mode of assessment make the task of assessing students less onerous as they are engaging, and the results are immediate (Balakrishnan, 2018). Consequently, games have the potential to enhance learning in a fun way, which make it less burdensome for students and teachers (Balakrishnan, 2018). The use of games in formative assessment is not a new concept, but teachers need to use it more as a means of involving students who ignore their feedback (Balakrishnan, 2018). Moreover, changing to this method of assessing students ensures that more content areas are reviewed, and this can help students to better prepare for summative tests (Balakrishnan, 2018).

Another formative assessment strategy that teachers and students find beneficial, is the use of rubrics as a means of concretizing learning (Balakrishnan, 2018; Koray & Kahraman, 2019). Teachers and students who use rubrics during formative assessment reveal areas of deficiencies that need to be addressed (Koray & Kahraman, 2019). Furthermore, using various rubrics provide opportunities for teachers and students to interact as a means of closing learning gaps (Koray & Kahraman, 2019). Additionally, these interactions help to develop the teachers' awareness of which rubrics work best with their students (Koray & Kahraman, 2019). Although researchers admitted that the

planning and preparation of rubrics is time-consuming, the help and guidance that students receive from having these instruments compensate for the disadvantages (Balakrishnan, 2018; Koray & Kahraman, 2019).

**Students' Perspectives of Formative Assessment**

As research on formative assessment continues to mushroom, more researchers begin focusing on feedback as a two-way process in which the perspectives of students is viewed as just as vital as the perspectives of the teacher (Ahmed & Troudi, 2018; Calleja, Harvey, Fox, & Carmichael, 2016; Geitz, Brinke, & Kirschner, 2016; Vae, Engström, Mårtensson, & Löfmark, 2018). Students who dialogue with their teachers during formative assessments are actively engaged in the feedback process; therefore, they are more likely to understand how to improve their performance to accomplish their learning goals, and ultimately achieve success (Ahmed & Troudi, 2018; Calleja et al., 2016; Geitz et al., 2016; Vae et al., 2018).

One of the main findings of researchers, whose focus was on the perspectives of students, is the argument that learners who have a better understanding of the purpose of formative assessment and feedback are likely to perform better than those who do not fully grasp how they benefit from these strategies (Calleja et al., 2016; Small & Attree, 2016). Researchers who support this stance claimed that students with a positive view of formative assessment are not only those who expect, value, and utilize this strategy but they are the ones who actively participate in the process as a means of improving their performance (Geitz et al., 2016; Small & Attree, 2016). Moreover, students who found feedback beneficial are those who read their instructors' comments, even if they got

satisfactory grades, and ask for support to help them achieve their learning goals (Small & Attree, 2016). Further, this high level of engagement with feedback is even more critical among distance-learning students who may not have the privilege of face-to-face contact with instructors (Small & Attree, 2016). Additionally, students who actively participate in the feedback process develop skills that make it easier to accurately assess their work or give reliable feedback on work done by their peers (Geitz et al., 2016).

Another significant finding is the belief that monologic feedback is not the best strategy for improving learning; that is, instructors merely telling students about their strengths and weaknesses, without engaging in any kind of dialogue that can guide the learners, hinder the level of learning growth that students are capable of achieving (Amua-Sekyi, 2016; Calleja et al., 2016; Geitz et al., 2016). Some students have a preference for personal contact with instructors; therefore, having a dialogue with their lecturer to clarify feedback is vital for improved performance (Calleja et al., 2016; Geitz et al., 2016). In contrast to these claims, monologic feedback can be just as useful as face-to-face dialogue with a teacher (Small & Attree, 2016). In the case of distance-learning students, who have no personal contact or opportunity to engage in face-to-face dialogue with their instructors, they regard written feedback as coming from an expert whose goal is to help them grow and become self-regulated learners (Small & Attree, 2016). To this end, students appreciate any form of feedback, whether positive or negative, that is constructive and respectful, and they willingly respond to the comments of their instructors (Geitz et al., 2016; Small & Attree, 2016). Furthermore, there are some students who believe that engaging in a dialogue with instructors to clarify feedback is

inappropriate; especially, in cases where rubrics are provided as guidelines (Small & Attree, 2016).

Research was also done on the issue of students ignoring or failing to respond to feedback during the formative assessment process. Some researchers claimed that the lack of interaction with teachers' feedback is either the result of apathy on the part of the students (Calleja et al., 2016) or lack of maturity (Pitt & Norton, 2017). It was also stated that students' disappointing engagement with feedback is the result of learners failing to reflect on instructors' comments and how to make the necessary adjustments to improve their work (Calleja et al., 2016). Emotional immaturity was also highlighted as a significant factor that influences students' value of feedback (Pitt & Norton, 2017). This perspective is grounded in the view that students' understanding and response to feedback is determined by how mature they are emotionally. In other words, students who are more mature are the ones who interact and use the written comments from their lecturers; especially, feedback that contains positive comments as well as areas for improvement.

Students at the higher level of maturity are able to give a fairer assessment of their assignments by reflecting on what they have done correctly and what needs improving (Pitt & Norton, 2017). On the other hand, students who are less mature react negatively to unfavorable feedback or scores that fall below their expectations (Pitt & Norton, 2017). The reaction of students towards feedback is also influenced by their awareness of their ability level (Pitt & Norton, 2017). For instance, students whose perception exceeds their

true ability appreciate feedback that is positive but express anger when the feedback is perceived to be an unfair assessment of the quality of their work (Pitt & Norton, 2017).

Although some research imply that students are at fault, there is also evidence to show that there are reasons for this failure, which include vague and confusing comments, or feedback that provides no form of guidance on how learners can achieve their learning goals (Amua-Sekyi, 2016; Calleja et al., 2016; Pitt & Norton, 2017). There are students who do not responding favorably to feedback from their instructors because they have difficulty understanding the feedback (Calleja et al., 2016). In response to this dilemma of students not engaging with instructors' feedback, some researchers explore strategies for helping students develop a more positive attitude during the formative assessment process (Calleja et al., 2016). One such strategy is a self-assessment tool designed to assist the students in developing their ability to self-assess, which is done by engaging with the feedback they receive and reflecting on what strategies they can use to improve their performance (Calleja et al., 2016). It is also believed that students' use of rubrics is a useful guide that minimizes the time spent on feedback since this tool outlines the expectations for achieving learning goals.

Overall, the research on how students perceive the purpose of formative assessment underscores the belief that this process guides them toward becoming self-regulated learners, which is more sustainable than the previous practice of giving feedback just to achieve the goals of a curriculum (Calleja et al., 2016; Geitz et al., 2016; Pitt & Norton, 2017; Small & Attree, 2016). Students who actively participate in the feedback process develop skills that make it easier to accurately assess their work or give

reliable feedback on work done by their peers. However, this is often the case among self-directed learners (Small & Attree, 2016). On the other hand, students who are not self-directed view feedback as punitive and a means to undermine their self-worth (Gjerde et al., 2018). In the final analysis, the research shows that self-directed learners gravitate toward formative assessment, willingly contribute to learning tasks decisions, and search for opportunities to learn on their own as a means of creating new knowledge; this, in turn, lead to academic success with the potential for developing life-long learners.

**The Formative Assessment Cycle**

The research on formative assessment revealed that this is an iterant process whose main purpose is to help students build their skills as a means of improving their performance; consequently, teachers and students track the progress made toward learning outcomes and make adjustments when necessary (Andersson & Palm, 2017; Huang, 2016). In this process, students who track their growth through self-assessment demonstrate a more responsible attitude towards their learning, which result in greater learning gains (Huang, 2016).

Researchers have also posited that although formative assessment has the potential to improve student achievement, it is imperative that teachers continuously guide students as they progress through three very crucial learning phases: feedback, feed up and feed forward (Andersson & Palm, 2017; Furtak et al., 2016). Some researchers portray formative assessment only as a strategy in which teachers and students gather information, from tests or quizzes, as evidence to inform decisions about the needs of the learner (Andersson & Palm, 2017). However, there is more to this process; it is a cycle

that becomes even more useful when it incorporates feedback, up, and forward (Andersson & Palm, 2017).

Although teachers and students benefit from the formative assessment process, when adjustments are made during instructions to support learning, narrowing the achievement gap is even more successful when this process utilizes feedback, up, and forward (Furtak et al., 2016). In this cyclical process, students and teachers are continuously setting goals, designing tasks to meet these goals, completing the tasks, reflecting on the tasks, and setting new goals about where to go next (Furtak et al., 2016).

**Teachers' use of feedback.** Research into teachers' use of feedback and the benefits to the students attract even more attention in the United States after Black and William (2010) published their meta-analysis on formative assessment. Most of these investigations began focusing on how teachers utilize feedback to guide students, the significance of setting goals, and the role peers play in the feedback process. Several researchers, whose studies are grounded in the work of Black and William, underscore that teachers who provide feedback and guidance see a more positive attitude in their students (Gan et al., 2017; Konopasek et al., 2016). Additionally, teachers who assist their students in developing learning goals and give feedback in a format and manner that leads to academic improvement, are setting their students on the path to success (Gan et al., 2017; Konopasek et al., 2016).

Studies that were grounded in Black and William's (2010) research also posited that improvement in students' performance is reliant on quality and timely feedback from the teacher (Gan et al., 2017; Jónsson et al., 2018; van der Kleij, 2019). Also, in these

studies the emphasis is on the need for teachers to use both formal and informal feedback, which are regarded as essential teaching skills that improved learning (Jónsson et al., 2018; van der Kleij, 2019). While formal feedback means the comments written on assignments or generated on an electronic system, informal feedback refers to the comments given in a dialogue with the learner or group work in which learners assess each other's work (Gan et al., 2017). Informal or dialogic feedback is central to students gaining a full understanding of the teachers' expectations and acquiring the appropriate expressions to use when assessing the work of their peers (Jónsson et al., 2018). Further, giving feedback, by way of a dialogue, allows teachers to personalize their comments and these offer the best learning experiences for students (van der Kleij, 2019).

On the other hand, formal or written feedback has been the topic of considerable research as this fundamental classroom practice is regarded as a teacher's tool for helping students become independent learners (Gan et al., 2017; Egelandsdal & Krumsvik, 2017; Said & El Mouzrati, 2018; van der Kleij, 2019). However, written feedback as a standard feature in the formative assessment process, is not always as useful as teachers perceived it to be (Gan et al., 2017; Egelandsdal & Krumsvik, 2017; Said & El Mouzrati, 2018; van der Kleij, 2019). Rather, these written comments that are aimed at improvement are sometimes ignored or rejected by students because they are perceived as not very helpful in achieving their academic goals (Egelandsdal & Krumsvik, 2017; Jónsson et al., 2018; Said & El Mouzrati, 2018; van der Kleij, 2019). Students' rejection of teachers' feedback is due to a mismatch between teachers' intent and their written comments, which leads to confusion and uncertainty on the part of the students (Said & El Mouzrati, 2018). In

contrast, formal feedback is a powerful tool for developing students' awareness of what they know and do not know about a topic, as opposed to what they perceive they know (Egelandsdal & Krumsvik, 2017).

Substantive research on feedback also reveal that teachers who frequently use this strategy with their students are giving them the skills they need to take the next step toward improved learning (Gan et al., 2017; Jónsson et al., 2018; Konopasek et al., 2016; van der Kleij, 2019). Additionally, teachers who give feedback that is explicit, and who allow students to collaborate with their peers during instruction, are assisting them in advancing their learning. Moreover, students who are encouraged to exchange ideas and explain their thinking give the teachers a chance to hear their thoughts and assist them in extending their ideas, using feedback (Furtak et al., 2016).

**Utilizing feed up.** Another phase in the formative assessment cycle is feed up, where teachers encourage and assist students in setting goals that guide their learning (Konopasek et al., 2016; Patel & Laud, 2015; Pyper, 2018; van der Kleij, 2019). The investigations done illustrate the critical role that feed up plays in not only engaging students in their learning but guiding them towards achieving their learning goals (Konopasek et al., 2016; Patel & Laud, 2015; Pyper, 2018; van der Kleij, 2019). Studies into teachers and students' perspectives of feedback practices also highlighted that students who know and fully understand what is expected of them, as it relates to their learning goals, become more engaged and this results in better performance (van der Kleij, 2019).

Other researchers also argued that not only is it necessary to give feedback that guides students toward their learning goals, but it is equally important to clearly articulate these goals so they can track their progress and know when they attain them (Egelandsdal & Krumsvik, 2017; Ellis & Loughland, 2017; Pyper, 2018; Said & El Mouzrati, 2018). It is crucial that students know and understand the goals set by the teachers so they can recognize good performance and when they achieve it (Pyper, 2018). Further, feedback not only increases students' awareness of what they know but what is important to learn, and it is this awareness that assist them in setting appropriate goals in their self-monitoring plans (Egelandsdal & Krumsvik, 2017). Researchers also reinforced that it is vital for teachers to dialogue with their learners during the formative assessment process as this gives the students the opportunity to express their understanding of their learning goals (Egelandsdal & Krumsvik, 2017; Ellis & Loughland, 2017; van der Kleij, 2019). This, in turn, gives the teacher another chance to ensure that students successfully navigated the feed up phase; that is, they have a clear understanding of what they are expected to achieve (Egelandsdal & Krumsvik, 2017; Ellis & Loughland, 2017).

**Utilizing feed forward.** Teachers' use of feed forward is the most potent phase of the formative assessment process and the stage at which learning becomes an experience that leads students to create their own knowledge (Andersson & Palm, 2017; Egelandsdal & Krumsvik, 2017; Karlsson, 2019; Said & El Mouzrati, 2018). At this stage, feed forward goals are achieved and students are empowered and ready to apply or implement the knowledge or skills in a way that extend their learning (Egelandsdal & Krumsvik, 2017; Karlsson, 2019). This is the stage at which students not only experience the highest

level of motivation but where feedback becomes most useful as they consider teachers'

comments and use them to increase their learning (Said & El Mouzrati, 2018). Teachers

whose passion is to meet the learning needs of their students emphasize the feed forward

component of the formative assessment cycle because learners who receive guidance on

where to go next, or who know their next step based on self or peer reflection,

demonstrate the most significant learning gains (Andersson & Palm, 2017).

Researchers also provided evidence for the belief that this step is the most

powerful strategy in improving learning; therefore, it is imperative that teachers provide

their students with the kind of feedback that guides them into this phase (O'Donovan,

Rust, & Price, 2016; Karlsson, 2019). Additionally, when teachers give comments that

indicate the students' next step, they are also paving the way for new goals that help

students expand their learning (Karlsson, 2019). In the final analysis, the feed forward

phase is where students are most effectively engaged because that is where they know

what to do next in achieving their goals and how to create new knowledge (O'Donovan,

Rust, & Price, 2016).

**Summary and Conclusions**

The formative assessment process, which has become one of the tenets of

education, is no longer regarded as synonymous with teachers' feedback (Hattie &

Timperley, 2007; Nicol & Macfarlane-Dick, 2006; Weimer, 2013). Feedback as the sole

form of formative assessment is not always positive and sometimes undermine learning

in cases where students ignore it (Hattie & Timperley, 2007; Nicol & Macfarlane-Dick,

2006; Weimer, 2013). Complementing feedback with feed up and feed forward, as part of

the formative assessment process, is more beneficial in advancing learning (Hattie &

Timperley, 2007; Nicol & Macfarlane-Dick, 2006; Weimer, 2013). As a result of the

research of Hattie and Timperley (2007), Nicol and Macfarlane-Dick (2006) and Weimer

(2013), investigations into feedback, up, and forward, started spreading. However, on

tiny islands such as the one being investigated in this study, there is still a dearth of this

information with teachers continuing to be the central figures in the classroom. Against

this background, this chapter aims to highlight a small fraction of the research that

reveals the benefits of students as central figures in the classroom, and how the formative

assessment process contributes to this paradigm shift.

The overarching theme for this section is the benefits to be derived from

transitioning to a learner-centered approach as opposed to a teacher-centered style, what

it looks like in the classroom, and how best to deal with resistance from students and

colleagues. Within the context of learner-centered teaching, the role of the student and

that of the teacher is discussed. Based on the research, teachers should focus on being

facilitators as opposed to the traditional role of content expert in the room (Blumberg,

2015; Cindrić & Pavić, 2017; McElhany, 2017; Patel & Laud, 2015). Students, on the

other hand, have the opportunity to share the power and the responsibility in the

classroom so they can take ownership of their learning.

Utilizing formative assessment, which features prominently in much of the

research mentioned in this chapter, is claimed to be most beneficial when it is a dialogue

as opposed to a monologue (Ellis & Loughland, 2017). Additionally, it is critical for

teachers to use this strategy as a means of revealing deficiencies in learning and use

engaging techniques, such as games, to address the gaps. Added to this theme is its purpose, how students perceive its usefulness, and the dilemma that some teachers face when students choose to ignore their feedback during the formative assessment process.

The closing theme in this chapter, which also permeates much of the literature, is the formative assessment cycle. This process revolves around three main phases—feedback, feed up, and feed forward—that covers six stages. At the feed up phase teachers and students set goals and tasks while feedback involves completing and reflecting on the tasks. The feed forward phase is where students set goals about where to go next, which is the stage at which the most useful form of learning occurs. For these reasons, my aim is to add to this growing body of knowledge by examining what high school teachers indicate as the best practices for the use of feedback, feed up, and feed forward as a means of improving students' performance, and to provide further evidence of how learners benefit from setting their own goals to guide their learning and to reflect on where to go next to create their own knowledge.

Chapter 3 covers the research design, rationale, and methodology. The issue of trustworthiness is included to establish how the credibility of the data collection, analysis, and reporting is maintained. In this chapter, I also describe the role of the researcher, how participants are recruited, the instruments that are used to collect data, the data analysis plan, and the ethical procedures that are followed.

Chapter 3: Research Method

**Introduction**

In this basic qualitative study, my purpose was to gain an understanding of what high school teachers indicated as the best practices for the use of feedback, up, and forward and why they did or did not use these strategies to help students improve their performance. Interviews provided rich, in-depth information about the instructional strategies that teachers used, which added to the few studies on feed up and feed forward and how these strategies led to a more beneficial formative assessment process. Therefore, this study extended the research on the use of feed up and feed forward to complement feedback, in the formative assessment cycle, as a means of improving student performance.

This chapter gives a detailed description of the research method. In my description of the initial aspects of the research method, I include the research design and rationale for choosing this approach and my role as the researcher. These sections are followed by the methodology, which describes how participants were recruited, the instruments used to collect data, the procedures that followed the data collection process, and how I analyzed the data. The final part of the chapter addresses the issue of trustworthiness and how this was dealt with, as well as ethical concerns and the procedures that were followed to guarantee the integrity of this research.

**Research Design and Rationale**

The overarching research question, which was grounded in the conceptual framework of learner-centered instruction and informed by the literature, was "What do

high school teachers indicate as the best practices for the use of feedback, feed up, and

feed forward as a means of improving students' performance?" The research tradition

was the qualitative approach, which was chosen based on the phenomenon and research

question. Because quantitative research features the processing of numerical data

gathered from closed questions to enable objectivity and generalization (Basias &

Pollalis, 2018; Harrison, Birks, Franklin, & Mills, 2017), it was not possible to use this

method to answer the research question, which required rich details. Although critics

have claimed that qualitative research lacks rigor, is likely to be biased, and cannot be

used to form generalizations, there are several benefits from using this approach (Yin,

2018).

First, qualitative methods allow researchers to gather in-depth details in their

pursuit of understanding the nature and complexity of the phenomenon being studied

(Basias & Pollalis, 2018), which in this case was best practices. This method also allows

for a close-up view of a situation and to make adjustments to the investigation, if

necessary, to deepen understanding such as asking additional questions to dig deeper

(Basias & Pollalis, 2018; Patton, 2015). In contrast, a quantitative inquiry has a limited

number of set questions for collecting information (Basias & Pollalis, 2018; Patton,

2015). Qualitative research also enables researchers to use purposeful sampling, which is

essential for inquiries that require insightful details about the experiences of individuals

(Patton, 2015). Furthermore, qualitative research provides a chance to analyze data

inductively and identify emerging patterns and themes (Basias & Pollalis, 2018; Patton,

2015). Against this background, I chose a qualitative approach to understand the best

practices of teachers and provide as much details as possible about why they did or did

not use feedback, up, and forward to help their students improve their performance.

From the list of possible approaches, I opted for the basic qualitative study

because there were several advantages (Young et al., 2017). First, the use of interviews

provided the flexibility to gather in-depth details not only from the initial questions but

from follow-up questions that gave instant clarification, which is a common feature in

this data collection method. Second, the interviews focused on understanding teachers'

best practices and why they did or did not use formative assessment strategies also

allowed me to ask follow-up questions that unearthed detailed descriptions (Harrison et

al., 2017). This helped to gain a deeper understanding of what high school teachers

indicated as the best practices for the use of feedback, up, and forward as a means of

improving students' performance. By conducting a basic qualitative study with teachers

from different disciplines who shared similar experiences, I was also able to compare

their responses, which enhanced the credibility of the research (Young et al., 2017). This

collection of detailed descriptions from the teachers gave a comprehensive view of their

best practices for the use of feedback, up, and forward, which may help others understand

how these strategies contributed to higher student achievement.

**Role of the Researcher**

My role as the researcher in this basic qualitative study was that of the key data

collection instrument (Basias & Pollalis, 2018; Patton, 2015; Schoch, 2016). In this role, I

coordinated the recruitment process by first contacting the Ministry of Education and

school principals to assist me with identifying potential participants. Once participants

were recruited, I conducted Zoom interviews and their responses were recorded. This data were transcribed and analyzed. As the key instrument responsible for coordinating the recruitment of the participants, collecting, recording, transcribing, analyzing, and reporting on all data, I was aware of the potential for bias in the analyzing and reporting of the results. Consequently, it was imperative to state my past experiences in the district and with the people involved in the study.

I served as a teacher for 10 years at one of the two public high schools, but never in the capacity of a supervisor; therefore, I had no control over the information provided by the teachers. In light of my experiences as a former teacher in the school district, I was aware that I may have had biases concerning the usefulness of learner-centered instruction and formative assessment. However, I endeavored to mitigate the potential for such biases by using strategies that researchers had endorsed over the years. Member checking was my first consideration for ensuring that the teachers' responses during the interviews were not misinterpreted and allowing them the opportunity to adjust their comments. I also conducted interviews with teachers whom I either did not know or with whom I had no previous relationship.

## Methodology

### Participant Selection Logic

For this study, a sample population of eight high school teachers—two from each of the four core subjects—were recruited based on the following criteria: (a) teachers who worked in the district for a minimum of 2 years and (b) teachers who taught one of the four core subjects—English language, mathematics, science, social studies. This

purposeful sampling of teachers, assisted by the Ministry of Education and school principals, guaranteed that the selected individuals had the experiences that brought insights and value (Basias & Pollalis, 2018) to the issue of using formative assessment strategies such as feedback, up, and forward. Although a sample population of eight, in a district with 700 teachers, seemed small, this is typical of a basic qualitative study and qualitative research in general. Further, by choosing this size sample, I was able to focus on gathering in-depth information that gave a close-up view of high school teachers' best practices (see also Smedsrud, 2018).

Patton's (2015) homogeneous sampling was the guiding concept in my choice of teachers from different subject areas, who had similar experiences with teaching in a public high school. The rationale for this choice was to focus on a small group of participants with similar characteristics who could be studied in-depth to provide data for the central theme of teachers' best practices for the use of feedback, up, and forward as a means of improving students' performance. My use of the homogeneous sampling yielded two important benefits: data collected were detailed and high quality, and the shared experiences of this group became even more significant (Patton, 2015). By choosing participants from different disciplines, I also negated any beliefs that formative assessment strategies were useful in a specific subject, but not in others.

**Instrumentation**

The data collection instruments that I used in this investigation were semi-structured interviews. The interviews were based on Creswell's (2013) interview protocol but modified so that it would be suitable for this research. Because this basic qualitative

study involved people in an organization, I focused on the pragmatic interviews that required me to consider participants' beliefs about a problem and the actions they took to solve it (Patton, 2015).

The format was a "predefined interview protocol" (Basias & Pollalis, 2018, p. 100) in which questions were prepared in advance with the potential for probes and transitions. This structure allowed each interviewee to be asked the same questions in the same order. Although this format minimized any variation in questions, it ensured consistency that allowed me to compare the teachers' best practices. These pre-prepared questions were designed to provoke participants to reflect on their best practices in using formative assessment strategies and whether they did or did not use them to improve student performance. Most importantly, the data gathered from these interviews provided enough information to answer the research question.

There were several reasons why I developed my own interview protocol (see Appendix A), as opposed to using a published version. Based on the research of Yin (2018) and Basias and Pollalis (2018), I recognized that the type of instrument used depended on the data collected. For a basic qualitative study in which the goal was to uncover the best practices of individuals, the interview method was most appropriate. By developing my own instrument, I was able to tailor the questions to address the research question and purpose of the study. Moreover, composing my own interview questions meant that I was able to include items aimed directly at getting responses for the research question. Additionally, choosing to use the predefined interview format allowed me to have an instrument that provided comparable data each time it was used. Because I was

interviewing eight participants to find out their perspectives on the same issue, it was essential to consider this feature in choosing the interview method. Lastly, the use of the same instrument to measure similar concepts helped to enhance the credibility of the instrument used and the data collected.

**Procedures for Recruitment, Participation, and Data Collection**

The recruitment process to collect data for this study began with a plan to find eight teachers who could provide details of their best practices used in formative assessment strategies, such as feedback, up, and forward. These participants were recruited from the four core subjects using homogeneous sampling. This strategy established a level of homogeneity, so I was able to get different perspectives about the same issue from a group that shared common experiences. The initial step to recruit participants was to contact the gatekeepers in the district. To this end, an email was sent to the Ministry of Education requesting permission to conduct my research in their two public high schools. This email contact was followed by another that was sent to the principals of the schools, also requesting permission to conduct the research in their institutions. Other pertinent information that I included in the first correspondences, to the Ministry of Education and the school principals, was an outline of why I chose the public high schools, what was to be done at the sites during the investigation, how the results would be reported, and how the schools would benefit from the research.

Once access to these sites had been granted, another email was sent asking the principals for names and email contact of potential participants from the core subjects. After receiving the list of possible participants, I emailed invitation letters that included

the purpose of the study and their role. The teachers who agreed to participate were sent a second email with a consent form in which they were reminded of the purpose of the investigation, information about the data collection procedures, their right to withdraw, and the promise of confidentiality.  Once the teachers returned their signed consent forms, to indicate their agreement to participate in the study, there was a selection process in which the first two consent forms received from teachers in the core subjects were chosen. These eight individuals received their final recruitment email in which they were thanked for giving consent and asked to provide a convenient date for an interview. The teachers that I did not select also received an email of gratitude with an apology for not choosing them as participants.

Data collection followed the recruitment with teachers who submitted convenient dates for their Zoom interview to be done outside of school hours. Each interview was conducted using an interview protocol in which teachers were again reminded of the purpose of the research, their right to withdraw, a promise of confidentiality, any objections to being recorded, and a chance to review a transcribed version of the interview, which they were free to revise. Following the introductory exercise, participants were asked a general demographic question before proceeding to queries that provided answers to the research question and prompted rich details about their knowledge of the formative assessment process, their best practices in the use of formative assessment strategies at the high school level, and whether these techniques were helping to improve student performance. The interview concluded with a reminder

that I would send a transcribed version of the interview for teachers to check and make

changes, and a heartfelt thank you for their time.

**Data Analysis Plan**

I began the data analysis plan by preparing a transcript for each interview. By

transcribing the interviews without using software, I got a chance to immerse myself in

the details and have a deeper understanding of the teachers' best practices. These

transcripts, with the accompanying videos, were uploaded into the NVivo software to

continue the analysis process.

The next step was to use open coding to create categories at parent nodes in the

software. These initial categories were drawn from the research question with child nodes

set up for the emerging themes based on the data I collected from the interviews. During

this phase of the analysis, I used the NVivo memo links to insert any meaningful

comments or explanations that related to the data I was reading. Next, I extended the

child nodes into additional sub-nodes for patterns across the eight interviews, to which

memo notes were added. In the cross-interview analysis, differences were coded at other

sub-nodes. During this process, discrepant cases were linked to memos that described

what the participants revealed, and this information was used to create a realistic

assessment of the research phenomenon (Creswell, 2013).

From these themes and patterns, and in alignment with the purpose and the

research question, I composed a rich description of what high school teachers indicated as

their best practices for the use of feedback, up, and forward as a means of improving

students' performance. In conclusion, I analyzed this description from the perspective of

learner-centered instruction to gain an understanding of how the utilization of formative assessment strategies, such as feedback, up, and forward, influenced students' academic outcomes.

## Issues of Trustworthiness

Trustworthiness in this qualitative inquiry was rooted in the strategies used to establish the quality and credibility of the research (Patton, 2015). One such strategy that I tried to construct was transferability by choosing participants with the same experiences and who were able to give in-depth information, which could provide a guide for other researchers doing similar studies. Dependability, by way of triangulation, was another strategy incorporated in this study to confirm its trustworthiness. A final strategy that was constructed to verify trust was confirmability, in which I stated what means I used to mitigate possible bias during the investigation. Against this background, I addressed each issue to establish the trustworthiness of this inquiry.

The credibility of this investigation was established using member checking and peer review. Member checking was done by soliciting the help of the participants in ensuring that the interpretation of the interview data was accurate. Meanwhile, peer review was involved because I asked knowledgeable coworkers to judge the worth of the interview questions and to identify any that seemed loaded, leading, or biased. The use of the same interview protocol for all eight participants meant that the same instrument was used to measure the same concepts, an indication that there was consistency in collecting the data, which added to the trustworthiness of the study.

I enhanced transferability in two ways, homogeneous sampling and detailed descriptions. By utilizing homogeneous sampling, I ensured that there were similarities in the experiences of the participants even though they taught different subjects. This, in turn, led to interviewees giving different perspectives on the topic of what high school teachers indicated as their best practices for the use of feedback, up, and forward as a means of improving the performance of students. This diverse group of participants also provided rich, thick descriptions of their best practices that helped me to have a deeper understanding of how these strategies influenced student performance. These detailed descriptions also provided an opportunity for other researchers to determine whether this information could be transferred to other schools with similar characteristics, to produce similar results.

Establishing dependability, as another means of enhancing the trustworthiness of this research, was done by way of triangulation. The use of specific strategies such as memoing, during the data analysis, became a form of triangulation. This strategy created an audit trail of extra details that was significant in understanding some aspects of the interview data.

Confirmability as a means of establishing trust in the study was evident in my commentary about possible bias as a result of living and working in the school district for 10 years. In stating my position as a former employee, I hoped to clarify that there might be biases in the way I interpreted, analyzed, and reported the information. However, I endeavored to avoid personal influences affecting the way data was interpreted, analyzed, or reported. By constantly reflecting on my relationship with teachers in the district and

my purpose for conducting this investigation, my goal was to keep an open mind about the data I received and analyzed it without bias.

**Ethical Procedures**

In basic qualitative studies such as this study, ethical procedures were integral in preserving the integrity of the inquiry. Patton's (2015) list of twelve guiding principles for ethical issues included two that laid the foundation for all the others; these two stated that researchers must avoid harming their participants and avoid deceiving them. To this end, I followed the required ethical procedures to ensure that participants did not face any undue risks, and to preserve the integrity of this inquiry.

The first step was to prepare a proposal that gave full details of the research procedure and submitted it to Walden's University Institutional Review Board for approval. Once approval was granted, I sent email messages to the Ministry of Education and the two public school principals at the sites, to request their permission to conduct the research with their teachers. Recruitment was the next step that required ethical considerations, and this was done by sending email messages to solicit the participation of teachers in my investigation. These messages informed the invitees about the purpose of the study, the criteria for participating, assurance of confidentiality of any information shared, and a request for a response to indicate their interest in taking part. Teachers who responded received a second email that contained a consent form that again assured them of the confidentiality of their information, outlined the purpose and procedure of the study, and their right to withdraw. The selected participants received their third email correspondence that expressed my gratitude for their willingness to participate and

included a request for an interview on a day and time that was convenient for them. Teachers who were not be selected also received an email message that expressed my appreciation for their interest and an apology for not choosing them.

Also, I followed appropriate ethical procedures in the collection of data as a means of maintaining integrity in the research. The first focus of my attention was to save and protect the information that was shared by the participants. For this reason, I stored the data on a private computer and backed-up the files on a flash drive that no-one else was able to access. In this way, I was able to keep the participants' information confidential. Confidentiality was further enhanced by removing all identifying marks from the interview data. All identifying marks were replaced by the first letter of the subject taught and the number one or two to refer to the participants; for example, M1 was used to replace the first interviewee who taught mathematics while SS1 referred to the first social studies interviewee. I also concealed the exact location of the research site by giving a general reference of its geographic position to the United States. Additionally, I intended to destroy any documentation of any participant who might have chosen to exit the inquiry early and not use their information in the results and discussion of the study; however, no such incident occurred as all participants completed the data collection process. At the end of the research period, I archived all data on a private computer that was not be available for use by anyone else, and these files were kept for 5 years, and then permanently deleted.

**Summary**

In this chapter, I described the research method that I used in this study. Beginning with the research design, I referred to the research question and gave a rationale for the tradition I chose. This section was followed by a description of my role as the key instrument in this basic qualitative study and how biases and other ethical issues were resolved because I was responsible for coordinating the recruitment of participants, collecting, analyzing, and reporting the data.

The methodology, which was the main focus of the chapter, outlined the purposeful sampling procedure that was used to recruit the eight participating teachers, the interview protocol that was used to gather the data from them, and how member checking and peer review helped to maintain the trustworthiness of the study. The procedures for recruitment, participation, data collection, and data analysis plan were the final subsections of the methodology. The homogeneous sampling strategy, which informed my choice of the eight teachers from the four core subjects, was described in the methodology section, as well as a full description of the interview process and how memoing was used for triangulation of data in enhancing the dependability of the study. In the data analysis plan that followed, I explained how the interviews were connected to the question of what high school teachers indicated as their best practices for the use of feedback, up, and forward as a means of improving students' performance. The data analysis plan also included how NVivo was utilized to aid the analysis with the use of coding to create the categories.

Issues of trustworthiness were minimized with strategies such as member checking, peer review, reflexivity, and the use of rich, thick descriptions to establish credibility, dependability, confirmability, and transferability. In closing, I described several ethical procedures that helped to preserve the integrity of the study. These procedures comprised of the Institutional Review Board's approval of my proposal based on their guidelines, consent from the gatekeepers of the research sites and the participants, the email correspondences that informed the participants of the study, their role and the strategies that were used to protect their information, and their right to withdraw. Chapter 4 gives a description of how this methodology is used to provide the results of this basic qualitative study.

Chapter 4: Results

## Introduction

The purpose of this basic qualitative study was to gain an understanding of what high school teachers indicated as the best practices for the use of feedback, up, and forward and why they did or did not use these strategies to help students improve their performance. To achieve this objective, eight individual interviews were conducted using open-ended questions that provided rich, in-depth details about the use of these formative assessment strategies. The results of the interviews were analyzed, in the context of the research question, to ascertain what high school teachers suggested as the best practices when using strategies such as feedback, up and forward as a means of helping students improve.

In this chapter, a detailed analysis of the results is given. This analysis is preceded by a description of the setting, demographics of the participants, the data collection procedures, the data analysis process, and evidence of the trustworthiness of the study. The results of this investigation provided a deeper understanding of the importance of feedback, up and forward, and whether teachers believed that their students were improving as a result of the use of these formative assessment strategies.

## Setting

This research was conducted in a school district on an island, east of the United States, that comprised of two government high schools located on the outskirts of the island's capital city. Both schools, with a total enrolment of approximately 1200 students, were government funded; however, one school had transitioned from private to public

and was still partially controlled by the private school board that provided special grants to the institution. Consequently, most of the students in the granted-aided (G-A) school were not only from middle-income families but they received special bursaries and scholarships annually. On the other hand, the fully funded government school (G-F) comprised of students who were mostly from low-income families. Although both schools followed the British curriculum, the G-A school had career pathways that allowed students to engage in selected American programs such as the U.S. College Board Advance Placement and the SAT.

## Demographics

The study was conducted with public high school teachers who taught the core subjects of English language, mathematics, science and social studies. This group comprised of 52 teachers who had been serving the school district for a minimum of 2 years and had been utilizing formative assessment strategies in their instruction. In the G-F school, there were seven English teachers, six mathematics teachers, seven for science, and six for social studies while the G-A school consisted of seven for English, seven for mathematics, seven for science, and five for social studies. Individual interviews were conducted with each participant at the end of which each teacher was assigned a pseudonym (see Table 1).

**Table 1**

*Participants' identification details*

| Participants (pseudonym) | Gender | School (pseudonym) | Subject | Years of teaching |
|---|---|---|---|---|
| E1 | Female | G-A | English | 30 |
| S1 | Female | G-F | Science | 19 |
| SS1 | Male | G-F | Social Studies | 4 |
| M1 | Male | G-A | Mathematics | 10 |
| E2 | Female | G-F | English | 6 |
| S2 | Female | G-A | Science | 16 |
| SS2 | Female | G-A | Social Studies | 10 |
| M2 | Male | G-A | Mathematics | 10 |

E1 was the most senior member of the group with over 30 years of teaching experience. She served at the G-A school where she taught the International General Certificate of Secondary Education (IGCSE) literature and the U.S. College Board Advance Placement English literature, and she was looking forward to teaching English language in the upcoming school year. M1 had been serving as a mathematics teacher in the G-A school for 10 years. S2, a science teacher from the G-A school, has spent the last 9 years in her current role as teacher of coordinated science and marine science. SS2 had been a social studies teacher in the G-A school for 10 years. Although SS2 had taught Introduction to Africa throughout her 10 years, she had also been responsible for other areas of the social studies program for shorter periods of time: Preserving Our Heritage for 7 years, the local Social Studies curriculum for 5 years, and IGCSE Global Perspectives for 1 year. M2 had been serving in the district for 10 years as a mathematics teacher at the G-A school with the additional responsibility of instructional team leader; the only participant in this role from the G-A school.

S1 was in her 19th year as a teacher in the district; however, she had only been teaching the biology and chemistry curricula in science for the past 4 years at the G-F school. She had also the added responsibility of being an instructional team leader for her department, which required dividing her time between teaching and supervising the Science department. SS1, another member of the G-F school, taught IGCSE geography and the local social studies curriculum. Although he had been teaching for 8 years, he had only been teaching these subjects for the past four years at the G-F school. E2 was from the G-F school where she had been teaching the IGCSE English Language for the past 6 years. In addition to her role as an English teacher, she was also the instructional team leader for her department, which meant she was responsible for supervising the English teachers.

Of the eight participants, five were from the G-A school and three from the G-F school. Additionally, of the five female participants, three were from the G-A school and two from the G-F school. On the other hand, two of the three male participants were from the G-A school and one from the G-F school. In terms of their roles, there were five regular teachers—E1, S2, SS2, and M1 from the G-A school, and SS1 from the G-F school—and three with the additional responsibility of being Instructional Team Leader – S1 and E2 from the G-F school, and M2 from the G-A school; that is, they were required to teach and supervise their department.

## Data Collection

The data collection process commenced with a request to the Ministry of Education—the highest governing body for schools in the district—for permission to

conduct the research in two public schools, as documentation of their approval was required by Walden University Institutional Review Board prior to granting approval to conduct the research. This was followed by a submission of the Request to Conduct Research Application to the Walden University Institutional Review Board. Once approval from the Institutional Review Board was granted, I e-mailed each of the principals at the research sites to get their approval to conduct my research in their schools. In this e-mail, I not only requested their approval but also the email addresses of teachers who fit the criteria of the study: teachers who had been serving the district for a minimum of 2 years and were teaching one of the four core subjects: English language, mathematics, science, and social studies.

After receiving approval from the principals, both of whom instructed me to contact their secretaries for the teachers' e-mail addresses, messages were sent to the secretaries. Both secretaries responded promptly providing the names and e-mail addresses of all the teachers who had been teaching the core subjects for at least 2 years. Although I received a total of 52 names and e-mail addresses, the accounts of three teachers did not accept the e-mail I sent; therefore, only 49 invitations were delivered. This recruitment process yielded 13 responses to the invitation, after which consent e-mails were sent to each prospective participant. Each consent e-mail briefly explained the purpose of the research and the expectations for those participating. Invitees were also informed that their participation was strictly voluntary and they were free to withdraw from the process at any time without penalty to them or their school.

Eight of the 13 participants returned the consent e-mail indicating their willingness to participate by stating "I consent." 'Thank-you' e-mails were sent to all eight teachers. These participants were asked to e-mail a convenient date and time to conduct their interview, and whether they preferred it to be done by telephone or Zoom. Seven of the eight participants chose Zoom as their preferred medium, and the eighth person opted for a telephone interview. The interview period lasted for approximately 5 weeks with the first participant being interviewed on June 26 and the last on July 30. Due to the COVID-19 lockdown, all interviews were conducted in the participants' homes. The threat of interruptions and distractions were minimized as each participant chose a time when they were either alone at home or had a quiet place where they participated in the interview. Additionally, there was no need to consider teaching schedules as all teachers were on their summer vacation.

Each interview lasted from 40 to 60 minutes with the exception of the first participant, whose interview lasted for approximately 22 minutes as she was feeling slightly ill but did not wish to reschedule for another day. The interview protocol comprised of six basic questions related to the research topic with an introductory question, to elicit demographic information about each participant, and a concluding question, which provided participants with an opportunity to give their closing comments. During the interview, probing questions were used for clarification and to provide in-depth details. The interviews were transcribed and e-mailed to the participants for member checking.

**Number of Participants**

The data were collected from eight public high school teachers who taught the

core subjects. These participants responded to a total of eight questions, the first of which

was to elicit demographic information, followed by six open-ended questions related to

the topic of teachers' best practices for the use of formative assessment strategies, and

one concluding question that obtained their final comments. On the day of the interview,

each participant was contacted approximately 1 hour before to confirm that they were

still available to participate. Each interview began with an exchange of greetings

followed by a statement establishing the date, time, and location of the interviewee. This

initial information proved helpful later when I needed to report the data collection period,

where the data was collected, and the conditions under which this information was

collected; in the case of this research, the COVID-19 pandemic led to participants being

interviewed at home as opposed to the original plan to conduct their interviews at the

research sites.

Since all eight interviews were conducted between 8:00 and 11:00 in the

mornings on separate days and lasted no more than one hour, there was sufficient time to

review the videos and transcribe each one while the meeting was still fresh in my mind.

The immediacy of preparing the transcript gave me the opportunity to easily recall

nuances in speech and gestures that added clarity to statements made by the participants.

Some participants gave detailed responses to the interview questions without much

probing; however, several follow-up questions were used with others to probe for further

information. Probing questions were used for clarification with statements such as "can

you explain that for me?" or "I just want a little bit more information on…" All eight

individual interviews were stored on a password-protected computer, and after 5 years

they will be permanently deleted from all devices.

**Data Recording**

During the interview, data were recorded automatically on two media: a video

version and an audio version, which was a special feature provided by the Zoom

Application. Seven of the eight participants chose to do their interviews by way of Zoom

which meant they were automatically recorded by video and audio. For the eighth

participant, who chose to do a telephone interview, there was only an audio version

recorded by the Total Recall Application. Although the data collection process went

smoothly for most participants, during the interview of SS2, the Zoom recording stopped

just as she was giving her final comments. However, the immediate alert that was flashed

across the computer screen gave me the opportunity to pause and continue once the

recording restarted. This slight electronic glitch in the interview did not interfere with the

participant's mood as she continued her response with ease once the recording resumed.

**Variation from Chapter 3 and Unusual Circumstances**

During the data collection process, a few variations and unusual circumstances

occurred. The initial data collection plan—that was outlined in Chapter 3—mentioned the

use of Skype or telephone as the means by which participants would be interviewed.

However, Skype was replaced by Zoom because the COVID-19 crisis, which led to a

nationwide lockdown and teachers being mandated by the Ministry of Education to

utilize the Zoom platform in the newly initiated online learning and meant that teachers

had easy access to this mode of communication. Consequently, in the response-to-consent e-mail, teachers were offered a choice between Zoom, as opposed to Skype, and the original telephone option.

A second variation also occurred as a result of the crisis and the lockdown. In the Proposal, the data collection procedure indicated that the interviews would be conducted at the research sites outside of school hours. Due to the fact that teachers were delivering their instruction from their place of residence, their homes became the venue for the interviews. As a result, participants were asked to be discreet during the interview to ensure that other members of the household were not privy to the information being shared. Discretion was also advised as a means of minimizing any risk of family members overhearing the information being shared and repeating or misconstruing what they heard. All eight participants complied with this request with four persons ensuring that they were alone at home during the interview, and four securing quiet places to speak. To this end, the interviews were conducted smoothly with no distractions or interruptions from others.

The first unusual circumstance was that the first interview only lasted for approximately 22 minutes as opposed to the anticipated 60 minutes. At the beginning of the interview, the participant confessed that she was not at her best as she was suffering from insomnia. When asked if she would like to reschedule the interview, she said no as her next available date would be over 4 weeks later, which would extend beyond the data collection period. Another unusual circumstance was that one principal mentioned my request for approval at a staff meeting. As a result, I received a few personal messages

from individuals who wanted to be participants in the study even though they did not meet the criteria. For example, a laboratory assistant in the Science department wanted to be a participant even though he was not serving in the role of a teacher. In response, I politely declined his offer.

## Data Analysis

The data collected for this basic qualitative study, in which eight participants provided rich details through individual interviews, were analyzed with the help of the NVivo software as mentioned in Chapter 3. The data analysis process began with preparing a transcript for each interview and e-mailing a copy to the participants to either revise or edit for clarification or confirm as accurate. I read the reviewed transcripts a second time to immerse myself in the details and to deepen my understanding of how the data related to the research topic.

Qualitative analysis tends to utilize open and axial coding as a means of organizing data by creating categories from which emerging themes and patterns were identified (Klimecká, 2020). Against this background, the next step was to upload all eight interviews into the NVivo software to begin the process of identifying categories using open coding. After I read the transcripts a third time, three broad categories began to emerge: teachers as facilitators in the formative assessment process, the instructional adjustments teachers make as a result of the formative assessment process, and how they leveraged technology in the formative assessment process. These broad categories were used to create the initial codes in the form of parent nodes in the NVivo software.

Open coding was followed by axial coding, which is used by qualitative researchers to identify themes and patterns when they examined the initial categories in the data (Cascio, Lee, Vaudrin, & Freedman, 2019). Using axial coding, recurring patterns were identified and grouped together to form child nodes under each parent node category. For instance, participants described how they supported their students' learning by enabling them to set goals; consequently, under 'teachers as facilitators' a child node was created and labelled 'goal setting'. A summary of these emerging themes and patterns, created in the NVivo software, is shown in Table 2 with detailed samples given in Appendix B.

**Table 2**

*Summary of emerging themes and patterns during coding*

| | Emerging themes during open coding | | |
|---|---|---|---|
| **Emerging themes based on axial coding** | Teachers as facilitators | Instructional adjustments | Leveraging technology |
| | • Goal setting | • Utilizing feedback | • From face-to-face to virtual instruction |
| | • Supporting learning | • Utilizing feed forward | |
| | • Utilizing peer assessment | • Utilizing feed up | • Utilizing websites in formative assessment |
| | • Sharing the power | • Student improvement | |

The 'Query' feature of NVivo was also utilized to reveal recurring words and phrases that provided evidence of a theme or pattern. For example, most participants mentioned the words "grasp" and "understanding" in their discussion on instructional adjustments. From the recurring use of these words, the theme of 'utilizing feedback to

make adjustments' emerged. Additionally, the NVivo Memo link was used to insert meaningful comments or explanations about the data I was reading.

This iterative process of analyzing the data required several readings and line by line scrutiny of the transcripts to determine the themes and patterns that supported the purpose of this study and the research question. From this process of repeated reading and scrutinizing of the data, the themes were uncovered: teachers as facilitators in the formative assessment process, instructional adjustments as a result of the formative assessment process and leveraging technology in the formative assessment process. These themes and their emerging patterns, which are described in the 'Results,' laid the foundation for me to compose a rich description of what high school teachers indicated as their best practices for the use of feedback, up and forward, and whether these strategies were helping to improve student performance.

**Discrepant Cases**

During this data analysis process, there were a few findings that did not fall into any of the emerging patterns, and these were coded at sub-nodes linked to memos that described what was different about them. One example was that seven of the eight participants expressed the view that feed up, in which students were involved in the goal setting, was a very important aspect of formative assessment, while one person strongly believed that because the syllabus already had stated goals, there was no need to involve the students. Such findings were helpful in creating a realistic assessment of teachers' best practices in the use of formative assessment strategies and whether they believed that these strategies were helping their students to improve.

**Evidence of Trustworthiness**

Trustworthiness in qualitative research is very important in preserving the credibility and worth of the study (Patton, 2015). To this end, several strategies were used to establish the trustworthiness of this inquiry: credibility, transferability, dependability, and confirmability.

The credibility of this research was ensured by way of member checking and peer review. Prior to the data collection process, I solicited the help of four knowledgeable colleagues, one of whom was a current doctoral student, to review the interview questions and draw my attention to those that were loaded, leading, or biased. After completing three drafts, the final version of the interview protocol was composed. At the end of each interview, a transcript was prepared and sent to the participant for member checking to make certain that I correctly interpreted their intended meaning. Credibility was further enhanced by the use of the same interview instrument for all eight participants. By using the same instrument, each participant got the same questions in the same order, which meant there was consistency in collecting the data that also allowed for comparison of teacher's best practices.

Transferability added to the worth of the study in two ways, homogeneous sampling and rich, detailed descriptions. By choosing participants who were working in the same district and serving in similar roles, the homogeneity of the group meant that they were able to share similar experiences. The fact that they taught different subjects meant that I had the opportunity to get rich, thick descriptions of teachers' best practices from different perspectives. For this reason, I gained a deeper understanding of how these

strategies could help students improve regardless of their discipline. The detailed descriptions, from this diverse group of teachers, can provide other researchers with a chance to determine whether the best practices mentioned in this study can be transferred to other schools with similar features to produce comparable results.

The trustworthiness of this study was further heightened by using triangulation to establish dependability. Member checking, memoing during the analysis, and the NVivo software for secure storage of information, were the strategies used to provide a level of transparency that underscored the dependability of the data collected. Member checking was done by asking the participants to review the data collected as a means of confirming that my interpretations were accurate. Memoing also provided an audit trail of details that helped to clarify certain aspects of the data.

Confirmability, which required being unbiased to preserve the worth of the research, was addressed in two ways. First, I admitted that there was a possibility for bias since I lived and worked in the school district for 10 years. For this reason, I focused on my role as a student living outside the district to minimize personal influences affecting the way I interpreted, analyzed, and reported the data, which was made easier by the fact that I was not familiar with half of the participants. For the participants with whom I had any kind of relationship in the past, I acknowledged that I had no influence on them, and they had no influence on me. Rather, I kept my focus on the purpose of conducting the study, as opposed to my past relationship with them, kept an open mind about the data I received, and did my best to analyze it without bias.

**Results**

During the data analysis, three broad themes emerged and these are summarized in Table 3. All eight participants indicated that utilizing formative assessment strategies led to improvement in students' performance.

**Table 3**

*Summary of the results linked to the research question.*

| Research Question: What do high school teachers indicate as the best practices for the use of feedback, feed up, and feed forward as a means of improving students' performance? | |
| --- | --- |
| Theme 1 | Teachers as facilitators in the formative assessment process |
| Theme 2 | Instructional adjustments as a result of formative assessment |
| Theme 3 | Leveraging technology in the formative assessment process |

**Theme 1: Teachers as Facilitators in the Formative Assessment Process**

From this overarching theme, several patterns were revealed. All the participants shared their understanding of what formative assessment meant, with most of them discussing the practice of goal setting as a precursor to all other activities that the students engaged in. Also, they described the various practices that they utilized to support the learning process through the use of formative assessments. The practice of peer and self-assessments was also described by some of the participants as strategies that placed the students at the center of the learning process. Finally, the teachers described the practice of sharing power in the classroom as a strategy that helped to make students more accountable and to take more ownership of their learning.

**Goal setting.** Most participants claimed that formative assessment was a process in which feed up, or goal setting, provided them and their students with a road map of where they were and where they needed to go. Although they acknowledged that there were challenges, the participants claimed that setting goals enabled students to track their progress and to know when they had achieved their target. Evidence of this was seen when E1 and E2 described the goal setting process in their classes. Both participants indicated that goal setting was a very critical aspect of the formative assessment strategies that they used in their instruction. According to E1, "they start the school year with goals that they have to set for themselves. After that… they set smaller, more reachable goals…then they would set the goals of how many chapters they might read this week…before they accomplish this..."

Although the participants claimed that feed up was very important in formative assessment, they acknowledged that there were challenges in this process of setting goals. The main challenge highlighted by the participants was setting goals in mixed ability classes because the rate of students' progress differed significantly. In the words of M2, he stated,

> We always have what we refer to as heterogeneous classes, where the abilities can sometimes be close or sometimes it can be very wide and vast. So, when you're doing feed up, in terms of setting objectives for the improvement of all students, you're gonna have to literally create almost different types of strategies, different types of lessons within one.

**Supporting learning through the use of formative assessments.** In discussing how they supported their learners, the participants mentioned several strategies that they used to ensure learning was occurring. One strategy that all the participants cited as foundational to the formative assessment process, which provided support for learning, was the gathering of evidence to know where their students were, as this not only helped them to determine the students' learning needs but also how best to guide them towards achieving their goals. According to SS1, the usefulness of formative assessments depended on teachers gathering information on the progress of their students and using that information to make decisions on how to move forward with a specific group of students. Additionally, M2 stated that formative assessments could be used to support learning when "a teacher can determine the level to which teaching objectives have been met, in terms of students understanding, based on evidence gathered through various processes."

The participants also underscored that this gathering of evidence became even more useful if it was an ongoing activity during each period of instruction. They all agreed that continuously checking for understanding as they went through a lesson helped to determine whether students grasped or did not grasp the concepts taught and what could be done to support those who did not understand. In the words of S1, she stated, "I do it throughout the lesson…at least two or three times throughout a particular lesson there would be some sort of check for understanding, and that's where you could do that quick formative assessment."

A second strategy that the participants referred to as a way of supporting learning was to provide feedback, so students were aware of what they already know and what else they needed to do to reach their learning targets. In his discussion of this strategy, M1 stated that in giving feedback, "I try to make sure that they get it in a timely manner, so they can really see where they went wrong or where they are going right." In agreeing with this practice, E2 highlighted that sometimes it required teachers having to engage in one-on-one conferences so that students understand what else they had to work on.

The participants also stated that in giving feedback, the focus was on content, and as such, teachers should be intentional in the kind of feedback that they gave to their students. Although most participants indicated that they were intentional in their effort to focus on content, S1 emphasized this issue by repeatedly stating that teachers must be so intentional that content-related feedback was incorporated in their lesson planning. In her words, she stated, "Once I plan out the actual instruction for that 50-minute lesson, then I intentionally incorporate where those feedback would best go."

Another strategy that the participants described as a way of supporting their students' learning was to provide opportunities for collaboration and independent learning through group work. The participants described how they used group work to address the learning needs of their students without taking on the central role during the lesson. For instance, M2 and E2 discussed putting students in groups to complete projects that not only fostered teamwork but also promoted independent learning, in which students relied more on each other and less on the teacher. According to M2, "What we've noted is students performed a lot better in group settings…we see the weaker

students being pulled along by the stronger students. That is very evident when we set group work."

**Utilizing peer and self-assessments.** Another strategy that the participants described, which placed them in the role of facilitator, was the use of peer and self-assessments. Some participants mentioned giving students a chance to engage in reflections and discussions on the work they had done, which promoted critical thinking while developing an awareness of what quality work looked like. They also discussed giving students opportunities to first assess the work done by their peers before giving their assessment by way of feedback. One such participant was E2, who stated, "I often do peer review. Sometimes they might write, and they would share with a partner first, and then as a whole class, we will share out what we have or what we discussed or what answers we have." Peer assessment was also evident when participants described activities in which students designed questions for each other to elicit evidence of learning. These participants claimed that this gave them the opportunity to correct any misconceptions or errors in the students' learning.

The participants also discussed using the students' learning outcomes to help them decide on the best way to achieve those goals. As such, they mentioned providing opportunities for students to reflect on their progress and what else they needed to learn. Evidence of this was seen when S1 described adopting her school's initiative of giving pre- and post-tests biannually, which helped the students to keep track of their progress. During this tracking process, she talked about 'pausing' for students to compare their results in the first pre- and post-tests with the second set of results. In such instances,

students could see the targets they achieved and how much progress they made during the school year. The reflection process was then followed by discussions on what to do to achieve the objectives that were not achieved.

**Sharing the power in the classroom.** Most participants discussed giving students opportunities to choose their topic and method of presentation for their projects, the group they preferred to work with, and allowing weaker students a choice of how much work they can cover in a given period. Some participants even talked about permitting their students to choose the deadline dates for submitting their work, which helped them be more accountable for their learning.

Each participant described the giving of projects as essential because it was a curriculum requirement heavily weighted in the students' annual assessments, and promoted critical thinking and independent work. They also mentioned giving students certain privileges that allowed them to be more independent and take ownership of their learning. According to SS2 "they choose the topics on their own…they choose the one that best speaks to them because I think that would encourage or motivate them to do the research."

In E2's discussion, she highlighted negotiating with weaker students how much work they were willing to commit to so that they were covering the required skills as the other students in the class. She mentioned that they might take longer to complete their tasks, but what was important was that they demonstrated a knowledge of the content and a mastery of the skills. M1, in describing his power-sharing strategies, discussed how he allowed his students to select the deadline dates for their out of class assignments. He

claimed that it was a way of making them accountable for completing their work in a timely manner.

**Theme 2: Instructional Adjustments as a Result of Formative Assessment**

Most participants stated that formative assessment was most useful when teachers utilized the evidence they gathered concerning students' progress to adjust their instruction so that they meet the learning needs of the learners. The participants described the adjustments and accommodations that were made based on the feedback given to students. Some participants described how goals had to be adjusted based on the pace at which students were progressing. Also, they described feedback that led to adjustments in feed forward activities. Additionally, they discussed how these instructional adjustments provided opportunities for students to improve their performance.

**Utilizing feedback to make adjustments.** All the participants underscored that feedback was the main reason for instructional adjustments. In their discussions, some participants mentioned that adjustments, based on feedback, were anticipated and included in the lesson planning. The teachers further explained that these anticipated adjustments were likely to occur after some form of assessment had been done. The feedback from this activity would be the basis for making changes.

The participants also highlighted that the type of feedback, which led to instructional adjustment, was dependent on students' needs and what they must do to improve their performance. Some teachers described having one-on-one conferences with individual students who kept failing foundation skills. From those conversations, they made their decisions to conduct tutorials to help students master the skills. Others

described cases where most of the students did not understand a topic, and in such cases, they had to re-teach the entire lesson, using different strategies, in order to meet the learning outcomes. In cases where only a few students did not grasp the concepts taught, participants mentioned that they conducted small group sessions with those who needed support.

Additionally, participants indicated that feedback could be formal or informal, which determined whether adjustments were necessary and for whom. For instance, the teachers mentioned using informal feedback for low stakes objectives, while formal feedback was used for high stakes objectives. For low stake objectives in which there might be no adjustment, SS2 stated, "They can circle the emoji or emojis to tell me what they did not understand or what they liked about the lesson." On the other hand, for high stake objectives in which she made adjustments, she stated, "Sometimes, I bring a child to the desk and actually explain the markings I've put on the papers. I just find that it is extremely useful in helping the students to improve."

**Utilizing feed forward to make adjustments.** In discussing the use of feed forward to make instructional adjustments, participants mentioned two main aspects of this process; they either increased or decreased the level of difficulty in knowledge or skills. One participant who cited instructional adjustment in feed forward claimed that this strategy was most useful when students were able to increase their knowledge. For this reason, the level of difficulty was increased to encourage students to learn more, especially when they engaged in projects and other forms of independent tasks. Further

explanations were given, which indicated that these changes added variety that captured

the interest of the students.

On the other hand, several participants who worked with mixed-ability groups

discussed reducing the complexity or quantity of independent work for struggling

students who had challenges learning specific knowledge and skills. According to these

participants, they would adjust their instruction for students who lacked the foundation

skills to complete a task. The teachers talked about how they began with the basics before

providing activities where students had to apply those foundation skills to work at the

intermediate level. In discussing his reason for making adjustments based on students'

ability to complete feed forward activities, M1 stated, "You can't build a house without a

foundation. The child has to have that background knowledge. Without a doubt, I would

abandon the extended activities at that point and teach the children what they need to

move forward."

All the participants mentioned that they made instructional adjustments when

students did not comply with integrity rules in their independent activities. They all

discussed having to monitor students closely when they gave them projects to ensure that

the students were doing the work by themselves and not relying on other sources. They

described challenges with students who plagiarized from the Internet and their

adjustments to ensure students used this resource appropriately. This is evident when SS1

stated,

The biggest challenge is that students will go on the Internet and find answers,

regardless if they know. They're gonna go on Google and boom, boom, boom; and you

can see exactly when they have copied and paste a particular thing from it. When I give

them my feedback, I make sure I try to get them to redo the work because I wouldn't

want them to get a failing grade.

In sharing their alternative techniques, participants also talked about asking weaker

students to make models or construct games as opposed to writing a research paper.

**Utilizing feed up to make adjustments.** Most participants who taught mixed

ability groups highlighted that they had to make instructional adjustments as a result of

feed up. These participants mostly talked about students who were unable to achieve

curriculum goals, which meant making adjustments to their instruction and the learning

objectives the students were required to achieve. In discussing this issue, teachers

claimed that setting targets came down to understanding what students can achieve.

Therefore, the goals of the weaker students were adjusted to either require less content or

a reduction in the difficulty level of the curriculum's skills.

In contrast, the goals for the stronger students were adjusted to reflect more

advanced work. In the words of E2, she stated, "It's the same baseline objective for

everybody, but it starts to look different when a student takes a bit longer to read or write.

So, I might say, okay, let's make your own goal." Teachers also discussed comparing

students' performance with the curriculum objectives and adjusting their instruction to

achieve those outcomes that were not attained.

**Student improvement.** All the participants concurred that formative assessment

strategies contributed to student improvement. While some participants described student

improvement in the context of changing attitudes, others cited higher grades as evidence

of better performance. The participants who described improvement from the perspective

of students changing their attitudes highlighted higher motivation and engagement as the

main reasons for their beliefs. On the other hand, those who mentioned higher grades

acknowledged that they relied on the school's grading system to determine students'

progress because the district was driven by examination results.

E1 was one of the participants who claimed that formative assessment, especially

feedback, resulted in student improvement when she stated, "I do see results. I do see

them making the effort. Sometimes they don't always hit the bullseye right away. Not the

next assignment, but as we continue the process of sharing and learning the

improvements do come." Other participants mentioned that formative assessment resulted

in their students being more motivated, and that was seen in their willingness to get the

work done. Participants further claimed that during formative assessments, students

focused more on building their skills, as opposed to doing just enough to get an 'A', and

this attitude demonstrated that students were taking ownership of their learning.

Several participants gave detailed accounts of their success stories that revealed

the level of improvement students made. Those who described improvement from the

perspective of students becoming more engaged and attaining higher scores measured

their progress against the school's grading system. In M1's description of the kind of

improvement students made, he recalled a specific student who started with a score of

30% but demonstrated almost weekly progress to attain 80% by the end of the term.

**Theme 3: Leveraging Technology in the Formative Assessment Process**

All the participants articulated that the unexpected change from face-to-face instruction to virtual learning, as a result of the COVID-19 crisis, was challenging for them and their students. For this reason, the use of formative assessment strategies was reduced as teachers and students tried to maintain some sense of normalcy while dealing with the sudden transition from a physical to a virtual setting. Participants also indicated that relying on websites to conduct formative assessment was an opportunity for them to find new and creative ways to enhance their instruction.

**From face-to-face to virtual instruction.** The COVID-19 crisis was the result of a rapidly spreading virus that led to a global pandemic at the time of this research. The rippling effect of this catastrophe led to an island-wide lockdown that affected the school district in which the participants lived and worked. As a result of the crisis, the Ministry of Education mandated that all schools in the district must be closed—including the research sites of this study—and instructed all teachers to conduct online teaching from their homes. According to the participants, this unexpected shift from working in a brick-and-mortar structure to a virtual classroom led to several challenges, but there were a few benefits to be derived from this new mode of teaching.

One of the significant benefits of engaging in virtual instruction was that the participants could blend synchronous with asynchronous learning. Both SS1 and E2 claimed that the blended approach was more beneficial in preparing students to succeed in a 21st-century environment. These two younger participants also stated that leveraging technology proved helpful when students have group work because they can work on

their projects at any time, even if they have other commitments. This view was supported by their claim that working in a virtual setting allowed collaboration to occur without students being obligated to meet at a set time, in a set space.

Another benefit of leveraging the technology, which the participants described, was that the lack of physical interaction with the students resulted in the students taking more responsibility for getting their work done. This emerging autonomy amongst the students resulted in many demonstrating increased levels of independence. The teachers shared the belief that working in a virtual classroom allowed the students to be less reliant on them; instead, the students used the Internet or their books and did their work because they did not have immediate access to the teachers. In the words of M2, he stated, "The virtual platform has forced them to be very independent in terms of being able to use their resources. The teacher is not necessarily the person walking and coming in with the big book and putting knowledge there."

Some participants also described the benefits of seeing reticent students, before the start of virtual teaching, became more engaged and participated more in the lessons. Both M1 and S2, in recounting their experiences about the benefits of using online instruction, described several students who were quite reserved in the physical classroom but who began asking and answering questions during the online sessions. These teachers expressed the belief that the change in the students' attitude may have been the result of not being in the same room as their peers, which minimized fears of being ridiculed.

On the other hand, the participants described several difficulties that came with virtual teaching. The most common problem cited was technology, as many students had

poor Internet service or devices that did not work efficiently. Participants mentioned issues such as students not having Internet or WiFi services at home, students attempting to use devices that were incompatible with the mandated learning platform, students experiencing problems when they tried to log into the Internet or the learning platform, or students' Internet signal failing in the middle of a lesson. According to the participants, all those issues made online teaching very challenging for them and their students.

Another common problem that all the participants described related to the loss of physical contact in the virtual classroom. They acknowledged that they were never sure whether students remained focused on the lesson for the entire session because they were unable to see them and observe what they were doing physically. In describing her uncertainty about students being in the classroom, S1 stated, "Some students work well in that situation, and they're always answering the questions…and then you have to remind yourself to look on the screen and see who else is online. Are they still there or doing something in the kitchen?"

It was sometimes necessary for some participants to physically help students with a task, or when they asked students to do hands-on activities, it was difficult to observe whether they were doing it correctly in the virtual setting. Both M2 and SS1 highlighted their struggles with physically assisting students who were engaged in hands-on activities. These participants revealed that subjects such as mathematics and social studies contained topics requiring psychomotor skills. In the online setting, it was impossible to physically assist the students who were not doing the hands-on activities correctly. M2 also described his challenges with not giving feedback in real-time when he

stated, "We no longer have the ability to observe students as they work where you can pick up on errors and offer instant feedback. Sometimes feedback can result from a puzzling look on a face." Additionally, they faced the problem of not having enough contact time to repeat instructions and wait for students to correct their errors due to a reduction in the amount of time for each session. This problem was worse for students who had to share their laptop with other siblings.

The participants also described the difficulties they faced with students who exploited the privilege of not being in a physical setting with the teachers and their peers. Some acknowledged that easy access to the Internet resulted in students being less than honest in getting their work done. They narrated instances where students plagiarized information from the Internet and missed opportunities to master new skills or understand new knowledge. As a result of all these difficulties, participants admitted that they were not able to complete as much formative assessment activities as they did before the lockdown.

**Utilizing websites during formative assessment.** Despite all the challenges with a less than perfect Internet service and students and their devices, all the participants described their total reliance on websites to keep the learning process going. Both SS1 and M2, who gave the most in-depth descriptions of how they used websites, not only emphasized their total reliance on technology to conduct classes but indicated how using these websites during formative assessment had transformed learning. According to SS1, "I mean…it's all virtual. Sometimes I try some formative assessments where we are having face-to-face class online, but all of it comes back down to being online."

The greatest challenge that the participants highlighted was that they all had to find creative ways to ensure that students were learning the necessary skills and knowledge and doing it in a way that kept the students engaged. As such, they described a variety of websites and other online resources that they used in the formative assessment process, most of which applied to feedback and feed forward. M1 stated, "We have been using several websites…Quizizz, Seneca Learning, MyiMath…to facilitate everything. The MyiMaths has a feedback tool to it where you can allow the children to see what the correct answer is when they got it wrong." Despite the difficulties, the participants indicated that one of the advantages of using these online resources was that they were non-threatening as students had the opportunity to redo activities and, in some cases, learning occurred in a fun way such as when they used Kahoot.

**Discrepant Cases**

In reporting the findings, it was significant to acknowledge that there was only one instance where the data presented did not conform to what most participants described. It is essential to highlight this to create a realistic view of teachers' best practices and preserve the validity of the data collection process. This case related to feed up in which one participant gave no data on how this strategy was utilized in her instruction. She expressed the view that if a syllabus or curriculum had already stated the learning outcomes, the teacher did not need to involve the students in setting goals because they were already written. She also believed that involving the students in feed up activities was giving them too much authority and would delay the teacher's ability to meet the targets of the syllabus.

**Summary**

In response to the research question, the results for this study were drawn from eight individual interviews conducted with public high school teachers. Overall, this study revealed the best practices of high school teachers who utilized formative assessment strategies such as feedback, up and forward, as a means of improving students' performance. After scrutinizing the data, several key findings were revealed that highlighted what teachers indicated as their best practices. These key findings emerged from three overarching themes: teachers as facilitators in the formative assessment process, instructional adjustments resulting from the formative assessment process, and leveraging technology in the formative assessment process.

There were four key findings under the theme of teachers as facilitators in the formative assessment process. First, participants indicated that as facilitators, they utilized best practices such as goal setting to guide their students towards achieving their learning outcomes and enabled them to track their progress in the process. Participants also indicated that continuously gathering evidence about their students' performance kept them informed about the students' progress and how best to guide them.

Additionally, the use of self and peer assessments were best practices that the participants discussed as a way to get their students to reflect on their progress and what else they needed to learn to achieve their goals, as well as to help their peers with assessing their work; this, in turn, helped the students recognized quality work. Finally, the participants discussed that a best practice of teachers who were facilitators was a willingness to share the power in the classroom. In other words, they allowed the students

to make some choices that helped them play a more active role in their learning, which encouraged them to become independent learners.

Under the theme, instructional adjustments as a result of the formative assessment process, four key findings were also identified. Participants indicated that a best practice was to utilize feedback when making instructional adjustments to ensure that learning occurred. During this feedback process, teachers continually assessed the students and made pedagogical changes that allowed them to improve their performance.

The participants also indicated that another best practice was to utilize feed forward to make instructional adjustments as this was integral in helping students become independent learners. In addition, participants revealed that the use of feed up was a basis for instructional adjustments because the practice of setting goals provided a learning outcome guide for the students and prepared them to monitor their progress. Finally, all the participants agreed that the practice of adjusting their instructions based on these three formative assessment strategies—feedback, up and forward—contributed to student improvement.

There were two key findings that emerged from the final theme of leveraging technology in the formative assessment process. The participants indicated that suddenly transitioning from face-to-face to virtual instruction was challenging, but the practice of utilizing the available technological resources, such as Zoom and Google Classroom, helped them to continue the learning process. Furthermore, participants indicated that although there was less time to engage in formative assessments, the use of websites in

this process provided a wealth of tools and strategies that kept the students engaged in their learning.

Chapter 5 consists of an introduction that reiterates the purpose and nature of this study and concisely summarizes the key findings, an interpretation of the findings which describes the way these findings are comparable with the review of literature, as well as analyzes and interprets the findings in the context of the conceptual framework. This final chapter also includes discussions on the limitations of the study, recommendations for future research, and social change implications. The conclusion of chapter 5 highlights the key message of the study.

Chapter 5: Discussion, Conclusions, and Recommendations

**Introduction**

The purpose of this basic qualitative study was to gain an understanding of what

high school teachers indicated as the best practices for the use of feedback, feed up, and

feed forward and to show how students' performance improved because teachers were

using these formative assessment strategies. Semi-structured interviews were used to

probe for the rich details, which described what teachers believed were students'

responses to their use of formative assessment strategies and whether there was

improvement in students' performance. The significance of this investigation was

grounded in the belief that academic performance or students' success is influenced by

the strategies teachers used (Dobrick, 2016; Furtak et al., 2016). The findings that I

presented in this study were grounded in Hattie and Timperley's (2007) learner-centered

instruction conceptual framework. Therefore, I will discuss how this conceptual

framework was used to interpret the data.

**Interpretation of the Findings**

The results established that utilizing formative assessment strategies such as

feedback, up, and forward, will lead to improvement in student performance. The key

findings, from these results, confirmed previous research suggesting that the formative

assessment cycle is a process that leads to improvement in academic performance if

teachers focus not only on feedback but also on feed up and feed forward (DeLuca &

Volante, 2016; Dobrick, 2016; Ellis & Loughland, 2017; Furtak et al., 2016; Magno &

Lizada, 2015).

The first key finding was that teachers as facilitators in the classroom set goals that provided a guide for students' learning, and this best practice became even more useful when students were involved because they were able to track their progress and know when they had achieved their targets. This supported researchers' claim that students will become more engaged and perform better if they fully understand what is expected of them in terms of their learning goals (Konopasek et al., 2016; Pyper, 2018; van der Kleij, 2019). My research also revealed that a best practice of teachers was to continuously gather evidence that helped them know the academic status of each learner. Gathering evidence was foundational to formative assessment that is focused on improving students' performance (van der Kleij, 2019).

The third key finding was the practice of using peer and self-assessment which gave students the opportunity to comment on each other's work as they reflected on their goals and what else they needed to learn to achieve those targets. This confirmed research indicating that a key pedagogical practice for teachers is to make peer assessment part of the classroom culture (Jónsson et al., 2018). My research also showed that teachers who gave students some power in the classroom made them more accountable for their learning, a practice that included letting students choose how much time they needed to complete an assignment. This practice agreed with the research, which stated that teachers found formative assessments more meaningful when they gave students choices as that was a better way to promote learning (Gan et al., 2017).

The fifth key finding was the practice of teachers adjusting their instruction, based on feedback, as a means of giving students a chance to improve their performance. This

meant that teachers were continuously assessing students throughout a lesson and making the necessary pedagogical changes to ensure that learning was occurring. This supported research arguing that teachers need to continuously assess their students and make the necessary adjustments to their instruction (Andersson & Palm, 2017). A similar finding was the practice of adjusting instruction based on student performance in feed forward activities—that is, teachers either increased or decreased the level of difficulty in knowledge and skills which helped students, in mixed ability groups, either master specific skills or become more autonomous in their quest for knowledge. This finding supported the research that claimed that the feed forward phase was the most potent stage of the formative assessment process because that was when students were empowered to apply the knowledge and skills that extended their learning and gave them opportunities to create their own knowledge (Egelandsdal & Krumsvik, 2017; Karlsson, 2019).

The seventh key finding, like the previous two findings, was the practice of adjusting instruction based on the use of feed up or the setting of goals to achieve learning outcomes, which was most applicable to mixed ability groups. In this practice, teachers adjusted their instruction if students were unable to achieve their learning targets or exceeded them. This confirmed researchers' claims that students who fully understood what was expected of them will become more engaged and performed better (Konopasek et al., 2016; Pyper, 2018; van der Kleij, 2019). My research also revealed that teachers who adjusted their instruction, based on the use of formative assessment strategies, witnessed improvement in student performance that was evident in the form of a more positive attitude as well as the achievement of higher scores on assignments. This

confirmed researchers' claim that formative assessment is not only fundamental to student improvement but that it leads to a more positive attitude with students expecting, valuing, and actively participating in the process (Geitz et al., 2016, McElhany, 2017, Small & Attree, 2016).

My research further revealed that teachers continued their practice of using formative assessment strategies despite the unanticipated change from a physical to a virtual setting—a shift that created several challenges as they tried to interact with their students. One benefit, however, was leveraging technology that enabled teachers to give students more autonomy and engage more with the quieter students for whom the loss of physical contact gave them more courage to participate. The tenth key finding was that teachers' best practices became dependent on websites to keep students engaged in the formative assessment process as teachers were left with no option but to use a variety of online resources that students found not only engaging and helpful but non-threatening.

The last two findings, which were teachers' responses to the COVID-19 pandemic, did not align with the research referenced in this study. However, their significance was relevant to the inquiry and revealed the best practices of teachers who were able to leverage technology to ensure that the teaching and learning process continued despite a global crisis that threatened the stability of school operation.

**High School Teachers Best Practices for the Use of Formative Assessment Strategies**

The key findings of this study were guided by the conceptual framework of learner-centered instruction with a focus on the utilization of formative assessment strategies, such as feedback, up and forward. Hattie and Timperley's (2007) concept of

learner-centered instruction emphasizes giving students more opportunities to take

ownership of their learning so that they became creators of knowledge. Teachers' use of

formative assessment strategies, such as those being investigated in this study, are

fundamental to students taking ownership of their learning to become creators of

knowledge (Hattie & Timperley, 2007; Nicol & MacFarlane-Dick, 2006; Weimer, 2013).

Against this background, the concept of learner-centered instruction with a focus on

formative assessment strategies formed the framework for interpreting the findings within

this study on high school teachers' best practices.

The key findings that emerged from the research question were related to three

main themes: teachers as facilitators in the formative assessment process, instructional

adjustments as a result of formative assessment, and leveraging technology in the

formative assessment process. The first theme, which indicated that the participants saw

themselves as facilitators as opposed to central figures in the classroom, suggested that

these teachers had transitioned from teacher-centered to learner-centered instruction. The

first four findings—setting goals, gathering evidence, using peer and self-assessment,

sharing the power—also confirmed that the participants recognized the students as central

to the learning process with their role being to guide them.

The second theme revealed that participants were adjusting their instruction based

on all the strategies that were part of the formative assessment process. For this reason,

findings five to eight—utilizing feedback, feed forward, feed up, and student

improvement—highlighted the various ways teachers were making pedagogical changes

in their use of the formative assessment strategies and how these were contributing to

student improvement, which was a key best practice of teachers who supported learner-centered instruction. These instructional adjustments provided further evidence that teachers saw their students as the central figures in the classroom. The last two findings revealed the tenacity of the teachers who were not deterred by the COVID-19 crisis but found creative ways to leverage technology as a way of engaging their students so that they remain at the center of the learning process.

## Limitations of the Study

There were several limitations in this study related to the design and may have influenced the results. One limitation was the small sample size of eight teachers in a district where approximately 700 teachers served. Furthermore, the criteria required for participating in this inquiry was that teachers had served the district for a minimum of 2 years, taught a core subject, and utilized formative assessment strategies in their instruction; as such, these criteria placed a limit on the number of teachers eligible to take part in this investigation. Another limitation was the number of public high schools in the district. The focus of this study was at the public high school level, and there were only two public high schools in the district. Teachers were chosen from different subject areas to address this issue of limited eligible participants and to add richness, depth, and diversity to the data received.

As the key instrument in the research, I was responsible for coordinating the recruitment of participants and collecting, interpreting, analyzing, and reporting all data; therefore, the potential for researcher bias was a possibility. There might have been biases since I served in the district for 10 years, and I am familiar with some school

leaders, teachers, the curriculum, and assessment practices. The fact that I am a former employee was also grounds for ethical concerns relating to the type of questions used in the interview process. I made every effort to minimize bias during the recruitment process by randomizing participants' selection through a request for the e-mail contact of all core subject teachers, in both public high schools, and inviting them to participate. The first two from each subject who returned their consent e-mails were selected. Furthermore, I endeavored to stay in my role as a student during the data collection phase, refraining from responding to any query that placed me in an expert's role.

Additionally, the basic qualitative study approach placed limits on the transferability of the results. Since the eight participants all resided in the same small district, the data collected only applied to that group and could not be generalized to a larger population unless other groups share similar characteristics. Moreover, teachers utilizing learning strategies such as feedback, up, and forward were individualistic; therefore, it was limiting to generalize with these results. To counter these biases, I used memoing to record my reflections on the assumptions I made during the inquiry. I also asked three knowledgeable colleagues to preview my interview questions to ensure that they were open-ended and not biased or leading, and I kept a recording of participants' responses to avoid errors in interpretation. Lastly, participants were asked to review a transcribed version of their interview to further assist with eliminating information that misrepresented their intended meaning.

## Recommendations for Future Research

The recommendations for future research are grounded in the strengths, limitations, findings, and literature reviewed for this study. The first recommendation is that future research duplicate this study and complement the interviews with other forms of data such as observation and document review. I recommended that other instruments be used to confirm the findings because select teachers' experiences substantiated the results of this research. The use of teachers' lesson plans, observations, and students' published results can provide further evidence of the usefulness of formative assessment strategies. By reviewing teachers' lesson plans, researchers will have a better understanding of what strategies were used and how they were used in a lesson. Observations would serve a similar purpose, with researchers seeing how teachers used formative assessments and the students' responses. Additionally, reviewing documents such as students' reports or published examination results can help verify teachers' claim that formative assessment strategies leads to improved performance.

The second recommendation is to replicate this study in other districts using similar sample size and criteria: teachers with a minimum of 2 years' experience who teach in a public high school and utilize formative assessment strategies. By conducting a similar investigation in another setting, researchers can establish the transferability of the current study, and that will add to the trustworthiness of the results and findings.

The final recommendation for future research is to repeat this study with teachers who work in virtual classrooms. Since the literature reviewed for this project focused only on teachers in physical classrooms, and the participants experienced working in both

physical and virtual settings, the research can be extended to compare online teachers'

best practices in the use of formative assessment strategies with teachers in physical

classrooms.

## Implications for Positive Social Change

The results of this study provided several contributions to positive social change.

The first contribution was students developing a better understanding of the purpose of

formative assessment strategies such as feedback, up and forward, which could lead them

to have a positive attitude towards the process. The findings for this study showed that

students who benefited from these strategies tend to expect, value, and utilize them and

actively participate in the process as a means of improving their performance (Geitz et

al., 2016; Small & Attree, 2016).

Another contribution to positive social change was the improvement for the

profession as teachers gained a better understanding of the factors that helped them

successfully implemented feedback, up and forward. The findings revealed that teachers'

who were willing to take on the role of facilitators and make adjustments to their

instruction to help their students would contribute to the improvement of their profession.

The findings also showed that best practices, such as leveraging technology to support

learning, helped them stay current with changes in the available resources that kept

students engaged during teaching and learning.

This study can also contribute to positive social change if administrators

developed policies that help teachers implement these learning strategies more

successfully. The findings also highlighted that formative assessment strategies could be

challenging for teachers who worked with mixed ability groups. The intervention of administrators could help to provide the support teachers needed to overcome these difficulties.

This study provided an opportunity for teachers to demonstrate that using feedback, up and forward, were useful strategies that could help close their students' achievement gaps. However, this would require the combined effort of students, teachers, and administrators to make this a reality.

## Conclusion

The purpose of this basic qualitative study was to gain an understanding of what high school teachers indicated as the best practices for the use of feedback, up and forward, as they attempted to address the problem of the underutilization of these strategies in the classroom. The results from this study extended the research on this issue and confirmed the belief that the integration of all three strategies not only improved academic performance but helped students become creators of knowledge. Based on the results, this study revealed that participants as facilitators, who were prepared to make instructional adjustments so that learning continued, witnessed improved performance in their students. The results also showed that teachers who leveraged the technology so that teaching and learning continued provided a creative alternative to face-to-face instruction that helped students improve their performance.

Although these results were not generalizable as the study only involved eight public high school teachers and their experiences may not reflect the experiences of the nearly 700 other teachers in the district, the results had the potential for positive social

change for students, teachers, and administrators. Students who had a clear understanding

of the purpose of formative assessment strategies not only valued and used them but

actively participated in the process as a means of improving their performance (Geitz et

al., 2016; Small & Attree, 2016). On the other hand, teachers had a better understanding

of how they could implement these strategies successfully and could share their

experiences with other teachers to advance the profession. Meanwhile, administrators

would be able to develop policies to help teachers implement formative assessment

strategies more successfully. The effort of all three groups—teachers, students,

administrators—would help to bridge the gap between instruction and student

achievement.

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Appendix A: Interview Protocol

| |
|---|
| Research question: What do high school teachers indicate as the best practices for the use of feedback, feed up, and feed forward as a means of improving students' performance? |
| Date: |
| Time: |
| Venue: |
| Interviewer: |
| Interviewee: |
| Position of interviewee: |
| The research: A basic qualitative study to understand what high school teachers indicate as the best practices for the use of feedback, feed up, and feed forward as a means of improving students' performance. |
| Ice-breaker question (to elicit demographic information): <br> 1. What are you teaching this year, and how long have you been teaching this subject? |
| Teachers' knowledge of the formative assessment process: <br> 2. Please share with me what you know about the process of formative assessment? <br> 3. What aspects of formative assessment strategies, such as feedback, feed up, and feed forward, were easy for you to implement? Describe for me any challenges you or your students faced during the use of these strategies? <br> 4. What kind of support do you give to your students after you start using these strategies? |
| Teachers' knowledge of the procedure: <br> 5. Describe for me how you use strategies, such as feedback, feed up, and feed forward in your classroom? <br> 6. In what ways do you believe these strategies are useful in improving student performance? |
| Conclusion: <br> 7. How has developments in the COVID-19 crisis influenced your use of formative assessments strategies such as feedback, feed up, and feed forward? <br> 8. Is there any other comment you would like to share about the use of these formative assessment strategies? <br><br> Thank you for taking the time out of your busy schedule to participate in this interview. Please be assured that all responses will be treated with the utmost confidentiality. Also, I will send a copy of the transcribed version that you are free to revise for clarification. Finally, if you have questions later, please feel free to contact me; or if you wish to discuss your rights as a participant in my research, you can contact Walden's Research Participant Advocate mentioned in your consent form. |

Appendix B: Samples of Emerging Themes and Patterns During Coding

| | Teachers as facilitators in the formative assessment process | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Codes | E1 | S1 | SS1 | M1 | E2 | S2 | SS2 | M2 |
| Goal setting | "they start the school year with goals that they have to set for themselves" | "they might say, which objectives am I not clear on" | "feed up, that is where you are actually trying to let the children know the intended outcomes" | "I want the child to see where they started and where they ended up" | "He might say, I can read the first 10 pages… and that would be his objective" | "you're supposed to involve the students in the goal setting" | "Sometimes we may not reach the goals because of time constraints" | "setting targets in terms of growth" |
| Supporting learning | "making sure that my students understand what's going on" | "it gives you insight to changes that you might need to make for the student" | "they could come back for tutoring sessions" | "making sure that my students fully understand any topic that I have taught them" | "I might have to sit with them and have a sort of a conference to explain" | "go back and look at… and let's have a conversation about it" | "I can bring a child to the desk and explain the markings I've put on the paper" | "We do our activities in such a way where kids can work at their own pace" |
| Utilizing peer and self-assessment | "they become their own tutors and evaluators" | "whether it's a share with one another…for students to get that feedback" | "may even get some peer tutoring where I get some students to use more discussions to help other students" | "pair children together and let the children work together towards everybody understanding and being successful" | "we might write and we would share with a partner first" | "the children are so busy trying to work it together" | "they have to think on their own, they have to do the research on their own, and they choose the topics on their own" | "it also allows them to do a bit of self-evaluation and self-reflection on their own" |
| Sharing the power | "we discuss and share" | "so we're going to mix it up…sometimes you'll get to choose but today I'm gonna choose" | "I give students a set of topics that they may have done and what I would do is allow them to do is create questions based on the topics" | "I always ask my children or my students when is a suitable time for YOU to submit this" | "students would take more control of their learning" | "The children actually ask for it" | "it brings out their talent that I would never know they had, had I not given them choices" | "It gives them the opportunity to determine what their strengths and weaknesses" |

*(table continues)*

| | | | | Instructional adjustments as a result of formative assessment | | | |
|---|---|---|---|---|---|---|---|
| Codes | E1 | S1 | SS1 | M1 | E2 | S2 | SS2 | M2 |
| Utilizing feedback | "feedback is usually immediate" | "it helps you to get that quick feedback to be able to adjust either your lesson or adjust for the student in terms of their learning style" | "you use the information you get from the feedback to determine how you're gonna teach your upcoming lessons" | "I try to make sure that they get it back, in a timely manner, so that they can see what went wrong or where they are going right" | "That's sometimes a quick way of gathering information to help you inform instruction" | "I look at the results in detail to say, well we didn't cover photosynthesis in detail so let me change my lesson plan for the next set of students" | "the emojis that show that they didn't understand, I saved them and I trashed the others. Then I say, next class you need to address this" | "it is the students then using the feedback for future references in order to improve on the level of work" |
| Utilizing feed forward | "I set a lot of activities for them that require them to be critical thinkers" | "you constantly have to make adjustments giving some of those students more extended activities when they feel confident enough" | "to give them some extra work, maybe some independent work to see if they can pull it off at a different time on their own" | "the stronger children will breeze through the easy and intermediate questions and want to focus more on the harder questions" | "I will provide them with a difficult or different task that provides them with a greater challenge" | "I personally know that I have to change the way I ask for some of the projects" | "I don't give a lot of homework, but I give projects; that is, independent work" | "you always have in your lesson what you would do for that student who gets it and is able to complete the task before the end of the lesson" |
| Utilizing feed up | "I do not teach the same class the same way every year" | "you kind of reinforcing it the next day to see if the students actually achieve that objective" | "I'm normally able to get a good gauge on how the lesson went and which outcomes I may have to go over" | "I like to know where the child is at because we have children that might be on different wavelengths" | "it's the same baseline objective for everybody, but it starts to look differently if I know a student who takes a bit longer to read or write" | "When it comes to goals and the feed up… it does help to give perspective as to where I can start with a particular content" | "This is something that I noted that many of them are having weakness in…my goal is to improve that weakness" | "they can then use that feed up at the beginning of the next lesson to determine what to do" |
| Student improvement | "as we continue the process of sharing and learning the improvements do come" | "I think that the strategies improve students' performance" | "If you give similar questions, at the end of the other lesson you will get an idea how many students would have met that objective" | "then you see the spark turned on, then they go to the intermediate question" | "It just demonstrates that they are taking the ownership of the learning" | "I had four success stories this year" | "I'm looking for what I told them to do, and when I see it, I'm very pleased, you know it's an improvement in their grade" | "you are going to monitor performance by growth, and have evidence that there has been growth" |

*(table continues)*

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Leveraging technology in the formative assessment process | | | | |
| Codes | E1 | S1 | SS1 | M1 | E2 | S2 | SS2 | M2 |
| From face-to-face to virtual instruction | "Remote learning is just that, too remote for me, too remote for them" | "within the whole Google Classroom platform…they have different types of assessment that you can use" | "Using virtual classes now, you're limited to some types of teaching strategies" | "we use the Zoom platform, which has allowed the children to be a little more independent" | "we're not physically in school, we're using remote learning… we absolutely 100% rely on that" | "it was painstaking. It really was, but there were some positives" | "The shift from face-to face to virtual learning gives you a chance to utilize more formative assessment using technology" | "With the platforms we have, we no longer have the ability for teachers to solicit information from the students as readily as before" |
| Utilizing websites in the formative assessment process. | "Do I want to do a Kahoot game?" | "giving them something to do in the Google Slides, whenever you could go back and you would mark it" | "You could use the games, the Kahoot, the Quizizz, you could find other creative ways of trying to see if the students understand" | "We have been using websites called Quizizz, Seneca Learning, MyiMath to facilitate everything" | "The only way that students can access me is through our Google Classroom…it's a lot harder to do any kind of formative assessment" | "we've used plickers just to, basically, engage and check for understanding" | "Someone shared with me a website called Quizizz. It's a game site, students absolutely, positively loved it. It gives immediate feedback" | "We have the Seneca, the MyiMath, we have the Quizizz, and every once in a while we use the GCSE Bitesize.uk" |