Culture of Learning: A Self-Study

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Abstract

The purpose of this self-study was for the researcher to discover how beliefs about learning impact how assessment for learning practices are implemented in a classroom. In seeking to inform the study and her practice, the researcher examined the literature in the areas of assessment for learning, growth mindset and language through the lens of her research question: As a classroom teacher, how do my conversations about assessment and the assessment tools that I use reflect my beliefs about assessment for learning and growth mindset? The researcher’s sources of data were her researcher journal reflections, self-designed assessment tools and audio recordings of classroom talk. The analysis of this data resulted in three themes: accountability of students, mistake making and the student-teacher learning relationship. The researcher concluded there were three insights into these themes: the spirit of assessment for learning requires belief and practice to be aligned, classroom decisions around assessment need to be based on student best interests and teachers need to be intentional and explicit about their actions and classroom practices.
# Table of Contents

Abstract .................................................................................................................. 2

## CHAPTER ONE: Introduction ........................................................................... 6

- Justification ........................................................................................................ 6
- Research Question ............................................................................................... 7
- Teaching Values ................................................................................................ 8
- Definition of Terms ............................................................................................ 10
- Overview of Research ....................................................................................... 10

## CHAPTER TWO: Literature Review ................................................................. 12

- Assessment for Learning ..................................................................................... 12
  - Teachers and learners as partners ..................................................................... 14
  - Teacher assessment beliefs .............................................................................. 15
- Growth Mindset .................................................................................................. 18
- Teacher Language ............................................................................................... 20
  - Language is social meaning making ................................................................. 21
  - Teacher language reflects intentions and beliefs ............................................... 21
  - Assessment conversations and beliefs .............................................................. 22
- Bringing the Three Themes Together ................................................................ 23

## CHAPTER THREE: Research Methodology ....................................................... 26

- Defining Self-Study .............................................................................................. 26
- Justification for the Methodology ...................................................................... 27
- Research Plans .................................................................................................. 27
CULTURE OF LEARNING: A SELF-STUDY

Journaling……………………………………………………………………………28

Recording classroom talk………………………………………………………..28

Analyze journals and talk………………………………………………………..29

Analyze assessment tools………………………………………………………..29

Analyzing the Data………………………………………………………………..30

CHAPTER 4: Findings and Results………………………………………………31

Theme 1: Accountability of Students……………………………………………31

My beliefs………………………………………………………………………….31

My practices……………………………………………………………………….34

My words………………………………………………………………………….37

Theme 2: Mistake Making…………………………………………………………38

My beliefs………………………………………………………………………….38

My practices……………………………………………………………………….42

My words………………………………………………………………………….45

Theme 3: A “We” Relationship…………………………………………………47

My beliefs………………………………………………………………………….47

My practices……………………………………………………………………….50

My words………………………………………………………………………….53

Conclusion……………………………………………………………………….54

CHAPTER 5: Discussion…………………………………………………………..55

Why Self-Study…………………………………………………………………..55

Linking Themes to Literature………………………………………………….56

Accountability…………………………………………………………………….56
Chapter 1: Introduction

Teachers and schools constantly communicate messages to students about their learning abilities, and grades can have long term consequences on social, emotional and academic aspects of their identity. As an educator, I believe that how teachers assess students and talk about the assessment process is meaningful and impactful. Words are powerful and create the classroom culture – one of earning marks or learning for learning’s sake. In my experience, for students to feel involved and empowered to improve in the learning process, assessment conversations need to center around growth mindset, allow for mistake making and give multiple opportunities to demonstrate understanding. Students need to be key members in the process, and have control over their learning.

Justification

I believe a significant problem for high school students is that they are more focused on marks than the learning process. This leads to anxiety and pressure to perform well at all times, hindering learning. Students are often asking and thinking “is this for marks?” and teachers are often viewed as the judge and evaluator, holding power over how marks are assigned. As a high school Mathematics teacher at Holy Cross Regional Secondary School in Surrey, British Columbia, I notice students entering my classroom holding many preconceived notions about their abilities in Math and most believe that people are born good or bad at Math. This makes it very difficult for students to believe that they can improve in their learning when they hold a fixed mindset. My students’ beliefs about themselves as Math learners are often based on prior experiences of Math being measurement driven, in which evaluations label their learning with marks. Overall, they are overwhelmed about being judged and graded.
CULTURE OF LEARNING: A SELF-STUDY

In my own schooling experience, I often felt that school was ‘done to me’ and I was constantly being judged and evaluated for how much I knew. While I did a good job of ‘playing the game of school’, I saw peers and siblings all experience school in such different ways. In my experience, marks and grades impact our identity and what we believe about ourselves. My siblings were told different things about their intelligence and abilities and weren’t always given opportunities to make mistakes and learn from them, and have multiple chances to demonstrate their understandings. School should be a place of growth and learning, not one of anxiety and worrying about marks and evaluations.

In response to the question, ‘How can I best meet the learning needs of my learners?’, for the past two school years I have not given percentages, marks or letter grades in my Math classroom. Students are assessed on each Math skill using four learning words that are part of a continuum: beginning, developing, accomplished and exemplary. Both students and I track their learning progression, and students are provided with descriptive feedback on how to improve in each skill. I believe that part of this feeling of being judged that my students experience is because many of them have not experienced being key players in the assessment process. Students in my classroom have the opportunity to demonstrate a higher level on the continuum at any time during the year, and the level where the learning finishes is most important. In my classroom I not only use assessment for learning strategies, but strategies to create a culture of growth mindset in the classroom.

**Research Question**

While assessment for learning practices have always been central to my teaching philosophy, over the last few years I have become more curious around how mindsets and students’ beliefs about themselves as learners are triggered by how teachers frame and discuss
assessment in their classroom. Assessment for learning cannot just be an add-on to classroom routines; it needs to be embedded in conversation, language and assessment tools. This paper focuses on teachers’ choice of language in creating a classroom culture in which learning is viewed as a process that occurs along a continuum. I have been asking myself the following questions: Will a teaching methodology that uses tools that show learning as a progression reduce this anxiety and focus on marks? What is the relationship between teacher words and conversation around assessment and creating a classroom culture embedded in assessment for learning principles? Are the language, tools and strategies I use congruent with my beliefs about student learning? My research question: As a classroom teacher, how do my conversations about assessment and the assessment tools that I use reflect my beliefs about assessment for learning and growth mindset?

Teaching Values

In my experience, classroom culture is not only created by what is said and done, it is created by the beliefs that motivate what is said and done. A combination of dialogue between teachers and learners and how the assessment process takes place is what creates a positive learning community. Conversations and actions need to consistently match and support each other. Telling students to believe in growth without tools that help them see improvement and track their learning is misleading. Using assessment for learning tools without discussing their purpose is confusing for students. I strongly believe that assessment for learning without meaningful conversations about beliefs is ineffective.

For me to create a classroom culture that promotes success for all students, I need to be a reflective practitioner and be purposeful in my approach to teaching and learning. Using classroom routines inconsistently or without understanding the purpose behind them often leaves
students confused. Teachers’ personal feelings and assumptions influence how student learning is addressed. As a teacher, I believe that teachers need to say what they think and why they think it. A strong sense of self knowledge means that a teacher is aware of their own assumptions, values and biases—which students easily pick up on. If teachers are not aware of their beliefs, the inconsistency between beliefs and actions will negatively influence their interchanges and relationships with students.

For the past two school years, assessment for learning has been the anchor of all the strategies used in my classroom, which I believe has created a culture focused on learning and improving. I believe assessment works best when its purpose is clear, and when it is carefully designed to fit that purpose. Teachers need to carefully plan what they are doing (the method) but also how they will use the results of the assessment toward the purpose. Techniques, routines, tools and structures are all used within a context of the classroom and relationships.

In my experience, teacher beliefs about their own learning as well as student learning, underpin the way assessment for learning becomes embedded in classroom practice. If the heart of assessment for learning is not understood or appreciated, assessment can be implemented as a series of ritualised teaching strategies. Students’ learning, then, can be impacted by how a teacher decides to assess learning, what they are assessing and when they assess. How the results of assessment are used tells students what a teacher believes the fundamental purpose of assessment is.

As an educator, I have seen students’ beliefs about learning shaped by how they interpret actions and words from the teacher. Teachers need to create conditions for learning that are consistent with principles of assessment for learning, an environment focused on learning, improvement and growth. One’s teaching philosophy and beliefs about learning guide the actions
taken in the classroom, so teacher beliefs need to be made explicit to students so they understand the purpose of the assessment tools.

**Definition of Terms**

1) **Assessment**

It is important to distinguish how the term assessment will be used throughout this paper. Assessment will be used to describe classroom practices that are used formatively to improve the learning. Assessment *for* learning, also termed formative assessment, happens while learning is still occurring, to diagnose student need and plan the next steps in instruction (Black & Wiliam, 1998).

2) **Evaluation**

The term evaluation is assessment *of* learning as it is summative in nature, in which teachers make a judgement about where a child is at in their learning and labels it with a mark or value. It is used to make statements of student learning status at a point in time, and is geared towards reporting at the end of the learning (Sadler, 1989). Evaluation is measurement driven, whereas assessment guides the learning process. The primary distinction between formative and summative assessment relates to “purpose and effect, not to timing” (Sadler, 1989, p.120).

3) **Growth Mindset**

Growth mindset is the belief that intelligence is fluid and can be improved with effort and practice. Blackwell, Trzesniewski and Dweck (2007) define growth mindset as “belief that intelligence is malleable (incremental theory)” (p. 246).

**Overview of Research**

To answer my research question ‘As a classroom teacher, how do my conversations about assessment and the assessment tools I use reflect my beliefs about assessment for learning and
CULTURE OF LEARNING: A SELF-STUDY

growth mindset?’ I will investigate my personal beliefs, practices and conversations within my classroom context. This paper works to explore the culture of assessment for learning rather than looking at the processes leading up to or the outcomes of assessment. I will be using self-study as my research methodology to explore my beliefs about assessment and growth and how those beliefs are reflected in my classroom practice. More specifically I will use journaling, audio recordings and analysis of assessment tools to investigate my research question. As a researcher I have strong beliefs about growth and assessment, and this self-study research will look at how my actions and words reflect them.
Chapter 2: Literature Review

The goal of this literature review is to investigate the impact of assessment for learning and growth mindset on student learning. It will then look at the literature on language and word choice of teachers and how this plays a role in creating a positive classroom culture. If assessment for learning practices and teaching a growth mindset positively impact student learning, then how teachers explicitly embrace their beliefs in conversation, language and assessment tools is integral to explore.

I plan to examine the literature using the lens of my own research question in regards to the alignment of my beliefs and practices. When situating my work within the larger academic discussion, one begins to understand that grades and numbers-based assessment practices reflect the belief that learning is measureable and that it is appropriate to place learners within a hierarchy. The practices that take place in the classroom are reflective of a particular learning culture or environment which raises the question of how language can both reflect and create a social world. The key themes that will be addressed in my literature review are assessment for learning, growth mindset and the influence of teacher language.

Assessment for Learning

Improving student achievement through the use of assessment for learning practices is well represented in the literature. Assessment for learning is defined by Black and Wiliam (1998) as the process used by teachers and students to recognise and respond to student learning in order to “enhance that learning, during the learning” (p. 141). Also termed formative assessment, assessment for learning practices take place during the teaching to make adjustments to the teaching process, so the divide between assessment and instruction blurs (Leahy, Lyon, Thompson, & Wiliam, 2005). Much of the research literature revolves around strategies such as
CULTURE OF LEARNING: A SELF-STUDY

wait time, sharing learning intentions, co-creating criteria for success, timely descriptive feedback, and peer and self-assessment (Hattie & Timperley, 2007; Black & Wiliam, 1998; Leahy et al., 2005).

Black and Wiliam, in their publication *Inside the Black Box*, (1998) identify five key factors that improve learning through assessment. First, teachers must recognize the profound influence learners’ motivation and self-esteem have on their learning. In addition, students need to be actively involved in identifying learning goals and establishing criteria for knowing when their goals have been achieved. There needs to be support for learners to self-assess, reflect on their learning and understand how to improve. In turn, teachers will adjust teaching to take into account the results of assessment. Finally, learners need to receive timely feedback (p. 141).

While Black and Wiliam are seen as the influential proponents of assessment for learning, their work has helped to launch a vast amount of formative assessment research. More recent work by Hattie and Timperley (2007) compiles 15 years of research and synthesises over 800 meta-analyses. This evidence-based research adds substantive and more current weight to the significant conclusions of the impact of assessment for learning practices, as a key finding of the study is that quality feedback is the most powerful influence to enhance achievement. This feedback has the greatest effect when teachers use information from their students to inform teaching (Hattie & Timperley, 2007; Hattie, 2009). Earl’s (2003) interpretation of assessment for learning is that there is more of an emphasis on engaging the student to play a role in the assessment process, which she terms ‘assessment as learning’.

Research has demonstrated a strong link between enhanced outcomes for learners and formative assessment. Repeatedly, research studies have demonstrated that, if learning is the goal of assessment, then it can be very powerful (Hattie, 2009; Black & Wiliam, 1998; Marshall &
Drummond, 2006; Swaffield, 2011). Popham’s (2011) review of over 4,000 investigations shows that formative assessment can double the speed of student learning and significantly increase student achievement.

**Teachers and learners as partners.** It is important to note that assessment for learning defines both the student and teacher as partners in the learning process. Teachers use student performance to guide the learning process, provide feedback and inform where to go next (Black & Wiliam, 1998). The students are participants in the learning process, using effective feedback to answer the questions, “Where am I going? How am I doing? And where to go next?” (Hattie & Timperley, 2007). Sadler (1989) outlines three requirements students need to feel control—to know where they are going, where they are now and how to close the gap between the two. Assessment for learning is an interplay between teacher and student as students are actively involved in the process (Stiggins, 2005). *Rethinking Classroom Assessment with Purpose in Mind* (2006) summarizes why the feedback loop between teacher and student exists as “when learning is the goal, teachers and student collaborate and use ongoing assessment and pertinent feedback to move learning forward” (Earl & Katz, 2006, p. 5). The student is the ‘critical connector’ between the learning process and the assessment (Earl, 2003).

The power of formative assessment lies in that fact that it addresses both cognitive factors (where students are in their learning and how to improve) and motivational factors (feelings of control over their learning) and Brookhart (2007) argues that both factors need to be addressed in order for assessment for learning to be effective. While the literature shows that implementing key research-based strategies that underpin assessment for learning strategies improves student learning, research has also focused on the challenges of implementing assessment for learning (Brookhart, 2007; Marshall & Drummond, 2006). Brookhart (2007) alludes that these challenges
CULTURE OF LEARNING: A SELF-STUDY

may be present due to little focus on the motivational and psychological factors of assessment. Marshall and Drummond (2006) argue against a model of assessment as “checklists, precision, explicit criteria and incontrovertible facts and figures” as instead it should describe everyday practices as “we observe children’s learning, strive to understand it, and then put our understanding to good use” (p. 134). The purpose for collecting information and how to use that information is key to progress the learning forward.

Assessment for learning can be implemented deeply or in a ‘surface’ kind of way, a point well expressed by Lorna Earl (2003) when discussing the spirit of formative assessment. Earl describes how assessment impacts self-worth, sense of self accomplishment and enduring learning strategies. These factors deserve careful attention, so the assessment culture a teacher wants to create needs to support learning rather than hindering it. Teachers who focused on surface level techniques rather than deep understanding of the principles underlying their practices were not as successful at “explicitly fostering students’ capacity over time to be their own best assessors” (p. 52).

Teacher assessment beliefs. Coffey, Thiebault & Sato (2005) bring attention to teacher knowledge and beliefs and the ways that these influence how teachers incorporate assessment for learning practices in their classroom. Their research examined connections between teacher beliefs, priorities and propensities and the nature of changes made in classroom assessment, and found that the “dynamic process of action and reflection is iterative and responsive to the complexities of the classroom and school contexts in which the teachers work” (p. 182). Making change requires attention given to the personal dimensions of a teacher, such as beliefs and past experiences.
Others have shown evidence that teachers use practices that are consistent with their understandings of effective teaching, which are consistent with beliefs, attitudes and intentions (Black, Harrison, Lee, Marshall, & Wiliam, 2003; Brown, 2008). The beliefs teachers have matter since they have been demonstrated to contribute meaningfully to the actions teachers take (Stobart, 2008; Sondergeld, Bell & Leusner, 2010; Brown, 2008). Black et al. (2003) argue that teacher beliefs about their own learning and student learning underpin the way assessment for learning becomes embedded in classroom practice. This means, the beliefs that teachers hold about the nature of learning may affect assessment for learning implementation.

Assessment for learning occurs within the context of the classroom but also within the teacher's belief system about how learning takes place (Marshall & Drummond, 2006; Black et al., 2003; Sondergeld et al., 2010). Marshall and Drummond (2006) state that:

the implementation of AfL in the classroom, then, becomes about much more than the application of certain procedures—questioning, feedback, sharing the criteria with the learner and peer and self-assessment—but about the realization of certain principles of teaching and learning (p. 135).

Assessment for learning practices are strongly connected to a belief system, as Stern and Backhouse (2011) found, when teachers valued the principles of assessment for learning and had it as a key goal in their teaching, they implemented a ‘spirit of assessment for learning.’

Many classroom teachers approach assessment as a set of methods and structures without considering the connection to beliefs (Brown, 2008; Shepard, 2000; Stern & Backhouse, 2011). Black and Wiliam (1998) had teachers rethink the strategies and techniques used in their classroom in terms of purpose. Their work has made such a significant impact because it brings into question the moral beliefs of a teacher and the purpose(s) of assessment. The promotion of
CULTURE OF LEARNING: A SELF-STUDY

learner autonomy lies at the heart of assessment for learning and if teachers do not appreciate or believe this it appears that assessment for learning can be implemented as a series of ritualised teaching strategies and hence loses much of its efficacy (Marshall & Drummond, 2006; Sadler, 1989; Tierney, 2006). Changing teacher assessment practice is not simply a matter of increasing teachers’ assessment literacy through professional development about activities such as wait time or giving feedback, it requires conceptual shifts for all stakeholders (Tierney, 2006).

A strong theme emerges from the assessment for learning literature; this topic needs to be approached from the perspective of purpose rather than the method—putting the emphasis on learning, which is the intended result. If teachers believe that the purpose of assessment is to enhance the learning, then “the assessment needs to give students an opportunity to make their learning apparent without anxiety” (Earl & Katz, 2006, p. 14).

While many educators would say the primary purpose of assessment is to measure or evaluate learning, much of the literature says the primary purpose is to communicate student learning. Both Stiggins (2005) and Wiliam (2011) clearly convey that while assessment has been used to fulfil many purposes, the assessment for learning literature clearly describes the prime purpose of assessment as supporting learning and using it as a critical link in the learning experience.

From examining the assessment for learning research, my interpretation is that teachers must consider the impact that assessment has on learning and the future learning of students by giving attention to the socioemotional environment. Assessment is complex as it is part of a complex interplay between classroom context and teacher beliefs.
**Growth Mindset**

The term growth mindset has been made popular by psychology researcher Carol Dweck, who as a cognitive scientist has provided new insights into the nature of learning. She has conducted a vast amount of research in the psychology field, exploring how students’ perceive their abilities and the impact it has on motivation and achievement. The results of her research have made a significant impact on educators who found themselves asking how to motivate students and foster lifelong learning. Carol Dweck’s work on fostering a growth mindset has brought light to the realisation that many students see their intelligence as a fixed entity rather than something that can grow and develop (Dweck, 1999).

Growth mindset is defined as “belief that intelligence is malleable (incremental theory)” (Dweck, 1999, p. 11). With a growth mindset, students focus more on learning goals, aiming to increase their ability rather than prove it (Blackwell et al., 2007). They see intelligence as a malleable quality that can be developed with effort. When students hold an entity view of intelligence (intelligence is unchangeable and fixed) they tend to believe that their efforts have little impact on learning, as what they can learn is predetermined (Dweck, 1999). Growth mindset then, can be viewed as a motivational model, in which core beliefs about the nature of intelligence influence how students respond to challenges and setbacks (Blackwell et al., 2007; Dweck, 1999; Dweck & Yeager, 2012).

Black and Wiliam (1998) stress the importance of self-esteem in learning, connecting to this notion of growth mindset. They refer to self-esteem as an individual's’ overall evaluation of the self as capable, effective and of value. Like growth mindset, high self-esteem is viewed as adaptive, associated with a greater capacity for self-regulation (Black & Wiliam, 1998). This includes recognizing situational contingencies and task demands, having high expectations of
success and being persistent (Bandura, 1986). The more people see themselves as capable of acting to close the gap in their learning, the more likelihood there is of initiating actions to improve their learning (Black & Wiliam, 1998, Bandura, 1986, Hattie & Timperley, 2007).

Having a growth mindset and high self-esteem means students believe in effort in the face of difficulties. If they believe that intellectual ability can always be further developed, then increased effort or change in strategy are more likely to be used when facing difficulties (Blackwell et al., 2007; Dweck & Leggett, 1988). A significant number of studies show that students who endorse more of an incremental view of learning have a distinct advantage in their academic achievement over those who hold an entity view (Bandura 1986; Dweck, 1999; Blackwell et al., 2007). This research indicates that it is possible to improve with perseverance and help and support from others.

While growth-orientation in children has been associated with improved learning outcomes, Blackwell et al. (2007) found that it also endorses strong learning goals, positive beliefs about effort and fewer ability-based attributions. Their research followed 373 students who were entering public secondary school, measuring their beliefs about achievement over two years. They found that those who held an incremental theory of intelligence and had positive beliefs about effort chose more positive, effort based strategies and their mathematics achievement was boosted. Learners with growth mindsets held higher levels of achievement, engagement and persistence (Blackwell et al., 2007).

Rattan, Good, and Dweck (2012) found that beliefs predict achievement over time, particularly when tasks are difficult. It may even be the case that motivational beliefs will not have an effect until a difficult challenge is presented and success is difficult (Rattan et al., 2012). Children with strong belief in their agency work harder and are less likely to give up when they
CULTURE OF LEARNING: A SELF-STUDY

encounter difficulties (Dweck & Yeager, 2012). It appears that growth mindset is truly put to the test when learning is hard.

The notion of growth mindset and the positive effect of believing intelligence is incremental challenge the traditional role of assessment as a means of ranking students, which has been previously discussed in terms of evaluation. Labeling student learning with marks promotes a fixed mindset, as when marks are received they are often final, which does not promote the belief in effort and improvement. Formative assessment without effort attributions and instruction modifications that support developing understanding can leave students feeling hopeless (Cauley & McMillian, 2010). Children learn better in a supportive environment in which they can risk trying out new strategies and stretching themselves intellectually (Rattan et al., 2012; Johnston, 2004).

The students’ own beliefs about learning and their confidence in their own ability to be successful learners have an enormous influence on their ability to become involved in the processes of learning (Dweck, 1999). Therefore, careful building of the pupils’ confidence to take part in the discourse of the classroom is an important tool in enabling them to use assessment formatively and enhancing their learning. Johnston (2004) says that “if children are not making errors, they are not putting themselves in learning situations” (p. 39). The growth mindset literature illuminates the impact that students’ beliefs about themselves have on learning and motivation, and that assessment for learning strategies need to give attention to an incremental view of learning.

Teacher Language

“If we live, we stand in language. You must change your words.”

(McQueen & Wedde, 1985, p.27)
Language is social meaning making. Many theorists place language at the heart of learning, as language is the main mediator of social interaction. As early as 1962, Vygotsky, the seminal educational theorist, discussed how children learn to take their place within society through the mediation of others, using tools and signs, many linguistic. Children develop mental functions through social interactions that use verbalized language. Mercer (1995) says that language is the foundation of a community's social and intellectual life, and social life in a classroom is shaped by talk and interaction.

The ways that teachers use language in the classroom creates certain realities for students. Vygotsky (1962) showed that understanding speech is not merely about understanding the words, but understanding the thoughts and motivations behind the words. Language does not only contain context, but interpersonal meanings. According to Sfard and Keiran (2001), communication should not be viewed as a mere aid to thinking but “almost tantamount to the thinking itself” (p. 45). Classroom education cannot be understood without due attention to the nature and functions of talk and how meanings are continually negotiated through talk (Mercer, 1995).

Teacher language reflects intentions and beliefs. In looking at the literature from a perspective of ‘sociocultural discourse analysis’, there will be less concern with the organizational structure of the spoken language and more concern with the content, function and ways shared understanding are developed. If language is social meaning-making, then how teachers communicate about student learning not only shapes students’ thinking, but influences how they think. One way teachers communicate expectations for student learning is verbally, therefore conversations and language used in the classroom need to be looked at through a sociocultural lens (Johnston, 2004; Sfard & Keiran, 2001).
The language that teachers use reflects their beliefs and intentions. Johnston (2004) suggests that to maximize teacher agency in the classroom, teachers must believe that the language used in the classroom can affect the learning of the students. The conversations teachers have with their students are made powerful by the beliefs behind them, as teacher talk implies intentions (Johnston, 2004). Teachers need to use words “genuinely, automatically and consistently” (p. 32) so students ‘buy in’ to their personal philosophy about learning.

Johnston (2004) concludes his book with a powerful notion: teachers use language mostly without conscious attention to it, yet it reflect beliefs about who they are and who their students are. Language is a reflection of teacher goals and “if we want to change our words, we need to change our views” (Johnston, 2004, p. 84).

**Assessment conversations and beliefs.** A ‘culture of assessment’ in the classroom needs to be developed over time, and how a teacher discusses developing goals, setting criteria or the purpose of feedback impacts the learning experience for the students (William, 2011). Students and teachers together create a culture of assessment, with a collaborative relationship that is centered on the goal of learning. Shepard (2000) describes a learning culture as one in which assessment practices are part of the learning process and that talking about this process is essential. Students and teachers together are responsible for finding out what makes sense and what steps need to be taken next in their learning and this is revealed through observation and conversation. Truly engaging students in their learning and creating positive relationships between the teacher and learner gets “to the heart of authentic assessment” (Swaffield, 2011, p. 447).

Marshall and Drummond (2007) found that learning is enhanced when dialogue centers on making learning explicit and promoting learner autonomy. What a teacher talks about in
CULTURE OF LEARNING: A SELF-STUDY

terms of learning will not be believed unless it is supported by action and teachers need to be aware of what underlies their practices (Swaffield, 2011). For example, the ways that teachers talk about and react to mistakes impacts the culture of a classroom. Goal setting and tracking the progression of those goals enforces student beliefs in their capabilities. Teachers need to explicitly state that they have high expectations so students feel challenged, leading to greater advances in the learning process (Tierney, 2006). A strong theme in *Visible Learning* is that it is integral for teachers to communicate the intentions of the lesson and show a high level of clarity in the assessment of student learning (Hattie, 2009). A ‘culture of assessment’ is a classroom in which learning is at its center and assessment is the driving force.

Involving students in dialogue about their learning is defined by Earl as co-construction “to practice self-reflection and facilitate a reflexive process in others about learning through a collaborative dialogue” (2003, p. 101). Assessment is “a very personal, iterative and evolving conversation that requires the involvement of students” (p. 53). This collaborative dialogue is recognised by Tunstall and Gipps (1996) as a practice through which students can construct ways to move forward in their own learning.

From examining the literature my interpretation is that language is the vehicle in which classroom routines are fostered and created. Without giving attention to how we talk to students, our understanding of the culture of a classroom will only be surface level.

**Bringing the Three Themes Together**

The literature presented highlights the power of formative assessment, growth mindset and teacher language in promoting learning and fostering learners who are motivated for the sake of learning. Through the exploration of these three themes it becomes apparent that if both assessment for learning techniques and psychology of a growth mindset promote positive
learning environments, then teachers need to use language that reflects these philosophies. All three themes come together in teacher practice, as conversations and the tools we use are the concrete evidence of our beliefs and values in practice. The understandings I take away from this exploration of the literature have lead me to the following perspective that teacher language should reflect what teachers believe about assessment and growth.

It would be difficult to truly explore assessment for learning and growth mindset without attention given to how they are presented and discussed. Language used by teachers needs to promote belief in formative assessment that is underpinned by fostering a belief in growth mindset. The language used should reflect that all students are capable of achieving standards and that the focus is on learning, as opposed to performance.

In terms of language used when discussing assessment, the goal is to change the social meaning of assessment. For the learner to take action it would require the belief that learning is incremental and that their effort will lead to improvement. In my experience, students’ perceptions are that feedback relates to the educational attitude and beliefs of the individual teacher, which determines how they use the feedback. When a student feels judged and evaluated, they may become defensive or shut down in their learning. Feedback use depends on what is presented, how it is presented and how it is integrated into future teaching and learning.

Our aim should be to change cultural practices of assessment so that it is seen as a source of insight and help (Shepard, 2000). A child must hold a belief in ‘I can do this’ or ‘I can’t do this, yet’ but more importantly a teacher must “view the present child as competent and on that basis imagine new possibilities” (Johnston, 2004, p. 82). Feedback that addresses students’ self-efficacy or effort is as important as cognitive feedback because it affects students’ beliefs about their performance capabilities. Assessments need to be congruent with our views of learning.
CULTURE OF LEARNING: A SELF-STUDY

Teachers need to make it clear that learning something new is challenging and that not understanding is sometimes part of the learning process. Examples of language that reflect growth mindset could be to talk about student understanding, showing willingness to re-teach something, or explicitly telling students that you as the teacher are trying a different teaching method to lead to better understanding. Teachers should be willing to expose their own weaknesses and fears, and how they are working to improve.

These three themes lead me to ask questions about how educators should evaluate and reward their students’ academic work. How do we talk about growth and promote belief in effort and improvement? What assessment tools do teachers use that reflect these beliefs? What language and classroom routines help to create a culture of growth (and not simply of grade getting) in every classroom and school?

This self-study will be about exploring the themes that will emerge from the understanding that practices reflect beliefs, and that the conversations and tools we use are the concrete evidence of our beliefs and values in practice. This project is an examination of myself within the idea of beliefs and practices and the process of becoming more articulate about what I do and why I do it. What language will create this culture?
Defining Self-Study

To answer my research question ‘As a classroom teacher, how do my conversations about assessment and the assessment tools that I use reflect my beliefs about assessment for learning and growth mindset?’ I will be using the research methodology of self-study. This research methodology became popular in the 1990’s as a way for teachers to observe their own practice and to improve teaching and learning through the focus on teacher. Hamilton and Pinnegar (1998) define it as “the study of one’s self, one’s actions, one’s ideas” (p. 236) and Samaras and Freese (2006) describe the research as done by the self in a reflective and systematic investigation. Matters of context, process and relationships are foundational to self-study (Hamilton & Pinnegar, 1998). While there are a diversity of approaches to self-study, it requires quality and systematic methodology. LaBoskey (2004) argues that self-study research must be systematic to be accepted by the educational community.

Like action research, the self-study researcher inquires about problems situated in practice, engages in cycles of research and systematically collects and analyzes data to improve practice (Samaras & Freese, 2006). How it differs from action research is the self becomes the focus of the study, using personal experiences as a resource for the research. It explores practice with the self in relation to that practice within a certain context. Samaras and Freese (2006) describe the difference as action research being more about what the teacher does, and not so much about who the teacher is. It is important for my research question to situate the research problem within my personal beliefs and practice.
Justification for the Methodology

This qualitative research methodology is best suited to answer my research question as it allows me to document, analyze and reflect on my practice in an area that captures my passion and attention. Self-study allows teachers to closely examine their own work, with its value in improving practice, striving to make sense of teaching and allowing teachers to “participate consciously and creatively in their growth and development” (Samaras & Freese, 2006, p. 17). The knowledge and learning I gain will be derived from researching my own practice, grounded in research literature. Questioning my own practice is an integral aspect of my teaching journey and while my focus is most often on my students and what they have learned, the role I play in the classroom is integral to creating a learning culture. Self-study allows me to closely examine classroom talk in its social context as my beliefs and intentions underlie the actions I take.

Self-study reinforces the belief that teaching needs to be purposeful (Samaras & Freese, 2006), so systematically examining my own teaching will allow me to become more focused on my purpose and whether I am aligning my beliefs with my practice. This methodology gives me a way to ask deep questions about my practice that I may have taken for granted in the past. If my research question is investigating how my practice and beliefs match, then my research needs to delve into both areas. Self-study engages me in the process of paying attention to my words and beliefs and how they impact students.

Research Plans

To be a reflective practitioner and ensure my research was systematic, I used journaling to investigate my beliefs about teaching and learning and recorded my classroom talk to examine my practices. I also analyzed assessment tools used in my classroom.
Journaling. I kept a personal research journal in which I added entries to weekly. These journals reflect on classroom events, what my intention for doing them were, what went well and what I wanted to change. These entries provided me with continuous and repeated observations made over a series of five months. Reflecting in my journals enabled me to explore a deeper understanding about my beliefs and actions in the classroom. Each journal reflected on these three questions:

1) What did I do in the classroom?
2) Why am I doing what I do in my classroom?
3) What are my intentions and purpose?

After completing five months of journaling I amassed a total of fifteen journal entries. I used a computer program called Nvivo© to code and look for themes in my journal entries. The computer-based text analysis supported me in analyzing frequencies of occurrence of particular words or patterns and themes of language use, thus helping me to develop new insights into my practice.

Through the coding process I enjoyed seeing themes and ideas emerge from the data. As a logical and mathematical minded individual, coding words, phrases and ideas into themes aligned with my own thinking process. The Nvivo© program added a level of depth to the analysis as it helped me to be more reflective as I went through the process and was a way for me to document my findings in an organized and detailed way.

Recording classroom talk. Within the classroom environment, meanings are continually renegotiated through talk and interaction over periods of time. It is not realistic to think that one snapshot of classroom talk could encompass the complexities of a classroom culture. For this research I have audio recorded two lessons with the entire class in which I discussed growth
mindset, assessments and beliefs about learning. I also recorded two one-on-one conversations with students during tutorial time about their own personal learning journey. I only used my words in the analysis, so student voice heard in the recordings was situated as the background context. The focus of my analysis was the words I used within my classroom context. I transcribed these recordings and reported the analysis by including selected short illustrative extracts of the transcribed talk.

**Analyze journals and talk.** After both my journals and classroom talk had been analyzed separately, my research sought to see if my words and actions used in my classroom matched the beliefs described in my journals. The classroom life is very complex, so my journals and audio recordings were analyzed with the aim of helping me gain new insights into my everyday experience and practice.

**Analyze assessment tools.** In addition to my journals and audio recording, I have analyzed four assessment tools I have designed and that I use in my classroom: Check Up’s, Tracking My Learning forms, Show You Know Analysis, and a standards based report card. I chose these tools as I use them in all of my Math classes regardless of grade level, and they are used in every unit of study. My research looks at the words and layout of these tools, and how the language on these templates reflects my beliefs about learning. The type of questions asked of students and the design of these forms will be an important aspect of the analysis.

Both Chapter 1 and 2 address language and its powerful influence on cultural and psychological aspects of a classroom community. My classroom dialogue and the tools used in the classroom have an important influence on the development of children’s thinking. My inquiry enabled me to study my classroom strategies and who I am as a teacher professional (Bullough & Pinnegar, 2001). Throughout the analysis, I considered any disparities between
CULTURE OF LEARNING: A SELF-STUDY

what I said, what I believe and what I actually do in practice—gaps between my teaching philosophy and actual practice.

Analyzing the Data

At the end of my research period, I used my fifteen entries and coded them using NVivo®, an inductive coding system. Rather than using my data to prove a theory, I allowed the data to reveal themes within my journals. First I coded my journal in terms of statements that described my beliefs and philosophies, and then descriptions of what my actions were in the classroom. My journals were almost divided evenly between the two categories. Then, within the two categories of my beliefs and actions, I themed it for what a student is responsible for and what a teacher is responsible for. In organizing my journal entries from the teacher and student perspective and using inductive coding, I noticed three themes emerge: student accountability, mistake making and the student-teacher relationships. The following chapter will describe each theme in detail, using quotes from my journals to illuminate the relationship between beliefs and practices.
Chapter 4: Findings and Results

In this research I hope to uncover my deep rooted beliefs and philosophies about learning, and investigate how these beliefs are reflected in my daily practice of teaching and assessment. Using my research journals, classroom assessment tools and audio recorded conversations with students, I have coded them for themes. Using these three sources of information I identified three themes: accountability of students, mistake making and the student-teacher learning relationship. I will discuss each theme in detail, along with select quotes from my journals and transcripts as well as sample assessment tools to bring each theme to life. Each of my three themes is organized into three parts: my beliefs, my classroom practices and my words.

The intention of this research is to see if my beliefs, language used with students and assessment practices coincide. A teacher’s actions, beliefs and words are all indicators of the classroom’s assessment culture. Is my own culture of assessment reflected in my journals, conversations and assessment tools? Chapter 4 will also work to uncover how my actions and beliefs both reflect and create a culture of learning. My intention is to seek congruence between my beliefs, my practices and the words I speak in a way that builds a strong assessment culture.

Theme 1: Accountability of Students

My beliefs. As I reread my journals, I noticed many entries connected to my beliefs about student responsibility. I believe that students should be actively involved in their learning and should feel control over the learning process. Without student involvement, the process of learning becomes controlled by the teacher. What I saw in my journals were many statements that stressed the importance of the teacher not being the director of learning but instead bringing
students into the process and actively involving them. These belief statements became apparent in the September entries until the final February entry:

→ September: *I am not the judge who decides what their mark should be, instead a student’s job is to show what they know.*

→ October: *Instead of receiving marks, students need to focus on the feedback they received and set goals on how to improve.*

→ February: *It is not possible for students to take a passive role when a teacher is giving them feedback about where they are in their learning and what they need to do to improve.*

What I continually saw throughout my journal entries were statements that valued the information that students could contribute to the learning process in terms of what they understood and where they needed help. These statements highlight that student input is an essential characteristic of my classroom:

→ *Knowing what is going well and what they need to do to improve is essential to the learning process. I need to regularly check in with students about how they are doing and let them know where they are at. It is their job to show what they know and my job to help them begin the next steps in their learning.*

→ *At multiple points in the unit students are asked to share their progress and comfort level with their new skills.*

→ *Today I had a discussion with my students: What you show me today will change what we do in our next few classes, depending on what skills you need help with and what skills you show strength in.*
I noticed that there was consistency in how I discussed the role that students needed to take in their learning, and many statements from my journal stress the importance of students being active participants. In terms of my own actions, I found that in reflecting on my journals I challenged myself to take a step back from trying to control each step of the learning process. Not only am I responsible for giving students the opportunity to be part of the learning process, but students need to actively engaged in the process for it to be successful. The following quotes highlight my belief in students as active partners:

→ Collecting evidence for assessment must be a shared responsibility between teachers and students. The ultimate purpose of assessment is to have students become self-evaluators.

→ If setting goals is always done by me their teacher, how will my students know when to seek help?

→ Involving students in all routines of the classroom is about promoting student autonomy. Students have a responsibility to be active participants in the learning process.

→ Students who are partners in assessment are learning ‘how to learn.’

Students need to be given the opportunity to become key partners in the learning:

→ When students have a choice in the progress of their learning and what strategies work for them, they are more likely to persist and work to improve their skills.

→ While teachers are responsible for sharing with students the purpose of instruction and how they will be assessed, students then need to take the responsibility of tracking their progress towards the targeted outcome and evaluate if they have met the goals.

→ As a teacher I need to provide cues to learners, but they have to apply the feedback.
Students being held accountable at all points of the learning process emerged as a theme in my journal entries. Whether I was discussing beginning stages of learning, giving feedback or making decisions about how to proceed in the unit, students were part of the process. The following excerpts from my journals illuminate this belief in student accountability and the empowering effect it can have:

→ I strongly believe that students should be given a significant responsibility over their learning journey.

→ I am showing respect for my students by valuing their role in the learning process. Should they not know more about their learning than me?

→ Students should be empowered to feel ownership in the learning. Students need to feel encouraged to believe they can be successful in math.

The theme of student accountability became apparent in my journal entries, especially when I read many statements that discussed the role of the student, the key information they provide to the teacher, and the empowerment experienced when students are active partners in the learning.

My practices. It becomes evident in my research journals that student involvement in their learning process is central to my classroom practices. Most of the decisions I make about what will happen next, or how to report learning are done in consultation with my students. This reflects my belief that students need to be active managers, regulators and directors of their own learning. The “Tracking My Learning” procedure used within my classroom also highlights that students are fostered to be active participants in their learning.

The “Tracking My Learning” sheet is a form I designed for students to use that helps them organize their progress in each skill we are learning, by having them record evidence of
their work and decide what level of learning it reflects. As seen in Figure 1, it is organized around four visual arrows, which represent the four levels of learning I use in my classroom: beginning, developing, accomplished and exemplary. The back of this form includes an area for students to plan for the future by setting goals about how to improve on their skills. The following figure is a tracking sheet for one of my Math 9 units:

<table>
<thead>
<tr>
<th>Skill</th>
<th>Evidence</th>
<th>Evidence</th>
<th>Evidence</th>
<th>Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>I can distinguish between a base, exponent and power</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I understand when a base is negative and when the coefficient is negative</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I can explain why $x^0 = 1$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I can use expanded form to explain the exponent rules</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I know the exponent laws</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Figure 1.** Tracking My Learning template. This figure illustrates how a student documents their learning by providing evidence at the level of learning it reflects.

In going beyond describing the assessment practice of the tracking sheet, I would like to reflect upon the language used and how it impacts the culture I am trying to create in my
CULTURE OF LEARNING: A SELF-STUDY

classroom. I have intentionally tried to foster a culture of growth mindset and student involvement by using certain words and visuals on this form.

The “Tracking My Learning” form uses language that reflects a belief in student accountability and involvement, made concrete in practice. Using the phrasing of “I can” statements to describe the skills of the unit puts the learning into the hands of the students, by explicitly conveying the role that the student plays in achieving the learning target. Whether students have helped to create these statements or not, using “I can” statements is intended to help them take accountability for what they are learning. Using the word “My” to title the sheet highlights my intention to actively involve students and encourages the mindset of accountability in my classroom. This form is about their learning, not mine.

The arrows across the top of the chart give students a clear image that learning starts in one place and moves along a continuum. Instilling a growth mindset can be fostered when students see their progress throughout a unit. A skill may start at the beginning level and progress to the exemplary level with practice, using feedback from the teacher and student awareness of their progress. As a result, it is intended that students should not feel ashamed to record evidence of beginning stages of learning, as they know they will have future opportunities to demonstrate that skill and improve. The following except from my journal illuminates my belief that learning is incremental:

→ All of my students walk into my classroom with different learning experiences in their past. They also all bring with them a different level of understanding of math. They need to know that we will all start at different places in the learning and progress at different paces.
CULTURE OF LEARNING: A SELF-STUDY

Students need to experience progression and achievement in learning, rather than failure and defeat. To match an incremental view of learning, assessment tools must show the different levels of learning and reflect the notion that effort leads to improvement. My assessment routines need to be designed to create space for struggle and growth in a way that is not defeating.

The words and images used on this tracking document are indicators of a culture of assessment, as I designed this form to reflect growth and improvement and to actively involve the students in the process. This is evidence of my practice and use of language reflecting my beliefs in growth mindset and student accountability.

My words. This research is focused on the importance of language and how it can reflect and construct a social world. To promote and instill the philosophy of student autonomy it is important to give attention to how the concept of accountability is communicated to students. With an interest in teacher language, here are a few key phrases I have transcribed from my audio recordings. The following quotes were recorded when working on-one-on with two different students in tutorials:

→ **What can you do next to improve?**

→ **How many times do you think you need to practice this before you know you’ve got it?**

→ **What evidence do you have or can you create to show your understanding here?**

→ **Are you ready to apply this skill to a more difficult concept?**

→ **How can I help you in your learning?**

It should be noted that each statement includes the word “you”, shifting the focus from the teacher prescribing the next step, to the learner having to be responsible for being part of the process. It is also significant that all the above quotes are questions, not directives telling the students what to do. By asking questions in this way, I am creating an invitation to accountability
and ownership, not dictating it. Each question offers that student a choice and is intended to foster a belief that they are in control of their learning. The above phrases highlight the ways that the importance of the student taking responsibility for their learning as they need to consider their current state and describe what comes next is conveyed through the conversations I have with them. I feel that students need to be able to express what they can and cannot do, and the questions I have asked students are intended to challenge them to make their thinking public and be an active participant in the learning process.

**Theme 2: Mistake Making**

*My beliefs.* In my journals I noticed that I consistently discussed the importance of mistake making and my desire to have students value the lessons mistakes could teach them. I strongly believe that mistakes made during learning do not define one’s ability or distinguish a good student from a weak student—it is how students react to the mistakes and how it motivates them that do. The following quotes from my research journal are illustrations of reflections that relate to this idea around why I believe people make mistakes in their learning:

→ *Learning takes time and is a product of effort.*

→ *Mistakes are made when someone is trying something beyond their ability level.*

→ *Students need to be in a classroom culture in which they view their initial failures as part of the learning process. They also need to believe in eventual success.*

→ *In holding an incremental view of learning, I believe that everyone can improve with perseverance from themselves and support from others. Mistakes will happen along the way!*

→ *Mistakes help guide our learning and help us know what works and what doesn’t.*
CULTURE OF LEARNING: A SELF-STUDY

These statements were made in my journals after witnessing students trying to cover their work when a mistake was made, erase all of the work they had as soon as an error occurred or falsely marking their work when given an answer key. These journal entries are my response to this culture of perfectionism and that we always have to appear as the expert and not make any mistakes. I became frustrated when I saw students in the beginning of the year putting more effort into appearing to make no mistakes rather than learning from errors that they did make. Based on my own teaching experience, I know that all learners need to make mistakes. Many of the September and October journals began to explore my beliefs about mistakes so I could share them with my students.

A common discussion in my research journals was student reaction to making mistakes. The following quotes highlight my struggle to help students believe that making mistakes was valuable and necessary, and observing students who let mistakes negatively impact their self-esteem.

On November 12th after having taught a lesson on multiplying fractions using manipulatives, I noticed that the students were struggling to understand this new concept. When using concrete materials to model the strategy, they were making many mistakes before beginning to grasp the concept. My journal entry that week focused on my reaction to this lesson:

→ Students can’t come into their learning believing they should get it the first time. They will be in for many disappointments.

→ The pressure kids feel about being right or wrong has dissuaded them from taking risks! Some of them don’t even want to try in fear of being wrong. If they believe it is all about getting to the right answer then pressure is high.
CULTURE OF LEARNING: A SELF-STUDY

In another lesson in December, I noticed that I had not planned enough time for students to explore a new concept step by step and collaborate with others to make sense of the strategies. During this lesson, I wondered why many students were trying to directly follow my steps rather than explore a strategy that worked best for them, which was a goal of the lesson. Part of what I wrote in my journals was my reaction to students wanting to be right the first time:

→ Mistakes have the power to crush students confidence. Today one of my students broke down in tears because she was so disappointed in her errors. Do students feel safe to make mistakes in my classroom?

→ Why would students take risks if they felt like their teacher was waiting to catch them make a mistake? As their teacher I want to increase their confidence to take risks by responding positively to their errors.

In my classroom, mistakes are a sign that a student is attempting something that is beyond their abilities and that more practice is needed. In many of my journals I discussed how mistakes must be viewed as part of the process of learning, as they shed light on where we need to improve:

→ Kids need to know my intentions, so they do not feel as though I am trying to catch them when they make mistakes, but instead view their mistakes as an observation that helps me figure out how to help them best! Today I talked to students about how my intention for seeking out information is to help them in their learning.

In a lesson on January 15th, I posed problem solving questions that were not specific to one math unit, and I told the class that these problems were designed for them to make mistakes in order to learn from them and help lead them to the solution. The following statements illuminate the underlying beliefs that motivated me to give my class this type of problem:
Appreciating mistakes helps us overcome the fear of making them! Mistakes need to be treated as a normal part of learning. I want to show my class it is normal by responding to their mistakes with feedback, and giving them a chance to rethink their understanding, do corrections and try again!

So many of my students have experienced assessment in a form that is not useful to their learning. Now students use their assessments and feedback with purpose - to improve their learning and set goals for improvement.

Growth mindset is premised on the notion that increased effort will lead to improvement and that every learner can succeed (Dweck, 1999). My journal entries contain many statements that illuminate my belief in a growth mindset:

- They need to experience what efforts can do to their learning. They need to see themselves as learners because of how they learned in the past.
- If I can get my students to believe in growth mindset, will they go on to higher levels of achievement? Will they be more engaged in the learning and persist in the face of making mistakes and errors?

When giving back assessments students in my classroom are asked to independently analyze their understanding of each skill by fitting their mistakes into different categories. This helps student see that it is not about the number of mistakes, but the pattern of mistakes. The following statements were contained in journal entries on days when I was returning work that had feedback from me on it:

- When in the learning process mistakes should not halt the learning. Students should have the opportunity to be made aware of their mistake, reflect on it, and make a plan on how to try again.
→ My students need to be in a classroom culture in which they view their initial failures as part of the learning process.

**My practices.** When reflecting about different assessment practices used in my classroom, my “Check Up” and “Analysis” procedures illuminate a belief in a growth mindset and that mistake making is valuable. A “Check Up” is a procedure I use to assess student understanding, which is a short 10-15 minute assessment used throughout the unit. This routine replaces the idea of a traditional quiz. It helps students assess their level of understanding and allows me to see how each child is doing in their learning. The following image in Figure 2 shows the top part of the template used for a “Check Up”, including a self-assessment, teacher assessment and teacher feedback. Students would complete the questions on the page that fall below the feedback box and self-assess their understanding after completing the questions. In turn, I assess their level of understanding and give advice on how to improve:

![Check Up template](image)

*Figure 2. Check Up template. This figure illustrates what a student will see at the top of an assessment that takes place within a unit.*

I have intentionally used the term “Check Up” to draw a connection to visiting a doctor, as we go to a doctor to seek advice from an expert to shed light on how healthy we are. A doctor
CULTURE OF LEARNING: A SELF-STUDY

does not collect marks, but instead helps us to understand our health and how to improve if necessary. We may have to go back to a doctor multiple times to see if improvements have been made or to seek more advice. Drawing a connection to something familiar to the students is an indicator of my priority to create a culture of assessment in my classroom.

In my journal discussions I noticed that when discussing “Check Ups”, I intentionally changed the language I used with my students in order to reflect my intentions for the assessment. My journals included statements about my beliefs around assessment such as:

→ I strongly believe that these Check Ups should not be for marks, as we are still in the process of learning.

→ Students initial reaction to completing an assessment should not be fear and anxiety, but relating an assessment to a doctor visit shifts the focus to an event that will be helpful to their learning.

→ In order for students to know where they are in their learning, they need feedback from teachers or peers. Teachers also need to see the next course of action.

→ Knowing what is going well and what they need to do to improve is essential to the learning process.

An important component of the “Check Up” template is the box for feedback. This provides students with the opportunity to redo questions using the feedback. This allows students to experience making a mistake in a non-threatening way, receive feedback from a peer or teacher, learn from the mistake and try it again experiencing growth and improvement.

While “Check Ups” are short assessments used throughout the unit, a more summative assessment used in my classroom is a “Show You Know” which occurs at the end of the unit. On the surface, this would appear to be replacing a unit test, however these assessments do not end
the learning when they are returned to the students. When students get a “Show You Know” back, they are given time to complete an analysis form. Their assessment does not contain marks or evaluations from me, just feedback and affirmation indicating when a skill is completed successfully. I started using this routine when I noticed that students did not give much time or energy to looking over summative unit assessments. Figure 3 shows a sample analysis form used after an end of unit assessment:

### Integers SHOW YOU KNOW Analysis

**Type of errors made:**

<table>
<thead>
<tr>
<th>Pictures</th>
<th>Zero Pairs</th>
<th>Add the Opposite</th>
<th>Rules</th>
<th>BEDMAS</th>
<th>Word Problems</th>
</tr>
</thead>
</table>

After completing your error analysis, circle your level of learning for each skill:

- Using pictures and diagrams
- Multiplying and Dividing Rules
- Using BEDMAS
- Solving word problems

**What are your strongest skills in integers?**

**What skills are in the beginning or developing stage?** These skills MUST be practiced and improved on in order to be ready for Math 9

**What skills do you still need to work on?** Describe what you will do to improve and how you will provide Mrs. Kitching with new evidence of your learning.

**Figure 3.** Show You Know Analysis form. This figure shows a sample of what a student completes after receiving an end of unit assessment back.
CULTURE OF LEARNING: A SELF-STUDY

The analysis form reflects my belief that mistakes are valuable and can be learned from. Students are not asked to tally up their total number of mistakes, but instead reflect on what type of mistake was made. After this analysis, students self-assess their learning levels for each skill, and reflect on what it means for them. Even though the “Show You Know” is summative in nature, students still have the opportunity to improve on any of their skills. This is congruent with my belief that mistakes can be learned from and growth is always possible.

The following statements from my journal highlight some of the benefits that I described when thinking about how students react to analyzing their assessment rather than looking at it as a summative assessment:

→ Students have to figure out what type of mistake they have made rather than how many mistakes they have made.

→ Students often will see a trend when completing this process. Were all their mistakes made in one certain skill? Do they have general errors in all skills due to rushing or not checking work? Do they see how one misunderstanding leads to errors in other skills?

→ Students need to understand their mistakes in order to be able to learn from them and improve.

Check Up’s and Show You Know analysis forms are both examples of how I am trying to create a particular assessment environment through purposeful practices. My language and word choice on each of these documents is intentional. It is essential that my classroom practices reflect a growth mindset and help students develop the belief that intelligence is not fixed and that skills can improve with practice.

My words. The way I talk about and react to mistakes impacts the culture in my classroom. In order to help dispel the notion that mistakes show weakness I often have explicit
conversations with students about mistakes. I want students to make mistakes in their math learning and not view them as learning failures but as learning achievements. The following quotes from my transcript were made while discussing the value of mistakes to my whole class in September, when I was trying to shed light on my beliefs about learning before the class knew anything about my assessment tools and classroom routines. This discussion was very intentional, as prior to this conversation I had written down key ideas I wanted to get across to the students as well as key words and phrases to write on the board. These statements highlight beliefs in growth mindset:

→ Research has found that the brain changes and grows for our whole lives….and making mistakes helps make our brain smarter. New connections are made!

→ I expect you to make mistakes in this classroom. What I care about is that you do not then push it aside and ignore it, but instead have a positive reaction to it.

→ In math, sometimes you make a mistake and know it right away, but sometimes you need an expert to help you notice it and give you advice on how to improve. Mistakes are a sign that you have something to change!

Other statements in my transcript were made in a less explicit conversation, but during group activities or when practicing new skills. The following statements were recorded when I was helping a group of four work through a problem together:

→ You’re finding this hard? Good, you are starting to learn something new!

→ Let’s take the mistakes we have made and learn from them.

During a tutorial in January, I recorded a conversation with a student while working with them one-on-one. This student was having frustrations and struggles in their learning when trying to show their understanding of algebra using diagrams of balance scales. The following
statements were made in an effort to encourage this student to work to reflect their understanding and try to understand why certain mistakes were being made:

→ Have you learned from your mistake?
→ What did that mistake teach you?
→ This shows that your brain doesn’t understand it yet, you need more practice

The words used with my students, whether addressing the whole class or an individual student, are intended to foster mistake-making reactions to be positive rather than anxiety inducing. Using phrases that encourage mistakes and value the lessons they teach us are used with the intention of creating a culture of assessment that mirrors my intentions.

**Theme 3: A “We” Relationship**

**My beliefs.** Whether discussing student accountability or mistake making, my research journals centered on the teacher-learner relationship. Rarely were the students or myself discussed in isolation from the other, and sometimes it was difficult to code parts of the statement in terms of teacher or student as they were woven together in complexity. Within the classroom context, a teacher and a learner must work together in the learning process. I strongly believe that the learner should be a key player in classroom events, and should feel empowered to have control and accountability over their learning. As discussed in my journals, my students should believe that my goal is to help them reach success and that my efforts are to help them improve. The following statements from my journals illuminate my belief in learning-focused relationships:

→ My goal as a teacher is to create a positive learning environment that will best improve learning for all students

→ Students need to show me how they are doing and I have to provide them with
feedback on their learning.

→ The student teacher relationship needs to be seen as a working partnership, rather than a teacher deciding what grade they should get.

→ When students have a choice in the progress of their learning and what strategies work for them, they are more likely to persist and work to improve their skills.

→ Using self-assessment and having students track their learning is not an add on, it is something that I believe is essential. Involving students in all routines of the classroom is about promoting student autonomy.

Another trend that became apparent in my journal entries was students as active partners in the learning. It is clear that I believe students are key players in the process as the words “we” “with” and “together” were in the top ten most frequent words used. The following quotes from my journals illuminate this idea of learning-focused relationships:

→ We both are responsible for tracking the progress of the learning.

→ We need to work together to find the best learning path.

→ It is only with the students’ help that we have a clear picture of their learning.

→ Together we consult about where their learning is at before report cards are sent home.

Many of my journal entries discuss the role of the student and the role of the teacher. Each role depends on the other, and the two parties work together in a feedback loop. The information the teacher receives from the student impacts their future decisions, and the information students receive impacts their learning continuum. It is clear from the following statements that both student and teacher depend on each other:
As a teacher I see the next steps needed and use information to plan and teach, but students need to see where they are at and where they are going.

As a teacher I need to provide cues to learners, but they have to apply the feedback. Descriptive feedback makes explicit connections between student thinking and other possibilities they should consider.

Students give me insight into what they need next in their learning.

Having a “we” relationship implies a mutually respectful relationship, in which the goal is not about controlling students. Traditionally classrooms exist in the context of unequal power dynamics between teachers and students, in which assessment can be used for power and control. I believe that students should feel control over their learning, and feel empowered to make a difference to the process through action. It is clear throughout my journals that I genuinely value the role of the student in the classroom, and could not make decisions about how to best help them without their input:

Since making students active participants in the assessment process, my learning relationships have been most effective. Kids feel comfortable asking for help, redoing work, attending tutorials and letting me know if another strategy could be used to best help them.

Report cards are the responsibility of the teacher and the student.

My job is to constantly seek out information, from my own observations, talking to kids, looking at their self-assessments. My job is to reflect on these observations and respond to them. Students are my key sources of information.

Am I in dialogue with my students when assessing their work? In an ideal world, a student would be sitting with me while I was assessing their work. Assessment feedback is
Do my formative assessment practices help students develop as learners?

My practices. In reflecting on my classroom assessment practices, my ‘Gradeless’ report cards and conferences with students are an indicator of a “we” relationship centered on learning. In my Grade 8 and 9 Math courses I report three times a year with a standards based report card, which does not include a letter grade until June. The report card reflects the skills we have been learning and communicates their progress on each skill. Students are assessed using four learning descriptors: beginning, developing, accomplished and exemplary. This is consistent with how I give feedback to students throughout the year, and how they self-assess using their tracking form.

<table>
<thead>
<tr>
<th>Work Habits</th>
<th>Beginning</th>
<th>Developing</th>
<th>Accomplished</th>
<th>Exemplary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uses class time appropriately to complete tasks</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Follows instructions with minimal supervision and takes responsibility for own behaviour</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Sets individual goals and monitors progress towards achieving them</td>
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<tr>
<td>Approaches new tasks with a positive attitude and makes an effort when responding to challenges</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Builds healthy peer to peer relationships through personal and collaborative interactions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Skills/Processes

| Understands size and relation of numbers by ordering numbers accurately on a number line |           |            |              |           |
| Uses place value to convert fractions and decimals                          |           |            |              |           |
| Uses pictures to demonstrate understandings of integer multiplication and division |           |            |              |           |
| Applies the rules of integers to multiply and divide integers               |           |            |              |           |
| Accurately calculates multi-step problems involving integers using the rules for order of operations |           |            |              |           |
| Uses appropriate strategies when solving problems involving integers        |           |            |              |           |

NOTE: Students who are “Beginning” for Skills/Processes must be attending tutorials to practice their skills. By June, their skills must be improved and meeting the expectations of the Grade 8 level to progress to Grade 9 Math.

Next steps for improving the learning

| Show responsibility for learning by seeking clarification or assistance when needed |           |            |              |           |
| Attend tutorials Tuesday after school for extra support                     |           |            |              |           |
| Practice basic math skills at home (eg. Integer and fraction operations, PEDMAS) |           |            |              |           |
| Focus their practice on multi-step equations and word problems               |           |            |              |           |
| Strengthen critical thinking skills by finding multiple ways to reach a solution to a math problem |           |            |              |           |

Figure 4. Standards Based Report Card. This figure illustrates the report card that includes three sections, work habits, skills/processes and next steps for learning.
This report card illuminates a number of important aspects of the culture of assessment in my classroom. First, work habits and skills/processes are seen as separate entities. A student's work ethic is important, but it should not impact how their skills are reported. What a student knows and understands should be very clear on a report card. Learning is displayed on a continuum, consistent with the tracking sheet used in the classroom. I also designed this report card to reflect our routines in the classroom, focusing on the next steps for the learning and how to improve.

In analyzing this report card document at surface level, it appears very teacher led and does not show the student voice. Essential to these report cards is that they are filled in during a one-on-one student teacher conference. The students are given a few days to fill in their report card using their tracking sheets and other evidence in their binder before we meet. This routine was created due to my discomfort and struggle in completing traditional report cards. The following journal entries clearly show how a teacher created report card did not coincide with the practices in my classroom:

→ Report card time. Such a strange time the school year where learning seems to halt and student anxiety goes up. Teachers seem to dread these times in the school year, and students anxiously anticipate their arrival.

→ When did it become the case that teachers do all the work for report cards, when report cards are about a student and their learning?

→ Why do students feel that report cards are this big mystery? What am I going to get? If students have no idea what they are going to get on their report card, then have they had any part in the learning process? If students are the learner, then why can’t they have a significant role in the report cards!
In dealing with this mismatch between my beliefs and report card procedures, I now meet one-on-one with students to fill in their report cards with them. In consultation with the students, who have gathered their evidence on unit tracking sheets, we discuss how their skills should be reflected on the report card.

If the relationship between teacher and student is learning focused, assessment becomes the fuel for that relationship. The role of assessment changes from assessment as the prerogative of the teacher, to assessment becoming a collaborative activity between the teacher and the student. Rather than taking the role as “judge”, my assessment practices respect students as learners and their capacity to learn. This shift from assessment being disconnected from teaching and learning (evaluative) to using assessment practices that are diagnostic and formative are designed to improve learning.

The conferencing that takes place before report cards reflects a common practice used in my classroom, learning conversations. An on-going dialogue between me and my students using a shared language of learning is essential to create a culture where students are not afraid to ask for help. Creating this culture requires intentional action and conversations with students, to make it clear how and when to seek help. Having a clear concept of the learning they are engaging in and taking the risk of engaging in the process itself is foundational.

As reflected in my practice of report card conferencing, both teacher and learners need to be active members in the learning and assessment process. Learning focused relationships are based on me showing students I am serious about their learning. Classroom practices should be driven by the needs of the students. Believing in students and not giving up on them shows them respect. Gradeless report cards and conferencing highlight actions I take in my classroom that
show students I believe that effort and practice lead to improvement and that without their input the information would not be as valuable.

**My words.** When learning is viewed as a partnership, dialogue and conversation becomes the vehicle to communicate my beliefs to students. Key to a learning focused relationship is respect, which is shown through how I speak to my students, and how I exude patience and perseverance.

My words help to create a strong relationship with my students, which brings them into the feedback loop of assessment for learning (Black & Wiliam, 1998; Earl, 2003). Assessment is about teachers getting information from students and students getting information from teachers. When analyzing my transcript, the following quotes are an indication to students that they are a necessary part of this feedback loop. In addressing the whole class during this conversation, I am acknowledging that they often know more about their learning than I do:

→ *What you show me will change what happens next.*

→ *How does this show an improvement in your learning?*

→ *How can I best help you in your goal?*

→ *What level of learning are you at?*

→ *You know what your brain is understanding and where you need help. Your math journal is your opportunity to share that with me.*

The statements I have made to students are a means to seek out information about the learner and their progress. It is not merely to make them feel as though they are part of the process but a genuine desire to understand their perspective. If the relationship between student and teacher has a foundation with the goal of learning, my role is to help them reach their highest potential. The words that I use need to communicate this to students.
Conclusion

This chapter presents the themes that emerged from my journal entries, assessment practices and conversations with students. Through the process of rereading journal entries and coding them, I have developed new ways of thinking. In reflecting on my experiences after they have taken place, I am able to question my intentions and mindsets. The goal of this research is to explore the alignment between my beliefs, practices and conversations with students. Having these three aspects of my teaching practice fit into my three themes of accountability, mistake making and student teacher relationships illuminates a congruence between what I believe, say and do. What the students hear me say and the assessment practices I use reflects my foundational beliefs about teaching and learning. I noticed a powerful congruence between my beliefs and practices.

In Chapter 5, I will discuss how these themes connect to the literature on assessment and growth mindset, and how belief and action are intertwined. I will reflect on these themes, and how it has challenged my thinking. I will also discuss the role of teachers’ beliefs about learning and their impact on practice. Finally, I will describe the indicators of a culture of assessment (classroom practices and intentional use of language) to answer the question, how does language reflect and construct a classroom culture?
Chapter 5: Discussion

Chapter One has illustrated the reason for my passion to use assessment practices that create a culture of learning rather than anxiety. It discusses how students’ mindsets may be altered by how teachers frame, discuss and use assessment in the classroom. Chapter Two explored pertinent literature around formative assessment, growth mindset and teacher word choice. Chapter Three describes the research method of self-study that was used to investigate my research question. Chapter Four is organized around the three themes that became apparent in my research journals, which are entwined with beliefs, assessment practices and conversations with students.

Why Self-Study

Getting better at what I do as a teacher requires continued reflection and discussion about what I believe, what I do in the classroom and what I say to my students. As a teacher professional I hope to develop a deep self-awareness about myself in the classroom and constantly be finding ways to improve. Self-study gave me the opportunity to look deeply at my journal entries over a five month period. My journals were an honest reflection of my thoughts and beliefs and by systematically analyzing them into themes the process gave me new insight into my values.

Reflection is a method of self-assessment and effective personal change cannot be made without reflecting. Using reflection journals enabled me to check if what I say and do with students really does conform to the principles and strategies necessary to build a learning-focused relationship, show students growth mindset and help them develop self-efficacy. I came to this Master's program with a passion for assessment for learning and by grounding myself in
CULTURE OF LEARNING: A SELF-STUDY

this self-study I have developed a stronger understanding about my beliefs and actions as a teacher.

In linking this practice of reflection and journaling to my research question, I could explore if teacher personal knowledge and beliefs influence how I used and embedded assessment for learning practices in my classroom. Self-study allowed me to bring into question the moral beliefs of myself as a teacher and what I believed about the purpose of assessment. Reflecting on my teaching is an important part of my professional life, however I have never been so intentional in this process. This study allowed me to deeply look at my beliefs and actions and exploring relevant literature provided me with a structure for my reflection and analysis of my actions.

Linking Themes to Literature

Accountability. In the analysis of my journals and assessment tools, accountability and student involvement became very apparent. This is supported by Wiliam (2011) and Earl (2003) who advocate for student centered classrooms that use the student as the partner in the assessment feedback loop. Brookhart (2004) found that when students monitor their own progress they were more autonomous and had the ability to accurately predict performance. Giving opportunities to self-assess and monitor their progress models growth mindset. All members of the classroom, teacher and student, create the learning team and all members play an active role in creating the culture of learning.

In addition, literature from Black and Wiliam (1998) support the notion that student accountability helps develop more effective learners, which was evident in my classroom in students using tracking sheets and analyzing their errors on assessments. The formative assessment research indicates that students should be the primary users of assessment
CULTURE OF LEARNING: A SELF-STUDY

information. When students have a clear picture of the targets they are meant to attain, they become more committed and more effective as learners, as their own assessments become an object of discussion with their teachers and with one another. These assessments then are not just a document created by a teacher, as they become a reflection on one’s own ideas, which is essential to good learning (Black & Wiliam, 1998). The idea of assessments reflecting a student’s voice is reflected in the “Tracking Sheet” that students add to throughout a unit. Knowing that this tool had truly become their own creation was evident when my students could participate in conversations about their learning during report card conferences and defend their level of learning based on assessments, feedback and evidence.

**Mistake making.** Throughout my analysis, making mistakes was reflected in my conversations, assessment tools and journal entries, such as the conversations I had with individual students in tutorials, using analysis sheets to understand errors made, and setting goals after feedback was received. The literature supports the importance of students feeling confident to take risks and make mistakes. Dweck (1999) found that children learn better in a supportive environment in which they can risk trying out new strategies and stretching themselves intellectually. In order to experience learning as a growth model, students need to learn how to recover from their mistakes and improve. This was evident in students tracking their learning on a continuum and being held responsible for creating new evidence of learning once they learned from their mistake. One way to establish a culture of learning is by cultivating a growth mindset.

**We relationship.** In analyzing the classroom practice of conferencing before report cards, the importance of the student-teacher relationship was apparent. Students are given an opportunity to talk about their learning during the conference, and decide what to use as evidence. They have a voice in the report card process that they would not get if a mark was
decided from a gradebook. The success of these conversations can be attributed to many factors, such as my respect for all learners, that many small conversations occur along the learning journey to build to the final June meeting and that students have an impact on what is reported about their learning. The literature supports that when students are given opportunities to own their learning, they become active participants of the classroom. All members of the learning team are responsible. Black and Wiliam (1998) argue that the quality of the interaction between students and teacher is at the heart of the pedagogy.

**New Insights about Beliefs and Practices**

After having examined my beliefs, I have reached new understandings and insights. In doing so, I have made them transparent to my students in what I say and do in the classroom. Within my three themes the classroom practices, conversations and beliefs are aligned, which helps me understand that what I am doing with my students is consistent with my beliefs. The focus of this research is the classroom culture and context that is needed to conduct assessment for learning strategies effectively. Through analyzing my journals and exploring the three themes that emerged, three new insights have become apparent:

1. The spirit of assessment for learning requires belief and practice to be aligned,
2. Classroom decisions around assessment need to be based on best interests of students, and
3. Teachers need to be intentional and explicit about their actions.

**Insight #1: Spirit of assessment for learning requires belief and practice.** In reflecting on the assessment tools and routines in my classroom, each practice could be linked to one or more of the three themes discussed in Chapter 4. Actions in my classroom are motivated by my
beliefs about learning and child development. Assessment for learning is not about adding strategies to my existing assessment repertoires, as the underlying principles of assessment for learning need to be internalized first. Teachers need to be aware of their motivations for reporting and assessment procedures and ensure that they align with their philosophies and beliefs.

My journal entries highlight that assessment for learning is not a thing that I do, it is a mindset and culture that has to be developed and fostered in the classroom. Brown (2008) explored how assessment becomes embedded in classroom practice, and my research shows that priority was given to my strongest beliefs. My belief in learning occurring on a continuum and that mistakes are necessary to learning became embedded into each practice in my classroom. As Stern and Backhouse (2011) describe the spirit of assessment as valued principles connected to teaching, I would describe it as actions and words reflecting the heart, soul and core of that person. My deeply held understanding of assessment for learning guides what I develop and foster in the classroom.

This insight validates Earl’s (2003) assertion that a spirit of assessment requires that assessment practices are more than just used on a surface level, but that a teacher needs to be living it. To understand the ‘spirit’ of assessment, teachers need to ensure that it reflects their intentions and beliefs. Earl (2003) found that assessment practices greatly impact self-worth, so the practices I use as a teacher need to be reflected on in terms of what it tells my students. To create an environment conductive to learning, we need practices that reflect this spirit—grown out of the belief that the purpose of assessment is to enhance learning.

Another insight into the importance of beliefs and practices aligning is that Hattie’s (2009) research only found an effect size of 0.19 for growth mindset (when 0.4 is seen as the
CULTURE OF LEARNING: A SELF-STUDY

hinge point for it to be meaningful practice). He discusses that this low effect size may not have
to do with the importance of growth mindset practices, but that adults have fixed mindsets about
themselves so they do not approach growth mindset with the belief behind it. For me, this
illuminates the need to believe in something before using it in the classroom and that it is not
effective to teach something that you don’t believe in.

Assessment practices fall flat unless I ask myself, ‘What is assessment for?’ I believe that
the answer to this question changes how practices are implemented as it starts with beliefs and
then to creating tools that match them. To make classroom assessment serve learning it is more
than just adjusting our practice, it is about rethinking our beliefs about education. If learner
autonomy lies at the heart of assessment for earning (Shepard, 2000; Marshall & Drummond,
2006), then my practices need to develop students who can take charge of their own learning.

Insight #2: Decisions should be made based on students’ best interests. Within the
context of school, learning is the goal and all efforts must be directed toward maximizing
learning. The three themes discussed in Chapter 4 all have a common thread—that the learner is
at the heart of it all. Each belief and philosophy explored was grounded in asking “what is best
for my students as learners?” A teacher who believes that students need to be controlled limit the
extent to which a deep and rich learning relationship can be developed (Earl, 2003). Promoting
learner autonomy and developing self-awareness lies at the heart of assessment for learning
(Wiliam, 2011). Without having students’ best interests at heart, my classroom practices could
not have been linked to my three themes of student accountability, mistake making and
relationships.

Johnson (2004) gives insight into how teachers should reflect and refocus their language
in order to best create learning environments that support all learners. Without students best
interests at heart, the foundation for a classroom culture that promotes learning and growth would be difficult to come by. As described by Earl (2003), students are the critical connectors, so I have designed tools and strategies that help me discover what is best for my students by bringing them into the conversation.

A common theme in the literature was describing growth mindset as a motivational model (Dweck, 1999, Blackwell et al., 2007) which can be extended to the notion of developing students to be lifelong learners. To promote success in the future, students need to believe in growth and improvement (Dweck, 1999) and routines in my classroom are used and designed with the intention of motivating students to be involved in learning and seeing themselves as capable and valuable learners.

**Insight #3: Teachers need to be intentional.** If the purpose behind strategies and tools used in the classroom is confusing for students, they are left completing meaningless tasks. Both Brookhart (2007) and Marshall and Drummond (2006) describe the purpose of assessment as striving to understand each student as a unique learner, and put that information to good use. If the purpose of assessment is to move the learner forward, I need to intentionally design routines that seek to understand my learners.

Johnson (2004) argues that teachers need to be thoughtfully explicit. The more students understand the purpose behind classroom routines the more they too can become involved in the process. While the tools used to assess will also convey meaning, students needs to understand the belief system behind the tools, which can happen when teachers explicitly share their beliefs about student learning and assessment. Sfar and Keiran (2001) explore how communication and language becomes the thinking process, so I approach my teaching as not just telling students what to do, as I am impacting how they think. Without reflecting on practice, students could
construct a false view about my intentions as a teacher. Teachers need to believe in what they say and do (Johnston, 2004) and genuinely reflect beliefs in an intentional way.

All of the assessment practices used in my classroom would not be as powerful if I did not engage in dialogue about learning. Assessment routines would become a list of what to do, and students would not understand the intention behind them. Part of learning is being able to talk about learning (Johnston, 2004). Without understanding the purpose of assessment, students are not enabled to become active members of the process. The “My words” section in each theme illuminates how explicit I am with students about what I am doing, why I use certain assessment strategies and what I believe about learning. Teachers need to engage in dialogue about learning to bring students into the process as a partner.

Implications

Next steps. This self-study research illuminates that assessment for learning should be contextualized as a philosophical approach to education and learning. This means that implementing assessment for learning in all classrooms becomes much more about the need for teachers to explore the underpinning principles and how they match with their beliefs. This stresses the need to address beliefs in order to effect change within the classroom. For meaningful and lasting change, a teacher’s priorities, beliefs, and visions cannot be overlooked.

I hope that both change makers at the grassroots level and at the administrative level recognize that change must be approached with a focus on internalizing an assessment philosophy rather than participating in an assessment workshop.

Next steps for me personally. I want to continue to embed formative assessment into all that I do. I want to be intentional with my students about why I do what I do. In addition, I intend to collaborate with colleagues in my school to be intentional with them about what I do,
develop a common vision with a group of teachers and work together to develop assessment tools. I value the importance of finding other teachers who have the same deeply held belief that students’ interests are at the heart of everything we do.

**Recommendations.** After conducting this self-study, I would recommend that future research looks at helping teachers change their assessment practices by first targeting their beliefs, and working to develop an internalized approach to assessment. To target beliefs, researchers could help teachers discover their deeply held beliefs by using reflective practices such as journaling. Without understanding the beliefs motivating teachers, it becomes challenging to support them in their practice or help them make positive changes in their classroom.

Since self-study was the research method used, my research only addresses one small aspect of the complex classroom environment. My research question leads to many other questions in which future research should explore. What do students believe about learning and assessment? How do students’ prior experiences impact their beliefs about learning? If a teacher explicitly shares their beliefs about learning, can students’ beliefs change? What do students believe their teacher believes? Do students base what teachers believe based on actions?

**Limitations.** The limitation of self-study is that only one perspective is researched as all data was derived from my journals or conversations with students. Overall, I believe that the combination of journals and recorded conversations provided a good source of information for my research purpose, to explore the alignment of my beliefs and practices. Being grounded in literature and using inductive reasoning to analyze themes that emerged makes this research a valid means of self-study. This research method offered many insights into myself as a teacher and I am glad I chose this methodology.
CULTURE OF LEARNING: A SELF-STUDY

**Future research.** The question addressed in this research explores the connection between beliefs, actions and words. This leads to the discussion about change management and how to most effectively implement assessment for learning strategies in the classroom. Although advice on specific assessment techniques is useful in the short term, longer-term development and sustainability may depend on re-evaluating teacher beliefs about learning, reviewing the way learning activities are structured, and rethinking classroom roles and relationships. Future research should investigate teacher change that is associated with student learning as professional development that not only focuses on assessment practices but underlying beliefs.

Future research needs to examine factors that contribute to changing teachers’ beliefs. Professional development may need to give attention to helping teachers identify their existing beliefs. Helping cause change in teachers is extremely personal in nature, so attention needs to be given to the individual, their values, priorities, beliefs and context. An essential element of the change process is to give attention to the individual. Efforts to catalyze change must involve much more than introducing new ideas and strategies. Accommodating both the personal and contextual dimensions of change appears crucial for meaningful and lasting professional development. I think this self-study research contributes to the conversation that teacher change must be focused beyond a simple and straightforward notion of new strategies and that deep rooted philosophies and beliefs have a significant impact on how these strategies are implemented. I believe that to change behaviour, our belief system needs to change first.

**Conclusion**

“What we believe about the nature and purpose of something influences what we do around that something and our practices determine, in part, outcomes.” Gavin Brown (2008, p. 73)
Every student should be part of a learning community in which the culture is centered around growth and improvement. For students to believe in growth mindset and that mistakes happen during the learning process, a teacher needs to model these values. This learning culture will then directly impact how assessment practices are used and discussed. Student-teacher dialogue enables teachers to get beneath the surface of assessment for learning strategies and help develop appreciation for its implications to learning. In this study my intent was to discover how my beliefs about student learning were reflected in my words and actions in the classroom.

The answer to my research question has been revealed through analysis and reflection. I have learned that my beliefs around growth mindset and mistake making are reflected in my classroom practices and conversations with students. This self-study has led to the following conclusion, that my assessment practices have themes of student accountability, growth and mistake making embedded into them. Actions, beliefs and words are all indicators of a culture of assessment, but these actions, beliefs and words also create the culture. The culture of a classroom needs to be a living spirit that fosters student growth.
References


CULTURE OF LEARNING: A SELF-STUDY


CULTURE OF LEARNING: A SELF-STUDY


