Teachers' Perspectives on Motivational Practices in Classrooms: An Exploratory Sequential Mixed Methods Design

by

Amanda Ivy Radil

A thesis submitted in partial fulfillment of the requirements for the degree of

Doctor of Philosophy
in
School and Clinical Child Psychology

Department of Educational Psychology
University of Alberta

Abstract

Motivation theory suggests several different approaches to best motivating students, established through rigorous empirical research. However, a theory-practice divide persists: teachers report feeling underprepared to motivate their students and researchers fail to make their recommendations readily accessible to teachers. In trying to close this divide most motivation researchers strive to move their theoretical and empirical work into classrooms. Another option to close the divide, however, is to focus on teachers' organic motivational practices. The purpose of the current study was to prioritize teachers' voices in order to understand their classroom motivational practices by asking them what they do in their classrooms to motivate their students and then examining whether the thematic analysis of their practices was preserved in a developed quantitative questionnaire.

Current Study: I employed an exploratory sequential mixed methods design, emphasizing the quantitative strand during the integration process, to answer the following mixed methods research question: Are the categories of teachers' organic motivational practices preserved when transformed into a self-report questionnaire?

Method: In the qualitative strand, 46 anonymous, snowball sampled teachers responded to a written prompt about their classroom motivational practices. Member checks with representative teachers were completed following thematic analysis. The first integration point was when the qualitative results were transformed into the items and structure of the Transformed Qualitative Practices Questionnaire (TQPQ). All thematic categories were included in the TQPQ and whenever possible items were based on teachers' verbatim responses to the initial written prompt. In the quantitative strand, I recruited 321 teachers as a convenience sample from two teacher conventions in large Canadian cities and through social media to

complete the TQPQ. Qualitative and quantitative data were analyzed separately, and a final integration process was undertaken to identify mixed insights.

Findings: Nine themes emerged from the thematic analysis of the qualitative responses, each representing a distinct category of practices organically endorsed by teachers. In the first integration, the codes and themes from the thematic analysis were transformed into the items and structure of the TQPQ. Four possible structures were arrived at through this integration process. In the quantitative analyses, the reliability of the separate scales of the TQPQ proved to be adequate according to coefficient alpha. However, the hypothesized original structure did not fit the data according to confirmatory factor analysis (CFA). Thus, the competing structures were tested and revealed that a two-model solution had the most acceptable CFA fit indices. One model represented social and emotional support and the other represented a toolbox of teaching strategies. In response to the mixed method research question, the primary integrated learning was that organic categories of practices were not preserved in the structure of the self-report questionnaire, suggesting that there is a difference between teachers' qualitative reports of motivating students and the way they respond to quantitative items that measure the same concepts.

Implications: Findings are discussed in light of the importance of giving priority to teachers' perspectives in research about their motivational practices because it appears that their organic practices are both similar to and different from those recommended by researchers. Measurement challenges in motivation in education are discussed, as well as the value of using an MMR approach to further understand this topic. Finally, the MMR inferences are evaluated according to Tashakkori & Teddlie's (2009) Integrative Framework for Assessing Inference Quality, identifying limitations. Suggestions for future research are also explored.

Preface

This thesis is an original work by Amanda Ivy Radil. The research project, of which this dissertation is part, received research ethics approval from the University of Alberta Research Ethics Board:

"Exploring Teachers' Current Motivational Practices in the Classroom," No. Pro00033881, November 12, 2012

"Listening to Teachers Talk about Motivating Students," No. Pro00051148, October 14, 2014

"Exploring Practicing Teachers' Beliefs and Emotions about Teaching," No. Pro00054513, January 29, 2015

Dedication

For Dad, because you never tried to tell me how to live my life; instead, you let me watch how you lived yours with compassion, kindness, and caring. I miss you everyday.

For Mom, because you're a "Good Mother." You encourage me to keep my feet on the ground, my heart in my hand, to face forward, and to be myself.

Acknowledgements

I would like to acknowledge a number of individuals and organizations who have contributed to the completion of this research and my doctoral degree. First, I want to thank my academic supervisor, Dr. Lia Daniels. We've navigated this journey together, through masters and doctoral degrees, and I am grateful for your patience and care along the way. Your support has been invaluable and you are an aspirational example of how I hope to be. Thank you for challenging me when I needed to be challenged and for encouraging me throughout this journey.

I would also like to thank the members of my supervisory committee, Dr. Cheryl Poth and Dr. Damien Cormier, for their supportive feedback, which has enhanced my doctoral research. I would like to thank Dr. Ying Cui and Dr. Michelle Inness for serving on my committee and Dr. Catherine Ratelle for acting as my external reviewer for this dissertation.

I acknowledge the financial support of the Social Science and Humanities Research Council (SSHRC), and additional funding provided by the University of Alberta through scholarships and graduate assistantships throughout my doctoral degree and the completion of this research.

To all of the teachers that I've had – from kindergarten with Mme. Bouffard, to English with Mr. Pentland, to volleyball and basketball with Ms. Nicholson, and working with Dr. Daniels – thank you for encouraging me to always be curious and to explore what I was interested in. Without your care and inspiration, I wouldn't be where I am.

I have been fortunate to have found wonderful friends and colleagues wherever I have landed and want to acknowledge them. To Laura, Yael, and Katherine: wherever we may find ourselves, I appreciate knowing that you're cheering in my corner, ready to support whatever I do, and that you will always be there when I need you. To Kerry, close to two decades after we

first met, I still feel like a teenager when we get together. You know that I cherish your friendship and support. To Jesse, Erin, Allyson, Erin, Kristine, Katherine, Megan, and Stephanie, I can't imagine having more supportive, kind, and funny friends on this journey. Although we've dispersed from one end of the country to the other, I cherish our time together and know that it will have a lasting impact on my life and work. Each of you helped me to build the foundation of my professional life and I'm forever thankful. To Coral, Melody, Rob, Roland, Mira, and Naomi, thank you for reminding me that there's life beyond the academy and for making sure I had balance in my life.

And finally, to my family, who have supported me throughout my academic journey: thank you. To my Mom, Holly, you are the constant in my life and will always be home. To my sisters, Alexandra and Danica, and brother, Connor, you are the compass to whom I turn when I get off track and the anchor that keeps me grounded. To my Aunts and Unks, Sandra and Allen, you are where I go to recharge and be reminded of who I am. And to my Dad, John, thank you for all the trips to the library, for always telling me I could be or do whatever I wanted, for showing me what hard work can accomplish, and for teaching me to live my life compassionately and kindly. You might be gone from earth, but you live in my heart forever.

Table of Contents

List of Tables

List of Figures/Illustrations

Teachers' Perspectives on Motivational Practices in Classrooms: An Exploratory Sequential Mixed Methods Design

Introduction

When thinking about what helps someone be successful, motivation is one of the first things that comes to my mind. I am not alone in this perception, as leading educational researchers in both cognitive and social science acknowledge and discuss the importance of thinking about constellations of traits that help individuals be successful, one of which is motivation (McGrew, Johnson, Cosio, & Evans, 2004; Snow & Jackson, 1994). One environment where motivation may be evident in its contribution to success is school. Because motivation is a common principle, most people have a lay understanding of what it may look like. For example, people may infer that students who are exerting effort, are engaged and enthused, and are on task are motivated; whereas, students who appear bored, uninterested, distracted, and are not completing the tasks are unmotivated. Largely these are the same types of behaviors that educational psychologists look to when assessing the *quantity* of student motivation. However, researchers also know that there are different *qualities* of motivation (i.e., some that are more adaptive than others [Deci & Ryan, 2008a]) and that motivation is impacted by the environment (Niemiec & Ryan, 2009). Thus, it becomes vital to understand what teachers do to support student motivation. Unfortunately, teachers' authentic voices in understanding how to support motivation are lacking even though they are in the best position to provide this information. Thus, the purpose of this dissertation was to bring teachers' authentic voices to the forefront of the dialogue on student motivation both in terms of understanding their motivational practices and in terms of designing a measurement tool.

Statement of the Problem

What does it mean to motivate a student? What does a motivated student look like? What practices can be implemented in the classroom to motivate students? These may be the types of questions that teachers wrestle with while trying to "move" students into action. "Move" is the Latin root of the word motivate and is useful to keep in mind when conceptualizing the term. The empirical literature has no shortage of theories and recommendations for teachers in terms of answering questions about what motivation is and how to support it (Linnenbrink-Garcia & Patall, 2015). Despite this, there is a documented disconnect between what researchers recommend and what teachers apply (e.g. Turner et al., 2011; Hulleman & Barron, 2015). One reason for this could be due to researchers having difficulty translating theory-based empirically validated practices into accessible classroom instructional practices (Turner et al., 2011). A second reason may be that teachers have difficulty linking motivational principles to their classroom practices and therefore turn to more intuitive and familiar practices instead of the practices that research recommends (Hardre & Sullivan, 2008). While it may be understandable that teachers struggle to translate empirical motivation research into applied practices, it seems negligent that researchers have remained largely unable to connect theory-driven and evidence-based practice recommendations with actual practices.

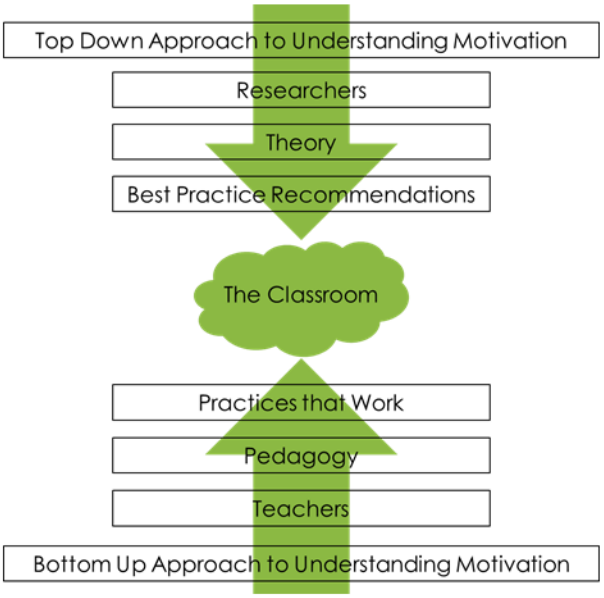
A third reason for this disconnect may be rooted in the quantitative and predictive nature of the field of motivation research (Kaplan, Katz, & Flum, 2012). Of the large body of literature that describes "best practices" to support student motivation and hopes to have an impact on the classroom (e.g. Anderman, Andrzejewski & Allen, 2011; Deci, Kostener & Ryan, 2001; Linnenbrink-Garcia & Patall, 2016), almost none of it addresses the question of what teachers are actually doing in their classrooms to facilitate motivation. I have come to conceptualize the

existing research on motivational best practices as using what I call "a top down approach" that either asks teachers to apply motivational principles from a specific theoretical lens to their teaching (e.g. Cheon, Reeve & Moon, 2012) or surveys teachers' practices according to a specific theory (e.g. Anderman, Anjzewski & Allen, 2011). I believe that (a) teachers may struggle to see themselves or their students in this research and that (b) the remedy to this is to conduct research on motivational practices from "the bottom up." In other words, I think that it is important to prioritize teachers' voices and ask them what they organically do in their classrooms to facilitate their students' motivation. I furthermore believe these voices will have the most impact on the field of motivation if they can be transformed into a quantitative measurement tool that can be used by both researchers and teachers. Thus, I believe that a bottom-up approach may be converted, or transformed, into something that allows a more traditional top-down approach in future research thereby allowing teachers' voices to have an ongoing impact on research. These notions of top-down and bottom-up approaches to research are represented visually in Figure 1. This visualization can also help capture the space that exists between researchers and teachers. Balancing these perspectives required that I undertake a mixed methods research methodology for this project.

Mixed Methods Research Methodology and Research Question

Mixed methods research (MMR) involves integrating qualitative and quantitative data at different points for different purposes in order to arrive at richer mixed insights than would be available using either approach alone (Creswell, 2015). This is the key reason that I used MMR in this dissertation: integration in my design, analysis, and interpretation allows me to arrive at richer understanding of teachers' motivational practices than I would be able to arrive at using either alone. MMR is an area where research innovation is possible (Creswell, 2015). Thus, I

Figure 1. Visual Representation of Top-down and Bottom-up approaches to Motivation



designed an innovative MMR dissertation to undertake a bottom-up approach to understanding teachers' motivational practices. Specifically, I employed an exploratory sequential mixed methods design emphasizing the quantitative strand. In the qualitative strand, I started by asking teachers what they currently do in their classrooms to motivate their students and undertaking a thematic analysis. As the first integration point, these qualitative results were then transformed into the *quantitative items* and *quantitative structure* of a self-report questionnaire. In the quantitative strand, I examined coefficient alpha and used confirmatory factor analysis to test competing models representing the different possible structures to see if the organic categories of practices were preserved in the quantitative measure. A final integration component was used to answer the overarching MMR question, which was: Are the categories of teachers' organic motivational practices preserved when transformed into a self-report questionnaire?

Position of the Researcher

I am uniquely situated to undertake this research for the following four reasons. First, I have a strong background in motivational theory and research and have been working in this field for almost 10 years. I started off interested in better understanding coaching environments and soon found myself interested in learning environments. I primarily work from Self-Determination Theory (SDT, Ryan & Deci, 2000a), although I have completed research across a variety of motivation theories. Second, I am committed to opening up a conversation about how we can best support learners in developing a love of lifelong learning and believe that understanding and applying motivational principles in the classroom can do so. Third, I have training in MMR and completed MMR research and evaluation work over the last 4 years (e.g. Archibald, Radil, Zhang & Hanson, 2015; Pei, Atkinson, Radil, Poth, Tremblay, Buhr, & Dayal, 2015). These experiences have prepared me for the process of completing MMR and the challenges that may present themselves as a result of using this methodology. Finally, I have a strong research laboratory (the Alberta Consortium on Motivation and Emotion [ACME]), including my supervisor, who have supported me throughout my dissertation research. Within this laboratory, we work collaboratively as is necessary in MMR and thus at all points of this project I had colleagues with whom to consult and sources of additional expertise.

Because there are many ways to present mixed methods research in a written report, I provide an outline of the remainder of this dissertation now. In the first chapter I provide a thorough review of the literature as is common in quantitative research but sometimes less pursued, though equally important in qualitative research (Creswell, 2009). A thorough literature review is important in this instance to establish what we know both from a theoretical perspective but also from an instructional perspective and to try and reduce the space between

motivation theory and teachers' practices. I conclude this chapter by describing my MMR study. The second chapter contains the specific procedures and results for each strand as well as a description of the Linked Transformation process that integrates the strands. I present the qualitative and quantitative strands separately as two complete studies (i.e., methodology, results, and a brief discussion of limitations and implications). I decided to do this in order to ensure that I provided explicit answers to and discussion of the qualitative and quantitative research questions. In the concluding chapter, I answer the final mixed research question by focusing on the mixed insights made available by the full design. I also present the implications and an assessment of quality for the full MMR, wherein I note limitations and suggest directions for future research.

CHAPTER I: Literature Review

This review is presented in two parts. In Part I, I focus on literature in the domain of motivation. I first establish a definition of motivation by comparing theoretical statements with teachers' definitions. Second, I introduce three discrete theoretical approaches to motivation (i.e., Attribution Theory, Achievement Goal Theory, and Self-Determination Theory) and highlight the main principles of the theory (i.e., *What it says),* how it conceptualizes different qualities of motivation (i.e., *What is good),* and then review the main recommendations for instructional practice. Third, I examine recent research and recommendations on student motivation that cut across theories rather than stay within a specific tradition, arguing that this cross-theory perspective is crucial for working with teachers. I end the motivation part of the literature review by exploring the current evidence about teachers' motivational practices, illuminating the divide between the motivation research and the instructional practices to suggest that prioritizing teachers' voices is one way to bridge this gap. In Part II I review mixed method research (MMR) and present an overview of the present research. I briefly discuss the history of MMR, rationale for using MMR, and ways to assess the quality of mixed inferences, while linking each to my specific research project. This section concludes with a description of the current study including the qualitative, quantitative, and mixed methods research questions, and points of integration.

Part I: Literature Review Motivation

Defining Motivation: Theoretical Perspectives

Much of the theorizing related to contemporary achievement motivation started in the 1980s and was refined into the early 2000s. Thus, most contemporary theories of motivation have been well established for at least 15 years with more recent empirical research focusing on

gaining a better understanding of the different environmental and personal factors (i.e., moderators and mediators) that may facilitate or forestall the different forms of motivation. Most research would agree that motivation is defined as the reasons that someone chooses to do something and involves initiating and sustaining achievement strivings (Wigfield & Eccles, 2000). Within this perspective, researchers also view some forms or *qualities* of motivation as more adaptive than others.

Researchers tend to think of external forms of motivation (e.g., extrinsic, performance focused, avoidant, controlled, etc.) as maladaptive. These forms of motivation are typically experienced when individuals feel pressured to act, feel, behave, or think in specific ways (Ryan & Deci, 2000a) or to avoid certain outcomes (Elliot, 1999). Researchers hold this position even though the educational context contains many external pressures, perhaps the most obvious of which is grades. Despite the omnipresence of external pressures, research has shown that more external forms of motivation are associated with undermining individuals' intrinsic valuing of certain activities (Deci & Ryan, 2008a), less interest and enjoyment in the task at hand (Ryan & Deci, 2000a) and low persistence (Vansteenkiste et al., in press cited in Niemiec & Ryan, 2009). However, external forms of motivation can be associated with good grades (Ratelle, Guay, Vallerand, LaRose & Senecal, 2007).

In contrast, researchers tend to think of internal forms of motivation (e.g., intrinsic, mastery, autonomous, etc.) as adaptive. This type of motivation can be broadly defined as experiencing volition and choice in one's environment or experiencing motivation as emanating from an internal source (Vansteenkiste et al., 2006). According to Ryan & Deci (2000b), intrinsic motivation is "[the] natural inclination toward assimilation, mastery, spontaneous interest and exploration that is so essential to cognitive and social development and that

represents a principal source of enjoyment and vitality throughout life" (p. 70). Individuals who are intrinsically motivated take part in activities because they perceive the activities as interesting and satisfying in and of themselves (Deci & Ryan, 2008b). In other words, tasks are undertaken because of the positive feelings that result from doing them. This type of motivation is therefore associated with an internal locus of perceived causality and consequently, more interest, enjoyment, and satisfaction with one's activities (Ryan & Deci, 2000b). Unfortunately, this type of motivation is sometimes not associated with grades (Linnenbrink-Garcia, Tyson, & Patall, 2008), though it is associated with persistence (Ratelle et al., 2007).

Defining Motivation: Teachers' Perspectives

Despite an adequate working definition of motivation in the empirical and theoretical literature and a firm stance on which type of motivation is "better", none of these definitions were established according to teachers' conceptualizations. In this way, motivation research has largely taken a top-down approach (see Figure 1) to understanding the classroom, by applying theoretical frameworks over top of teachers' practices and beliefs, instead of allowing teachers' practices and beliefs to organically emerge, in a bottom-up approach to understanding motivation in the classroom. As an exception, my colleagues and I asked preservice teachers how they defined a motivated student. The findings indicated that preservice teachers defined motivated students in four broad ways: engaged, internally driven, externally pressured, and socially responsible (Radil, Atkinson, Buhr & Daniels, manuscript in preparation). This definition suggests that preservice teachers balance external and internal components of motivation without viewing one as "better" than the other per se. Moreover, the results suggest that a balance between autonomous and controlled motivation can be associated with positive outcomes.

Discrete Theories of Achievement Motivation

I review the following three theories of achievement motivation: Attribution Theory (Weiner, 1988), Achievement Goal Theory (Wigfield & Eccles, 2000), and Self-Determination Theory (SDT, Ryan & Deci, 2000). The purpose of reviewing these separately is to establish an understanding of the main theoretical principles and the recommendations for teachers associated these principles. This information is important in relation to the current dissertation because a familiarity with the major approaches to studying motivation and recommendations must be established in order to make comparisons with teachers' organic practices.

Attribution Theory: What it says. Attribution theory is primarily concerned with the explanations that individuals develop about their experiences or the experiences of others (Weiner, 1985). Moreover, it is the individual's perception of what happened that matters more than the actual explanation. Interestingly, attribution theory starts at the end - with an outcome or an explanation. Most of the empirical work in Attribution Theory focuses on failure, as opposed to success, because failure is valued as an important outcome and individuals tend to search for explanations for important outcomes. Thus, in the achievement domain, attribution theory argues that individuals' perceptions about why they succeeded or failed at an activity influence their likelihood to expend effort and engage in this and similar activities in the future (Graham & Williams, 2009).

According to Weiner (1985) all explanations can be broken down along three causal dimensions: stability/instability, controllable/uncontrollable and internal/external locus of causality. Stability refers to how stable the attribution is – is the cause consistent or changeable? Control refers to how controllable the outcome is – was it under the control of the individual or not? Finally, Locus of Causality refers to whether the experience is felt as internal or external –

does it belong to the individual or is it outside of them? These three dimensions in turn predict specific cognitions, emotions, and behaviours (Schunk, Pintrich & Meece, 2008). Typically, the control dimension determines whether or not someone is held responsible for the outcome or not (Weiner, 2000). When someone is held responsible feelings of anger are prominent and help giving is unlikely. Whereas when someone is not held responsible sympathy is prominent and help giving is common.

Attribution Theory: What is good. Researchers view some causal attributions as more adaptive in sustaining achievement motivation than others (Graham & Williams, 2009). As a point in case, consider the different reasons students give for failing a test. One student may explain that they failed the test because they did not study sufficiently while another may explain their failure as due to the fact that their teacher does not like them. The first student has made an internal attribution that is more likely to preserve motivation than the second student who made an external attribution. Attributions about failure that are internal, controllable and unstable are considered most adaptive (Linnenbrink & Pintrich, 2002). Adaptive attributions also protect individuals' self-worth and suggest that factors will either be present or not present, respectively, in future situations. Building on adaptive attributions, students who make more adaptive attributions feel more interest, more efficacious and exert better effort on tasks than do students who make less adaptive attributions (Glasgow, Dornbusch, Troyer, Steinberg & Ritter, 1997). Recommendations for practice, therefore, extend from this perspective.

Attribution Theory: Recommendations for practice. Attribution theory suggests that motivation is facilitated when students to make more adaptive attributions about their school experiences particularly by focusing on effort (i.e., internal, controllable, unstable). One specific way to encourage effort includes attributional retraining (AR), a cognitive intervention by which

maladaptive attributions are replaced with more adaptive ones. Research illustrates that AR can be used to encourage students to adopt more adaptive attributions and thereby increase their mastery motivation towards certain experiences (Haynes, Perry, Stupinsky & Daniels, 2009). This finding has been replicated through all levels of schooling: elementary (e.g. Hudley, Britsch, Wakefield, Smith, Demorat & Cho, 1998), secondary (e.g. Heller & Zeigler, 1996) and post-secondary (e.g. Haynes Stewart, Clifton, Daniels, Perry, Chipperfield & Rithig, 2011). As such, according to Attribution Theory researchers would expect to see teachers' organic practices focus on effort and assist students in making adaptive attributions.

Achievement Goal Theory: What it says. Achievement Goal Theory (AGT) explains why individuals are oriented to a particular achievement (or goal) and how they approach and engage with tasks that will enable them to achieve this specific goal. Atkinson and Feather (1966) initially identified that AGT is concerned with the actions that someone takes when confronted with the challenge to achieve and the simultaneous threat of failure and Maehr and Zusho (2009) note that AGT is interested in understanding *why* individuals pursue goals as opposed to *what* they pursue. Thus, AGT conceptualizes achievement goals as having both a focus on competence and valence. The two definitions of competence are separated into mastery and performance; whereas, valence is separated into approach and avoidance orientations. This results in a 2 competence x 2 valence matrix. Individuals who have mastery-approach goals tend to approach tasks with the intention to develop competence intrapersonally, to gain understanding, and to "master" the given task. Students with performance-approach goals tend to focus on their ability in comparison to others, to define confidence interpersonally, to strive to be the best in a group, and to seek public acknowledgement of high performance (Maehr & Zusho, 2009). In contrast, students with mastery-avoidance goals seek to avoid losing competence and

students with performance-avoidance goals seek to avoid appearing incompetent, particularly relative to others (Elliott, 1999).

Achievement Goal Theory: What is good. Mastery-approach goals have been identified as particularly adaptive (Kaplan & Maehr, 2007; Meece, Anderman & Anderman, 2006). Defined as wanting to understand content and engage in the process of learning (Ames, 1992), this type of goal implies that students are engaged in learning for its own sake. This type of goal is sometimes associated with higher school grades, and regularly associated with better understanding of material, and desire for more challenging material (Paulick, Watermann & Nuckles, 2013; Senko, Belmonte &Yakhkind, 2012; Meece, Anderman & Anderman, 2006). Performance-approach goals are associated with persistence, exam performance, and surface learning (Elliott, McGregor & Gable, 1999), all of which are also outcomes that are valued in our education system. In contrast, performance-avoidance goals are associated with low achievement, self-handicapping and increased anxiety (Elliott, McGregor & Gable, 1999; Elliot & McGregor, 1999). There has been less research on mastery-avoidance goals (Meece, Anderman & Anderman, 2006) perhaps because some evidence suggests that true mastery-avoidance goals may be uncommon (Ciani & Sheldon, 2010). Thus, recommendations for practice mainly evolve around supporting mastery-approach goals.

Achievement Goal Theory: Recommendations for practice. Meece, Anderman and Anderman (2006) use the acronym TARGET to suggest practices that teachers should consider implementing in order to support students' mastery-approach goals. TARGET reflects the following categories of practices: Task, Authority, Recognition, Grouping, Evaluation and Time (Anderman, Patrick, Hruda & Linnenbrink, 2002). Task practices reflect how teachers can manipulate the nature of tasks and includes practices such as using different modalities to either

present tasks or have students complete tasks (Kumar, Gheen & Kaplan, 2002). Authority practices include all practices that grant authority or autonomy to teachers or students (Anderman et al. 2002). These practices can include the provision of choice in assignments and freedom for students to move around the classroom (Patrick et al., 2001). Recognition practices include the basis for student recognition (Kumar et al., 2002) and can be both positive, such as acknowledging student performance and effort, and negative, such as reacting to student misbehaviour (Patrick et al., 2001). The G in the TARGET acronym stands for Grouping practices; these include small group instruction or ability grouping (Anderman et al, 2002). Evaluation system practices can be quite different between teachers. Some may elect to emphasize the formal assessment process while others may elect to monitor student progress and student behaviour as part of their evaluation systems (Anderman et al., 2002). Interestingly, Anderman and colleagues (2002) suggest that the posting of relative ability information has become so ubiquitous in our education system that this practice may not have the effects on students that we expect it to have, namely decreasing student motivation. Finally, practices around Time reflect how time is used in the classroom (Kumar et al., 2002). This can include the pacing of events or assignments and how teachers choose to use time in their classrooms (e.g. movement breaks) (Anderman et al., 2002). It is important to note that TARGET suggests the types of practices that teachers should consider implementing in their classrooms; however, it is not necessary to have practices from each category to create a mastery oriented classroom (Anderman et al., 2002). In addition to TARGET, other discrete practices that have been shown to support mastery goals are choice, focusing on effort, using rationales, and modeling enthusiasm (Maehr & Zusho, 2009; Midgley et al. 2000). As such, according to Achievement

Goal Theory, researchers would expect to see teachers' organic practices be similar to those in TARGET.

Self-Determination Theory: What it says. Self Determination Theory (SDT; Ryan & Deci, 2000b) is a more humanistic approach to motivation than the two theories previously presented. SDT also looks to explore the situations and environments that can cultivate those positive processes (growth, motivation and integration of the self). Of particular interest to this research are the Organismic Integration Subtheory and the Cognitive Evaluative Subtheory, both of which deal with striving to achieve optimal functioning or optimal motivation in a given environment, which for the purposes of this dissertation are restricted to academic settings (Ryan & Deci, 2000a).

According to Organismic Integration Subtheory, motivation varies in both amount and type, which leads to a continuum of kinds of motivation. Broadly, these types can be separated into extrinsic or controlled motivation and autonomous motivation (Deci & Ryan, 2008a; Vansteenkiste et al., 2006). Furthermore, research demonstrates that it is possible to facilitate an individual's movement along this motivation continuum from more external to more internal forms of motivation (Deci & Ryan, 2008b) by supporting their basic psychological needs.

These basic psychological needs described in the Cognitive Evaluative subtheory are: the needs for autonomy, competence and relatedness (Ryan & Deci, 2000b). Autonomy is defined as experiencing behaviours as volitional and freely chosen, with the self at the origin of the behaviour (Nimiec & Ryan, 2009; Oliver, Markland, Hardy & Petherick, 2008; Deci & Ryan, 2008a; Faye & Sharpe 2008). The need for competence is defined as "the experience of behaviour as effectively enacted" (Niemiec & Ryan, 2009, p. 135). In other words, in order for individuals to feel competent, an activity should be optimally challenging (neither too difficult

nor too easy) and allow them to feel effective in their environments (Faye & Sharpe, 2008). The psychological need for relatedness is defined as the experience of feeling close and connected to others, while also having supportive and satisfying close relationships (Oliver et al., 2008; Reis, Sheldon, Gable, Roscoe & Ryan, 2000). Thus, if what education professionals want are autonomously motivated individuals, they need to help students feel autonomous, competent, and connected in their environments. Deci and Ryan (1994) note that environmental factors can help people satisfy their psychological needs and thus are linked to more self-determined behaviour, growth, and autonomous forms of motivation.

Self-Determination Theory: What is good. Students who are more internally motivated tend to perform better academically (Guay & Vallerand, 1997) and are less likely to drop out of school (Vallerand, Fortier & Guay, 1997). Additionally, Vansteenkiste and colleagues (2004) have found that being internally motivated can lead to deeper understanding of material. Students who are more internally motivated may be more creative as "external contingencies present in the school setting may undermine student creativity" (Guay, Ratelle & Chanal, 2008). Finally, the findings that students who are internally motivated are happier at school, are more satisfied with their school experiences and enjoy academic work and learning more than their peers who are more extrinsically motivated has stood the test of time. For example, Vallerand and colleagues (1989) found evidence that supports these statements in the late 1980s while Levesque, Zuehlke, Stanek and Ryan found much the same results in 2004. Froiland & Worrell (2016) demonstrated most recently that intrinsic motivation was positively related to learning goals and engagement; it was also indirectly related to academic achievement. Consequently, given the benefits stated above, it becomes crucial to examine ways to facilitate this because "students' natural tendencies to learn represent perhaps the greatest resource educators can tap"

(Niemiec & Ryan, 2009, p. 134). Thus, recommendations for practice from SDT generally focus on promoting more intrinsic forms of motivation through supporting basic psychological needs.

Self-determination Theory: Recommendations for practice. SDT suggests that motivation can best be facilitated supporting the basic psychological needs of autonomy, relatedness, and competence in the classroom (Reeve, 2009). Moreover, it suggests that there are specific classroom practices that support these needs. Autonomy is supported by the provision of choice and the use of rationales, competence is supported through giving students work that matches their ability level and is neither too challenging nor too easy, and relatedness is supported through facilitating genuine and warm relationships with students and among peers (Deci & Ryan, 2008b).

The most researched of these three needs is autonomy and autonomy-supportive classroom practices (e.g. Reeve, Jang, & Deci, 2010; Reeve, 2009; Reeve, 2006). In the 20 year history of SDT research, the practices that foster an autonomy-supportive environment have been extensively researched and have been simplified into five specific practices by researchers (Reeve, 2009). These five practices are: (1) provide explanatory rationales (2) acknowledge and accept expressions of negative affect (3) nurture inner motivational resources (4) rely on non-controlling, information language and (5) display patience to allow time for self-paced learning.

While the autonomy-supportive practices within SDT are quite clear, the practices that support competence or relatedness are less understood. The literature seems to suggest that the provision of tasks/assignments that are at an optimal skill level (neither too difficult nor too easy) supports students' competence (Niemiec & Ryan, 2009). While the SDT literature has yet to identify specific practices that support relatedness (Ryan & Deci, 2013), it would be prudent to make the connection between social skills programs, the ability to engage in more genuine and

caring relationships and students who demonstrate greater adaptive affect and are more successful in their peer interactions. Moreover, relatedness is also impacted by warm and caring teachers, characterized by empathy, understanding, and responsiveness (McCroskey, 1992) in their interactions with students. Alternatively, Noddings (1992) suggested that caring teachers model this behaviour for students, had expectations of their students and helped them achieve them, and engaged students in meaningful dialogues. Having perceived caring behaviours present in the classroom is associated with increased effort from students in both academic and social/prosocial domains (Wentzel, 1997). Increasingly, the qualities of student/teacher relationships appear to be an important component to understanding the complex motivational processes present in classroom environments. As such, according to SDT, researchers would expect to see teachers' organic practices focus on meeting students' basic psychological needs.

Generalized Motivation Recommendations

The recommendations for practice summarized above for each theory separately are presented together in Table 1 in order to visualize the overlap in recommendations between the theories. In addition to these theoretical overlaps, empirical research has documented that many motivational practices cast a broad net thereby impacting several motivational variables at the same time along with a variety of outcomes (Froiland & Worrell, 2016; Butler, 2012; Lau & Nie, 2008). For example, rationales may be considered a component of a mastery-focused classroom, or alternatively an autonomy supportive classroom may involve mastery experiences (e.g., Reeve et al., 2013; Ciani, Sheldon, Hilpert, & Ester, 2011). Additionally, the provision of autonomy support may protect against general decline in mastery-approach goals in post-secondary students (Vedder-Weiss & Fortus, 2017; Ciani et al, 2011). Furthermore, focusing on effort, as happens in attributional retraining (Haynes et al., 2009), is another practice recommended when

Table 1. Recommended practices mapped onto theories

Recommendation	Attribution Theory	Achievement Goal Theory	Self-Determination Theory
Focus on effort	O X	X	X
Task Design & Practices		O X	X
Authority Practices & Location		O X	X
Recognition Practices	X	O X	
Grouping Practices		O X	X
Evaluation Practices		O X	X
Timing Practices		O X	X
Provide explanatory rationales	X	X	O X
Acknowledge and accept expressions of positive and negative affect	X		O X
Nurture inner resources			O X
Use non-controlling and informational language	X	X	O X
Display patience and allow time for self-paced learning		X	O X

Note: O indicates theory of origin; X indicates practice mentioned by the theory

trying to support mastery-approach goals (Midgley et al., 2000). Butler (2012) recently extended her achievement goal framework to include relational goals, in addition to already established achievement goals for teachers, thus acknowledging the importance of interpersonal relationships in the classroom environment, which is consistent with SDT's notion of relatedness (Ryan & Deci, 2000a). The overlap between these concepts is supported by empirical work by Froiland and colleagues (2016) who demonstrated a connection between teacher autonomy support and feelings of school belonging in indigenous Hawaiians, which in turn impacted academic achievement. Finally, a recent meta-analysis of motivation interventions with post-secondary students noted that multidimensional motivation interventions were most successful (Wagner & Szamoskozi, 2012). Because of these observable overlaps, researchers regularly call for research that combines theoretical perspectives, or "thinks cross-theoretically" (e.g. Kaplan & Patrick, 2016; Linnenbrink-Garcia & Patall, 2015). With few notable exceptions, reviewed next, this cross-theoretical thinking is rare in the literature.

Following the foundational work of Pintrich (2003) in which he identified motivational generalizations, Urdan and Turner (2013) suggested the following eight practices derived from across motivation theories: focusing on relevance, considering competence and self-efficacy, supporting autonomy and growth mindsets, encouraging deep learning and self-regulated learning, helping students develop goals, integrating interest, providing informational feedback, and knowing and meeting students where they are. Linnenbrink-Garcia, Patall, and Pekrun (2016) provide the most recent list of instructional design principles compiled after thinking across theories. They suggest that teachers:

1. Support competence through well-designed instruction, challenging work, and information and encouraging feedback;

2. Support students' autonomy though opportunities for student decision making and direction;
3. Select personally relevant, interesting activities that provide opportunities for identification and active involvement;
4. Emphasize learning and understanding and de-emphasize performance, competition, and social comparison; and
5. Support feelings of relatedness and belonging among students and teachers.

In addition to identifying these types of broad recommendations, Urdan and Turner (2013) and Linnenbrink-Garcia and colleagues (2016) highlight the disconnect between the practices in theory and what we know about what teachers actual do. Urdan and Turner state "many of [the practices] are not based on classroom research" (2013, p. 307). These researchers believe that focusing on motivational generalizations and cross-theory perspectives will facilitate partnering with teachers to narrow this divide. It is therefore prudent to examine existing research that looks at teachers' actual motivational practices, a topic that is especially important for the current research because of its prioritization of teachers' perspectives.

Teachers' Actual Motivational Practices

A literature search in the *PsycInfo* database using the key words "Motivation," "Teachers," and "Classroom" produced 34 articles, of which only a small portion specifically examine the motivational strategies that teachers use in classrooms with students. The same search completed in the *ERIC* database produced 18 results, with none specifically examining the motivational practices that teachers use in the classroom. The four studies most relevant to the current research were primarily qualitative and tended to use observations and interviews as their principal sources of data. For example, Hardré and Sullivan (2008) examined how rural, public

high school teachers' individual differences and perceptions influence the motivation strategies that they use in their classrooms. They found that the majority of teachers surveyed admitted that they don't know how to motivate their students and that they tended to use more intuitive strategies to do so. Based on observations, Patrick and colleagues (2011) demonstrated that mastery goal structures were phenomenologically central to good classroom social climates and therefore should be encouraged. Anderman, Andrezejewski and Allen (2011) observed teachers that students had nominated as highly motivating and developed a model describing their practices. The model consisted of three factors: supporting understanding, building and maintaining rapport, and managing the classroom. These three factors provide some of the first suggestions developed from observations of what teachers actually do to create effective motivational climates in the classroom. Finally, Putwain and Symes (2011) found that teachers who use fear appeals and highlight the consequences of failure, with students who perceive these appeals as threatening may be contributing to their students' feelings of anxiety and fear of failure while also encouraging the pursuit of mastery-approach goals. This finding (fear appeals positively related to mastery-approach goals) was unexpected to the researchers. It serves to demonstrate the importance of further research on specific classroom motivational practices in order to clarify and understand results from the research that does exist.

A review of the instructional practices literature reveals that there are additional papers that speak to motivational practices of teachers in specific domains. Representative work includes Hulleman and Harackiewcz's landmark intervention study in *Science,* which examined the importance of having students make connections between their lives and what they were learning in their science classes. This connection, or increased relevance, lead to greater interest in science and higher grades (Hulleman & Harackiewcz, 2009). Turner, Bogner-Warzon, and

Christensen (2011) worked closely with math teachers to implement four different kinds of motivational practices in their classroom: focusing on competence, developing belongingness, supporting autonomy, and making learning meaningful. They had some success in their implementation of these practices, though noted the importance of content area examples as well as much support for this change in teaching beliefs, which requires a significant amount of reflection. Dornyei and Csizer (1998) examined motivational practices as they relate to second language learning and identified 10 macrostrategies teachers endorsed: acting as an example, creating a pleasant, relaxed atmosphere, presenting tasks, creating relationships, focusing on competence, increasing interest, supporting autonomy, focusing on relevance, support goals, and increasing familiarity with the target language culture. While some of these strategies are specific to this content area (e.g. increasing familiarity), others are broader and demonstrate that motivational principles may be permeating some content area domains.

Gaps in the current literature. The central argument of my doctoral research is that the practices teachers organically implement in their classrooms for the purposes of motivating their students are under explored. Furthermore, the existing research tends to focus on classroom motivational practices of exemplary teachers or those identified as high quality (e.g. Anderman, Andrzejewski and Allen, 2011), thereby neglecting the practices of typical teachers. Although exemplary cases may provide important insights for the purposes of supporting less-motivating teachers, it also limits our understanding of generalized practices (e.g. Kaplan & Patrick, 2016; Linnenbrink-Garcia & Patall, 2015; Hardre & Sullivan, 2008). I believe that researchers have not adequately examined the organic motivational practices of the everyday teacher. Thus, I propose that we must ask teachers about their practices to allow their thoughts and beliefs about motivational practices to emerge organically before we can try to measure them quantitatively. It

is still unknown the extent to which teachers' practices may or may not conform to recommendations either within a particular theoretical framework or across them broadly. After exploring teachers' own organic practices, it may then become possible to develop a measure that reflects teachers' practices in their classrooms to motivate students. Thus, I am heeding recent calls (Kaplan & Patrick, 2016; Linnenbrink-Garcia & Patall, 2016; Urdan & Turner, 2013) for a better understanding of teachers' perspectives on motivation. In order to focus on teachers' perspectives and transform those perspectives into a quantitative measure that can impact future research, I chose to use a mixed method research design.

Part II: Mixed Methods Research Design, Purpose, and Questions

Mixed methods research (MMR) is frequently thought of as the third methodological approach and has seen great uptake by researchers over the past two decades. Creswell (2015) defines a mixed methods approach as a research method where the researcher collects and analyzes both qualitative and quantitative data based on research questions and then mixes, integrates or links the two form of data by combining or merging them. During this process the researcher gives priority to one or to both forms of data, uses these procedures in a single study or in multiple strands of a program of study, and frames these procedures within philosophical worldviews and theoretical lenses. Finally, the researcher must combine the procedures into specific research designs that direct the plan for conducting the study (Creswell & Plano Clark, 2011, p. 5). Greene and colleagues (1989) suggest that the reasons to pursue MMR can be broken down into five different broad categories: triangulation, complementarity, development, initiation and expansion.

While the design and reasons for pursuing MMR are largely agreed upon, discussions on how to generate integrated inferences and assess their adequacy are newer. While Greene (2007)

notes that there is much creativity in how we can generate integrated inferences and that this is a highly individualized process, there seems to be some agreement that generating integrated inferences involves three different kinds of logic, in an iterative process (Onwuebeguzie, Leech & Collins, 2011). The cycle of mixed inference generation should involve "the use of induction (or discovery of patterns), deduction (testing of theories and hypotheses), and abduction (uncovering and relying on the best of a set of explanations for understanding one's results)" (Johnson & Onwuebeguzie, 2004, p. 17). Bazeley (2016) speaks about refining and reflecting, as well as discovering, describing, and puzzling, to arrive at integrated or mixed inferences. Following the generation of mixed inferences, their quality needs to be assessed. Contemporary approaches to considering validity focus on the full MMR design rather than separate strands (e.g., Dellinger & Leech, 2007; O'Cathain et al., 2008; Onwuebeguzie & Johnson, 2006; Tashakkori & Teddlie, 2009). I kept these four main components of MMR (i.e., design, rationale, integration, and assessment of quality) in mind when designing the current study.

Overview of the Current MMR Design and Research Questions

I used an exploratory sequential mixed methods design (Creswell, 2015) that consisted of two strands designed to answer three research questions. The process is depicted in Figure 2. The qualitative strand sought to answer the research question: How do teachers describe motivating their students? I asked teachers to write about what they do to motivate their students. These responses were then thematically analyzed through a process that relied on inductive logic (Onwuebeguzie, Leech & Collins, 2011). Following these analyses, I used a linked transformation to integrate the qualitative and quantitative strands. Specifically, I created an initial pool of items based on the qualitative data analysis, often using teachers' exact words. I also engaged in a conversation regarding the transformation of structure of the qualitative results.

Thus, at the end of the linked transformation I had both item level and structure level quantitative components built exclusively from the qualitative strand. This process represents the first point of integration because the quantitative strand is linked to transformed qualitative findings (Bazeley, 2016).

The quantitative strand, which was emphasized, sought to answer the research question: What is the reliability and structure of teachers' responses to developed scales operationalizing motivational practices? This procedure involved collecting data from a convenience sample of practicing teachers to examine the reliabilities and confirm the factor structure of the created scales. The quantitative strand was largely guided by deductive logic (Onwuebeguzie, Leech & Collins, 2011).

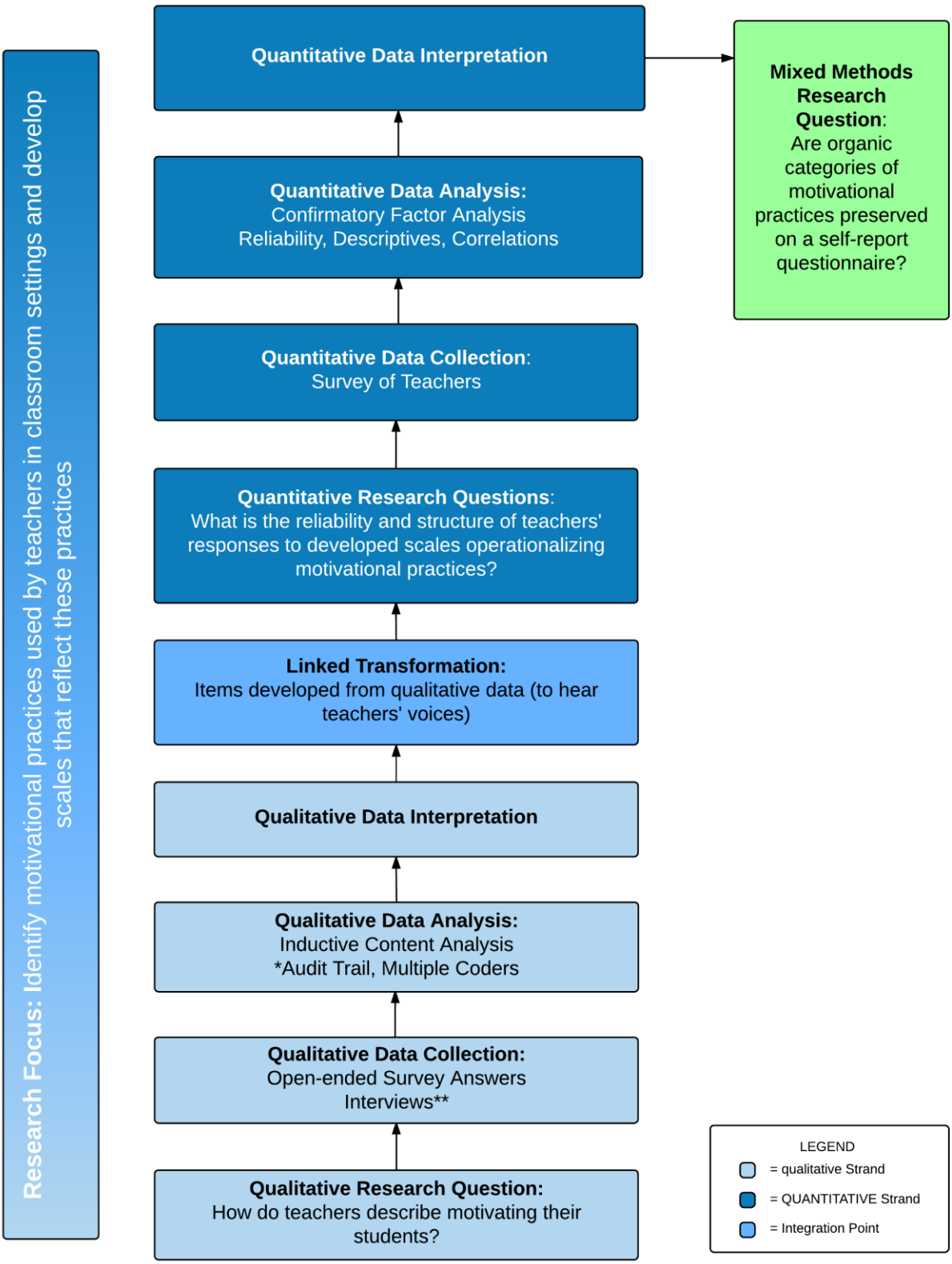
The final integration process in this dissertation sought to answer the research question: Are the categories of teachers' organic motivational practices preserved when transformed into a self-report questionnaire? To do this I completed a sequential mixed data analysis (Tashakkori & Teddlie, 2009; Onwuegebuzie, Slate, Leech, & Collins, 2007) relying on abductive logic (Onwuebeguzie, Leech & Collins, 2011). My inference generation process best fits within a DNA-like metaphor (Bazeley & Kemp, 2012). I combined my findings but did the majority of the analysis separately (i.e. quantitative data were not qualitized, qualitative data were not quantified). Abduction occurred during integration and MMR inference generation as I moved between qualitative data interpretation and quantitative data analysis and interpretation. In this process, I was committed to being "creative and adventuresome" and acknowledging "the importance of diverse ways of knowing and valuing" (Greene, 2007, p.163) because I believe it is this sort of thinking that will best represent teachers and their approaches to student motivation.

Each strand and research question served a specific purpose. The reason for collecting qualitative data first was to ensure that teachers' voices would be the basis of the research. Collecting the quantitative data served to test the reliability and structure of a measurement tool that was needed by the research community. The mixed research question sought to see if teachers' voices could be preserved in a quantitative tool. Thus, according to Greene et al.'s (1989) classification system, my MMR would most closely align with the complementarity or development rationales.

My worldview and MMR. It is my belief that methodological decisions should be driven by the research question(s) and the researcher then makes decisions regarding how to best undertake this inquiry. This belief aligns with a pragmatic worldview, which emphasizes the research problem and being able to apply a solution that works to this problem; thus, pragmatic researchers tend to use all approaches that help them to understand a problem (Creswell, 2009). However, it would be false to say that a pragmatic approach to research is simply about what works, though this has been implied in the literature (Morgan, 2014). Instead, it behooves researchers to consider pragmatism as a process of self-conscious decision making or what John Dewey considers inquiry (Morgan, 2014). Morgan (2014) suggests that pragmatism does not have an assumption about reality (or an abstraction about the creation of meaning); instead, there is an emphasis on experience as a continual interaction of beliefs and action, with experience bringing our beliefs and actions into contact. Moreover, the approach tends to be flexible in methodology, with no adherence to any specific methodology, which has lent this worldview quite nicely to MMR. This is not to say that MMR studies happen exclusively from this perspective; indeed, it may be that MMR studies may require holding multiple worldviews depending on the strands of the research or the types of and the researcher will then need to

reconcile how these work together. However, it is likely that the overall research may be more guided by one worldview than another; much of the MMR literature would note that the important part of this struggle would be being explicit about what was going on in the design portion. By understanding my own perspective on MMR (i.e. that researchers make conscious decisions about how to answer their questions), I was better able to understand my research question and why I made the decisions about my research that I did. Moreover, it helped me to understand how I was evaluating MMR and the room for innovation within the methodology, beginning with a creative design to integrate data and generate mixed insights.

Figure 2. Diagram of Current Research



CHAPTER II

Qualitative Strand Methodology: Teachers' Descriptions of Motivational Practices

The qualitative research strand was guided by the research question: How do practicing teachers describe motivating their students? The purpose of this exploratory strand was to increase our understanding of what teachers report doing to motivate students without imposing any specific motivation theory or lens on their practices. By starting with the qualitative strand, my methodology prioritized teachers' voices the same way I believe is important to do. The procedure was approved by the University of Alberta Human Ethics Research Board (Pro00033881 and Pro00051148; Appendix A for the approval).

Participants. In total, 42 practicing teachers were involved with the qualitative strand. Of these 71.8 % were women, 28.2% were men. Participants had a mean age of 33 years old and an average of 7.5 years of teaching experience. They tended to teach English ($N = 24$), Math ($N = 21$) or Science ($N = 19$), though 64% of the sample ($N = 27$) teach elementary school and thus teach multiple subject areas. Participants were from Canada and the United States.

Procedures & materials. The researcher and other colleagues circulated an open-ended survey via social media (e.g., Facebook, Reddit) asking teachers to respond four open-ended questions along with some demographic questions and to "pass it on" in the hopes of generating a snowball sample (see Appendix B). Only responses to one of the questions participants answered formed the qualitative data for this dissertation. This question was: *What do you do to motivate your students?*. In total 46 teachers completed the questionnaire, which was hosted on Survey Monkey, an online data collection tool which houses its data on servers located in the U.S. and is subject to review by U.S. Federal Authorities under the U.S. Patriot Act (section 215 Access to Records). 4 participants did not provide a response to the question of interest and thus

were excluded from this analysis. Consent was implied through the completion of the survey; an information letter was also provided to all participants (see Appendix C). The survey was intended to take approximately 15 minutes to complete.

After the qualitative data were analyzed, I conducted interviews with four practicing teachers as member-checks to ensure confidence in the themes identified from the open-ended survey data. The interviews were semi-structured, lasted approximately 1 hour, were audio-recorded, and followed a script similar to the questions used for the open-ended survey (see Appendix D). Participants received an information letter and a consent form to complete. Then we started with a discussion of what the teacher does to motivate his or her students. After establishing their own practices, each participant reviewed the list of themes that I had generated through analysis of the snowball sample responses. Interviews allowed for data to be checked in a short amount of time and in a cost-effective manner (Creswell, 2009). Through the interviews I was able to interact with participants and get an in-person sense of the validity (or trustworthiness and confidence) of the themes extracted from the snowball responses. Thus, these interviews served as checks that my interpretation imposed a structure on teachers' practices with which they agreed and increased the trustworthiness of and confidence in the interpretation. I wrote memos at the end of each interview about the extent to which the participant agreed with the existing analysis.

Rationale for data analysis. I completed a thematic analysis of the open-ended survey responses. I used an inductive process because I was most interested in emerging ideas or practices that teachers use in the classroom (Johnson, 2008). I followed Thomas's (2006) suggestions for a general inductive approach when working with the open-ended responses. Although these guidelines emanate from evaluation work, I find that this process was applicable

to and appropriate for the research that I completed and provided a feasible and practical way to complete this analysis. I open-coded participants' responses, creating a code list (Onwuegbuzie, Dickinson, Leech, & Zoran, 2009). I then refined my code list, identifying higher-level themes and eliminating redundant codes. I created a coding chart, including a list of codes, detailed definitions, and examples. Following this analysis, I brought the code chart and my qualitative interpretation to my research team and we discussed the findings and whether they could be interpreted in different ways; no changes were made to the initial interpretation based on these discussions, indicating interpretive consistency, agreement and distinctiveness. Because the open-ended questions were completed anonymously, I had no way to verify the analysis with the original participants. Therefore, I used interviews with new participants to establish confidence in my analysis (no additional themes or categories of strategies were added based on these member checks).

Researcher beliefs and biases. An important component of my qualitative strand, as I strive to makes sense of my qualitative data, is making explicit my own beliefs and biases as putting these fully aside is not possible (Pietkiewicz & Smith, 2014). While I have taken steps to mitigate their influence on my findings, through peer debriefing and member checking, it is important that I make these beliefs explicit. First, I am not a teacher and thus have not taught in the K-12 classroom environment. However, I have spent time in the K-12 classroom environment as a student, throughout my training as a school psychologist, and held the role of primary instructor for two university courses. I am less familiar with content specific motivation than I am with general motivational theory applied in education. Next, my interest in this topic stems from my observations of classroom environments and coaching behaviours throughout my and my siblings' experiences in educational and sporting programming. While we had good experiences, there were also poor experiences that made me wonder about what kinds of

practices motivate student-athletes to continue with a variety of pursuits, learning being chief among them. I have come to believe that motivation is an important way that many of these experiences can be explored and practices, good or bad, coaching or teaching, understood. As a result, I have a strong background in motivational theory, developed over the course of my post-secondary educational experiences. Finally, I believe that it is essential to gain a better understanding of the motivational principles at play in classroom environments so that they can be captured and used to help encourage a love of life long learning in students, which will be beneficial for them in the future. I believe that students will learn best when motivational principles are incorporated into classrooms and will balance this belief with teachers' perspectives in my analysis and interpretation.

Results

Thirty-four discrete codes emerged from participants' answers and were then collapsed into nine themes, with each theme representing a different domain of practices that teachers reported using to motivate their students (see Appendix E for the Codebook generated during data analysis). The themes and their definitions are presented in Table 2 and then described individually.

Relevance. Practices that captured making learning meaningful and relevant to students as a means of motivating them were identified under the theme of Relevance. Teachers described providing choice to students, making outcomes salient, making real world connections, and pointing out relevance. Teachers described "[providing] choice to students in what they learn and how they show their learning," which is about providing meaningful and not superficial choices to students. They also described focusing on future outcomes with students as part of their work, including highlighting the use of "intrinsic motivators" such as "sense of

Table 2. Definitions of Themes that emerged from Qualitative Data

Theme	Definition
Relevance	Making learning meaningful and relevant to students
Interest	Modeling enthusiasm and sustaining students' interest on activities and tasks
Relationships	Trying to establish and maintain relationships across domains of their students' lives
Rewards	Using accolades, both tangible and intangible, to motivate students
Effort	Acknowledging student work without placing value on that same work
Safe Environment	Focusing on making students feel comfortable in the classroom and willing to take risks
Goals	Focusing on setting goals with students
Student Self-Regulated Learning	Practices used that are focused on students developing self-regulated learning
Teaching Strategies	Practices used that focus on specific teaching strategies

accomplishment, post secondary opportunities." In addition, teachers reported the importance of meaningfully connecting student learning to everyday life, such as "[letting] them know the importance of the information and how it relates to their every-day [life]." Meaningful connections were not only made to everyday life but also to other topics. For example, teachers described "[making] learning relevant to the students" and "[using] current and relevant

examples." Generally, teachers described making learning meaningful to students in different ways and connecting students' learning with other experiences they are having or may have to motivate their students.

Interest. Motivation practices that described modeling enthusiasm and sustaining students' interest on activities and tasks were identified under the theme of Interest. Practices that contributed to this theme included engaging students, focusing on fun, having a good attitude, and modeling enthusiasm. For example, teachers discussed facilitating student interest in activities by "[attempting] to create engaging activities which spark student interest." They also emphasized the importance of knowing "what [students] like and [trying] to incorporate it into my [classroom]." Teachers described supporting student motivation through their own "general good attitude towards students" and by modeling enthusiasm for subjects or tasks. Statements such as "Teach with energy and enthusiasm; Try and convey passion about subject matter" were common. Interest was not something that simply resided in the way a task was designed but was something teachers believed they could convey to students by pairing their own passion and excitement about a topic with an understanding of what students themselves enjoy and engage in.

Relationships. The third theme, Relationships, was identified because of teachers' descriptions of practices where they tried to establish and maintain relationships across domains of a student's life to impact their motivation towards school. It was comprised of six different practices: accepting emotions, showing an interest in personal life, developing personal relationship/rapport, validating students, encouraging peer support, and creating a home/school partnership. Teachers described the importance of validating students and making them feel that their thoughts and feelings are important. One teacher noted that they "[assure students] that their inquiry is always valid" and another encouraged students "talk openly about the fact that

it's totally natural [. . .] to feel frustrated and uncomfortable during learning." Teachers also described demonstrating an interest in students' personal lives, even though they knew not to be involved in students' lives outside of school. Many teachers indicated that they try to develop personal relationships with students and their parents in genuine and caring ways that were not merely superficial. For example, a teacher focused on "[making] personal connections with students" and also "[developing] a communication path between teacher-student-parents." Teachers also focused on relationships within the classroom, particularly between peers: "I give students opportunities to share their learning with one another." In sum, these practices represent teachers' perspectives that to motivate students they must be able to express emotions, to feel validated, and to feel cared for – not only on their own but in terms of their larger community with parents and peers.

Rewards. I identified a fourth theme and labeled it Rewards because it was composed of practices that use either tangible or intangible accolades to motivate students towards a given outcome. When teachers expressed ideas related to creating competition among students, using tokens with students, rewarding students with recognition, and using students as examples for their peers, I interpreted this as using a variety of types of rewards to motivate students. Some teachers described creating competition or rivalry among students in their classroom, with the key that the teacher created competition rather than students organically creating rivalry. For example, a teacher described using a points system so that "it becomes a competition with others in the class" and explained that sometimes the point system can become internalized "[it] is obvious that it is an internal reward for them because they often call out proudly how many points they have." This use of points for reward should not be confused with points as part of a behaviour management system. Teachers rewarded students with things other than points. For

example teachers wrote things like "[rewarding] success with recognition and calls home," and "[taking] time to point out instances of [good]" student outcomes that they wanted other students to model. Thus it seems that teachers readily describe using external motivators including competitions, tokens, points or attention from peers contributed to move students towards a desired behaviour or outcome.

Effort. The theme of Effort was identified because it focused on practices that captured acknowledging student work without placing value on that same work. It included three practices: acknowledging accomplishments, acknowledging improvements, and encouraging effort. Teachers wrote about the motivating students by recognizing their progress to date separate from rewarding it: "encouragement and acknowledging [students'] progress and accomplishments" and "point[ing] out improvement." More than just recognizing progress, teachers wrote that they "encourage [students'] efforts" by reassuring them as they attempt work that can be difficult and focusing on effort separate from outcomes. Teachers described and distinguished the practice of focusing on student effort from other practices; they wrote about recognizing accomplishments, improvement, and efforts and distinguished these from rewarding the same.

Safe environment. The theme of Safe Environment was identified as teachers described making students feel comfortable in the classroom and creating an environment where students feel able to take risks and thus will be motivated to take on different and new learning tasks. Teachers described three distinct practices: encouraging questions, creating a safe place to make mistakes, and decreasing stress. When teachers described encouraging questions and creating an environment where students feel safe asking questions they focused on the feeling of the student and not the accompanied behaviours. For example, teachers wrote directly that they motivate by

ensuring "students feel safe to ask questions" or by "creating a safe and empathetic environment with students where they know it is ok to make mistakes and take risks." In creating this environment, teachers also described decreasing stress in their classrooms, or working to actively lower the level of distress in their classroom. This is different than accepting students' emotions because it deals instead with working to address the levels of stress in classrooms. Thus, teachers viewed creating learning environments for children where they feel safe to learn and take risks as important to how they motivate their students.

Goals. The theme of Goals was identified as teachers described using different types of goal setting to motivate students. It is composed of two practices; creating goals, and setting attainable goals. Teachers wrote about creating and setting goals with their students individually and as a whole class. For example, a teacher wrote about motivating student by "making and tracking goals, both individual and class goals." However, teachers were clear that goals need to be both meaningful and achievable: "[setting] challenging, yet attainable learning goals." Given motivation is about moving towards an outcome it is good that teachers view meaningful goals as part of their practices to motivate their students.

Student self-regulated learning. Teachers described practices that were focused on helping students to develop self-regulated learning strategies and teaching them to take control of and evaluate their own learning as part of motivating students. Included in this set of practices are focusing on self-reflection, encouraging higher order thinking and metacognition, and supporting students as strategies to help increase students' motivation. In looking at self-reflection, a few teachers wrote about encouraging students to think about their work or behaviours: "self assessing current behaviours, work, and results." This is differentiated from encouraging higher order thinking or metacognition as it doesn't specify thinking about their

thinking or about how the learn. When writing about encouraging higher order thinking, one teacher wrote about "encouraging students to look critically [at] what they are participating in." And teachers described these aims as eventually contributing to students' capacity to take on these tasks themselves: "support [in] building their confidence in their own abilities," as one teacher stated. Together, these practices capture the motivational practices that underlie creating capacity in students to assess their own learning and thinking processes as part of student motivation.

Teaching strategies. This theme was attentive to practices that teachers wrote about that focused on specific teaching strategies used to support student motivation. These strategies included differentiating learning activities, using interactive activities, providing additional material, supporting students' strengths, and using a variety of teaching methods in their teaching practice. For example, teachers wrote about "[implementing] differentiated tasks," "construct[ing] interactive activities," and "try[ing] to offer as many [hands]-on activities as I can." These specific strategies were used to intentionally tailor tasks to students' diverse learning needs (e.g. scaling up or scaling down work as needed) and to maximize student interaction with learning materials. Teachers also reported specific strategies to build on students' interest. For example, one teacher wrote "If a student makes a point about something, I'll try to match it with research or an article that furthers their understanding about that point." This additional work was not viewed as a hardship but came with a clear rationale related to student motivation. Teachers also simply stated that they motivate students by trying to "support [students'] strengths." Although these different teaching strategies represent a wide variety of options, teachers themselves also noted using a variety of media and teaching techniques in their practice to help motivate students. One teacher wrote about "[incorporating] a variety of

teaching methods, including utilizing technology, small-group learning, learning centres, and in-class discussions," while another noted that they "use tools like [DVDs], corny [YouTube] videos, and music to draw my students in." Overall, teachers described using a variety of practices specific to their teaching, that directly impact instruction, which gave rise to the category of Teaching Strategies. I have interpreted this theme as encompassing practices that teachers describe using in their practice that impact instruction directly to motivate their students.

Discussion

These nine themes describe general classroom motivational practices that emerged from teachers' responses to the question of how they motivate their students. Rather than telling teachers what to do based on theoretical principles, I asked teachers what they organically do motivate their students. Although this work was atheoretical, the set of themes largely represents practices consistent with a cross-theoretical approach to motivation (e.g. Linnenbrink-Garcia & Patall, 2015). In other words, these practices do not conform to a single theoretical framework but are nonetheless present in many of the contemporary theories of motivation. This breadth may indicate that teachers think relatively broadly about how they motivate their students as opposed to narrowly. Furthermore, it attests to the importance of researchers broadening their theoretical perspectives if they desire to partner with teachers. Overall, teachers wrote about motivating students in many ways, including practices that would be considered best practices (e.g. Linnenbrink-Garcia & Patall, 2016) as well a category of practices not currently included in such lists – namely Rewards. This discussion focuses on the extent to which teachers' organic practices align with discrete or cross-theoretical recommendations for practice. To illustrate this, Table 3 shows the recommendations according to each discrete theory, how those recommendations are embedded in the most recent generalized instructional design principles

(Linnenbrink-Garcia, Patall, & Pekrun, 2016), and if the practice was represented in the thematic analysis undertaken of teachers' organic practices.

Organic practices that align with design principles. The vast majority of organic practices or themes that emerged from teachers' responses are consistent with discrete theories (e.g. Achievement Goal Theory, Self-Determination Theory) and with more generalized motivation design principles (Linnenbrink-Garcia, Patall, & Pekrun, 2016). For example, teachers described practices designed to increase Relevance. This organic practice can be viewed as consistent with Achievement Goal Theory (Ames, 1992), Attribution Theory (Weiner, 1985), and SDT (Deci & Ryan, 2000a) all of which describe ways that students can be motivated by facilitating connections with the real world. Examples of this kind of practice would include linking the importance of learning percentages in math to knowing how much something that is on sale might cost. By relating practices to everyday lives and other curricular content, teachers help students to see the relevance in what can otherwise be fairly boring academic activities.

Teachers sought to motivate students by building Interest. This would align with Task Design in AGT (Ames, 1992) as well as Utility-Value theories of motivation (Wigfield & Eccles, 2000). However, teachers saw interest as being bigger than just task design because they also described modeling the curiosity they would like to see students express. They wrote about passion and fun, along with maintaining and demonstrating a good attitude towards students. Building interesting activities is also core to the most recent design principles (Linnenbrink-Garcia, Patall, & Pekrun, 2016).

Table 3. Alignment of discrete theoretical recommendations, broad principles, and organic practices

Recommendation	Attribution Theory	Achievement Goal Theory	Self-Determination Theory	Broad design principle	Organic practice
Focus on effort	O X	X	X		Yes
Task Practices		O X	X	X	Yes
Authority Practices		O X	X	X	Yes
Recognition Practices	X	O X			Yes
Grouping Practices		O X	X	X	Yes
Evaluation Practices		O X	X	X	Yes
Time Practices		O X	X		Yes
Provide explanatory rationales	X	X	O X		Yes
Acknowledge and accept expressions of positive and negative affect	X		O X	X	Yes
Nurture inner resources			O X	X	Yes
Use non-controlling and informational language	X	X	O X		Yes
Display patience and allow time for self-paced learning		X	O X		Yes

Note: O indicates theory of origin; X indicates practice mentioned by the theory

Another category of practices that teachers organically described was focusing on Effort. This focus on effort was separate from placing value on students' outcomes or performance. This category of practices is consistent with recommendations made about autonomy-supportive practices, emanating from SDT; specifically, providing non-evaluative and informational feedback (Reeve, 2009). It is also consistent with mastery goals, which focus on developing intrapersonal competence in an area (Maehr & Zusho, 2009), and Attribution Theory, which encourages students to focus on effort attributions as opposed to ability attributions (Weiner, 1985). Although the word "effort" does not show up in the recent design principles (Linnenbrink et al., 2016), the spirit of effort is embedded in recommendations around autonomy and challenge.

The themes of Goals and Student Self-Regulated Learning were consistent with SDT as they addressed meeting students' needs for competence and autonomy. In particular, teachers focused on setting challenging yet attainable goals, which should help provide opportunities for students to experience competence (Ryan & Deci, 2000a). Self-Regulated Learning focuses on helping student to learn to be at the centre of their own learning and thus would increase students' experiences of autonomy, consistent with both Self-Determination Theory (Ryan & Deci, 2000a) and Linnenbrink-Garcia, Patall, and Pekrun's (2016), second design principle. Moreover, teachers described focusing on more cognitive strategies to help students, such as encouraging reflection and metacognition about their learning, which is consistent with Williamson's (2015) review, which noted that metacognition, encompassing self-monitoring and self-evaluation, is an important part of autonomous learning. This category of practices would also be consistent with facilitating mastery goals with students and some emerging research has

demonstrated that self-regulation is related to mastery goals (Dekker, Krabbendam, Lee, Boschloo, de Groot, & Jolles, 2016).

Teachers described specific teaching practices that they applied in their classrooms to help motivate students. For example, teachers explicitly described differentiating learning in their classrooms, such that students would be optimally challenged by their classroom learning, thus meeting the need for competence (SDT; Ryan & Deci, 2000a) or using Grouping practices based on ability (AGT; Anderman, Patrick, Hruda & Linnenbrink, 2002). However, they also acknowledged that this is but one strategy that they employ when teaching. They additionally described providing additional information when students were interested in a topic and using a variety of methods in how they teach. These practices are consistent with Achievement Goal Theory's TARGET acronym, focusing specifically on Task design in using different modalities and on Authority in terms of providing students with additional materials and allowing them to explore their interests (Anderman, Patrick, Hruda & Linnenbrink, 2002). All of these practices were explicitly focused on teachers' own teaching and consistent with the instructional strategies literature.

Teachers also described ways they go about meeting students' need for relatedness (Ryan & Deci, 2000a), which would encompass the categories about relationships and creating a safe environment. The need for relatedness can be satisfied through having close, meaningful relationships, within which students would thus feel safe asking difficult questions and making mistakes, all of which teachers described within these two categories of practices. Moreover, a sense of belonging at school (i.e. feeling safe) can be related to holding mastery goals (Won, Wolter, & Mueller, 2017), thus also linking to Achievement Goal Theory. Although these categories of practices have not been explicitly explored empirically or through intervention

studies, and thus are not listed by the discrete theories, they have recently emerged in the list of design principles (Linnenbrink-Garcia et al., 2016) and have been incorporated in some achievement goal models (e.g. Butler, 2012). Emerging research suggests teachers see creating meaningful relationships with students as core to meeting their responsibilities for student motivation (Daniels, Poth, & Goegan, forthcoming). Thus, this may be an important practice to further understand.

Organic practices that do not match design principles. Teachers described using Rewards in their classrooms to help encourage students' motivation. This category of practices is contrary to the dominant perspective of motivation theorists who actively discourage the use of rewards in classrooms as they can undermine existing internal forms of motivation and move them to more external forms (e.g. Deci & Ryan, 1994; Ryan & Deci, 2000a). Teachers described primarily using both teacher and peer recognition as the reward, as opposed to things like points or tokens (though these were also acknowledged). Interestingly, there is some new work advocating for a rapprochement with rewards in motivation research, acknowledging that while they are a contentious and controversial topic, rewards can have positive effects and need to be explored with advances in neuroscience in mind (Hidi, 2016). Hidi (2016) suggests that the classroom environment is complex and that it would behoove motivation researchers to incorporate newly emerging ideas and techniques into their work. As an example, Di Domenico and Ryan (2017) examine the neuroscience of intrinsic motivation and suggest that "increasing integration between social behavioural research on intrinsic motivation and the neuroscience of motivation" will open "new and promising" pathways (p. 11). While Di Domenico and Ryan (2017) don't explicitly address rewards other than to note the "undermining effect" (i.e. that rewards can undermine intrinsic motivation, moving to more external forms of motivation), Hidi

(2016) would argue that rewards are a natural part of how humans' brains are wired and that neglecting them is neglecting a major way that individuals are motivated in their environments. The fact that teachers organically discuss Rewards reinforces their relevance in the educational domain. Moreover, the different types of Rewards highlighted by teachers may provide direction for specific future research.

Limitations & directions for future research. It is important to note two main limitations of this research. First, the original data was collected via open-ended questionnaire whereby participants wrote a description of how they motivated students. This is a less than ideal way to collect qualitative accounts related to motivational practices because although some participants wrote a descriptive and detailed account of their practices, others provided only point form comments. Although the confidence in my results is enhanced by the in person interviews for member checking, future research may want to conduct interviews or focus groups with teachers on their motivational practices.

Second, while the results conservatively describe *what* teachers do to motivate their students, they do not link to *when* or *why* teachers may opt to use any of these practices. The contextual aspect of the application of these practices is missing. While it is outside the parameters of the current research to examine these additional questions, they provide interesting avenues for future research of a similar nature or using other methodologies. For example, might teachers use differing practices depending on what they are attempting to motivate their students to do? Nolen and Nichols (1994) examined this in their research, asking teachers about increasing or sustaining their students' motivation. Results indicated that teachers responded in different ways to the same items, depending on the prompt, with three factors for increasing motivation (using coercive strategies, modifying learning tasks, and a third [attributing thought

and effort, showing interest, and giving responsibility]) and two factors for sustaining motivation (strategies used with students of varying abilities and social-comparative strategies). These findings suggest that teachers may use different practices depending on the context and underscore the importance of understanding how and when teachers may apply these practices. Moreover, there may be differences between the practices applied in classrooms depending on the age of students, the subject material taught, or even the time of year data is collected. These are important areas for future research to bring further precision to understanding teachers' motivational practices.

Conclusion. Teachers' voices were given priority by allowing them to openly describe the practices that they apply in their classrooms to motivate students. They organically described a variety of practices, which provide a balanced view of classroom practices that includes both practices that would be considered "good" and "bad" from a research perspective. Many of the practices teachers described using are consistent with theory. However, they are not consistent with any one discrete theory; instead, it appears that a cross-theoretical perspective, focused on broad design principles, is most helpful in understanding the motivational practices that teachers apply in their classrooms (see Linnenbrink-Garcia, Patall, & Pekrun, 2016 for an example). These organic practices provide a good foundation on which to build a self-report questionnaire.

Integration: Linked Transformation

The purpose of the linked transformation was to build a quantitative measure of teachers' motivational practices based on the results of the qualitative strand. In doing so, the quantitative measure prioritizes teachers' voices in a way that no other measure of motivational practices in the existing literature does. This linked transformation represents the first integration point in my dissertation because the qualitative findings (i.e. the themes that emerged from the data) become the basis for the quantitative questionnaire, which I refer to as the Transformed Qualitative Practices Questionnaire (TQPQ). I used the qualitative findings, in the form of themes and codes, to build the quantitative questionnaire, both at the item and the structural level.

Rationale for Integration

The purpose of using MMR in this research is three-fold: to more authentically understand the practices that teachers apply in their classrooms, to develop a quantitative measure of teachers' motivational practices in which teachers can see their voices represented, and to assess whether categories of organic practices are preserved in the questionnaire. This linked transformation section represents the first two purposes. Currently, most measures of teachers' motivational practices are theory-based (e.g. PALS; Midgley et al., 2000) and do not reflect recent calls in the literature (e.g. Kaplan & Patrick, 2016) for more cross-theoretical approaches to motivation in education. Using MMR is one of the best ways to develop a new instrument (Owuebeguzie, Bustamante, & Nelson, 2010), and is particularly relevant when prioritizing the voices of those represented by the tool. In addition, MMR will allow for a more complete understanding of what practices teachers organically use in classrooms, perhaps suggesting practices that are not currently supported in the literature. In all of these ways, the use of MMR

in my dissertation research allows for instrument development, completeness, and confirmation and discovery (Bryman, 2007).

Integration Procedure

I used a process of linked transformation to turn the qualitative results into the quantitative items and structure of a questionnaire I named the Transformed Qualitative Practices Questionnaire (TQPQ). These transformations are represented in two joint displays that highlight the integration both in terms of creating items (Figure 3) and establishing structure of the TQPQ (Figure 4). First, themes from the qualitative analysis were transformed into latent variables. Next, codes associate with each theme were transformed into items designed to measure the latent variables. Items were developed as either verbatim (directly from teachers' responses) or adjusted (changed from teachers' responses). Members of the Alberta Consortium for Motivation and Emotion (ACME) reviewed the items for clarity. ACME members also helped revise the questionnaire instructions.

This process can be characterized as a bottom up approach to scale design because the items were built on the words of participants who belong to the population of interest and the structure was inferred from the overarching themes (e.g. Friedman & Kass, 2002). This approach is less common in scale design than top down approaches in which a researcher develops items for a measure without input from those the measure is intended to be used with (e.g. Nolen & Nichols, 1994) largely because it is more time consuming and requires additional resources (DeVellis, 2011). Practically, a bottom up approach was important to me to maximize the extent to which teachers could see their experiences reflected in the measure. From a theoretical perspective, a bottom up approach was important to me because it responds to Urdan and Turner's (2013) call for prioritizing teachers' voices.

Figure 3. Joint display including a sample of the transformation of qualitative data into questionnaire items

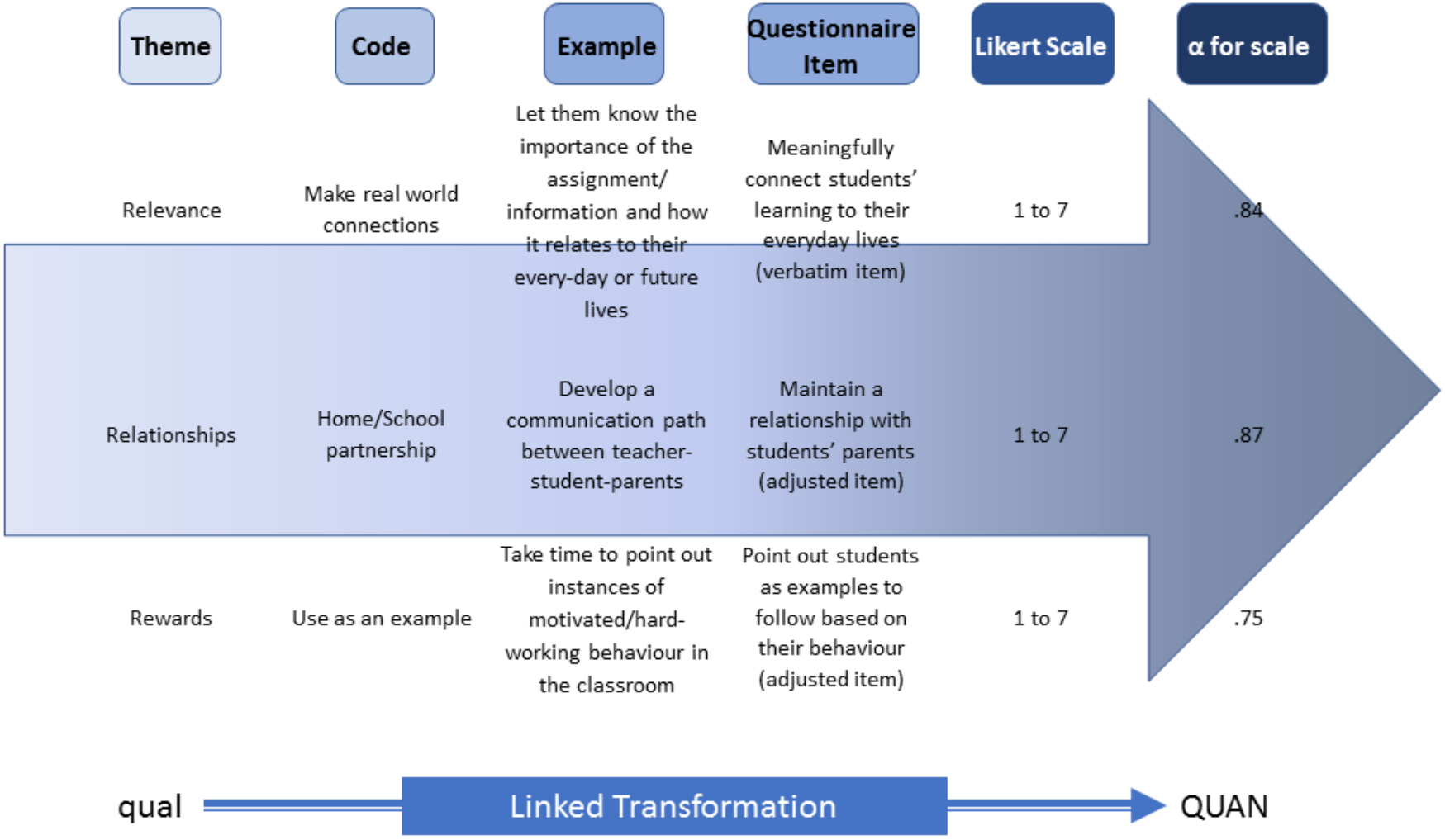
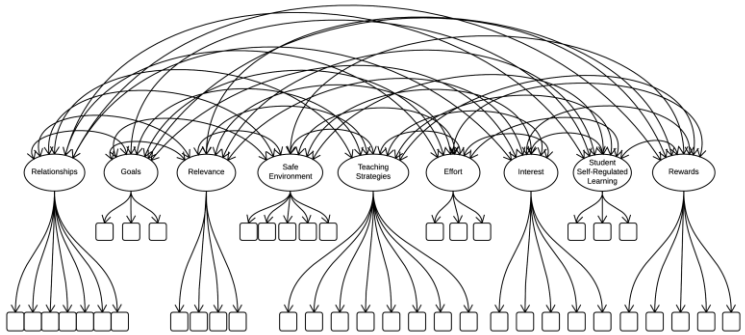
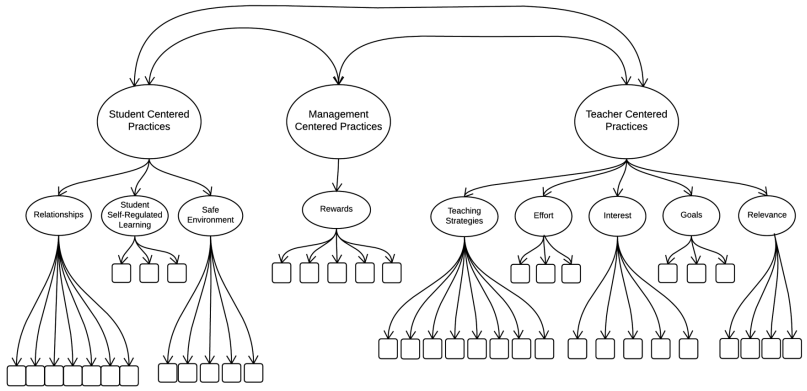
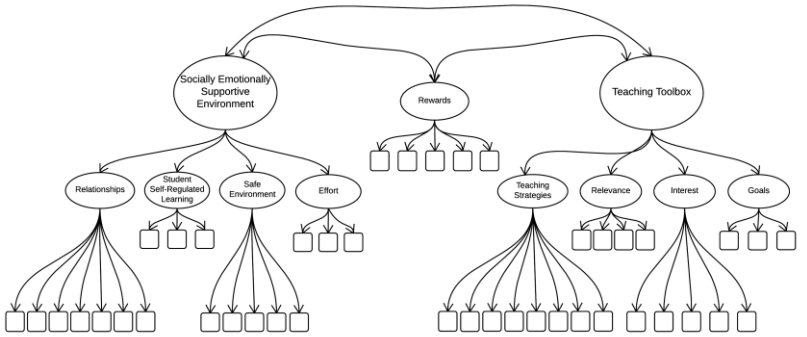
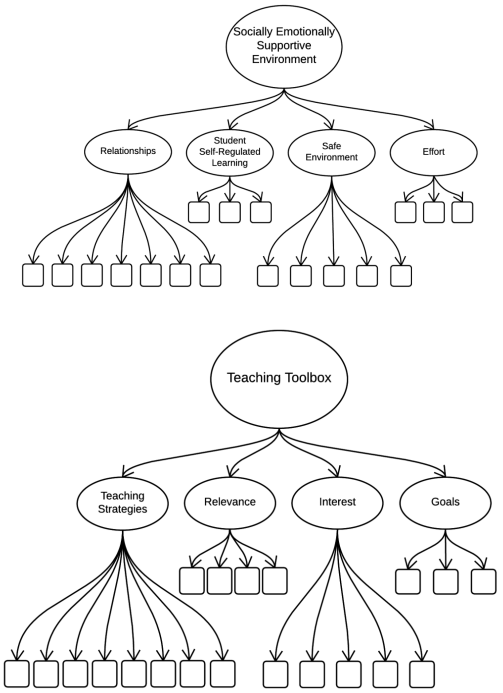


Figure 4. Joint display of the transformation of qualitative themes to the four possible quantitative structures

Qualitative Themes	Preservation of themes in transformation	Transformed Structure of Latent Constructs	Quantitative Structure
Default model identical to themes	Yes		
Relevance Interest Relationships Rewards Goals Teaching Strategies Student Self-Regulated Learning Safe Environment Effort		Relevance Interest Relationships Rewards Goals Teaching Strategies Student Self-Regulated Learning Safe Environment Effort	 See Figure 5, p. 55 for closer detail

Qualitative Themes	Preservation of themes in transformation	Transformed Structure of Latent Constructs	Quantitative Structure
Relevance Interest Relationships Rewards Goals Teaching Strategies Student Self-Regulated Learning Safe Environment Effort	Yes	Teacher Centered Relevance Interest Goals Teaching Strategies Effort Student Centered Student Self-Regulated Learning Safe Environment Relationships Management Centered Rewards	 See Figure 6, p. 56 for closer detail
Relevance Interest Relationships Rewards Goals Teaching Strategies Student Self-Regulated Learning Safe Environment Effort	Yes	Toolbox Relevance Interest Goals Teaching Strategies Socially Emotionally Supportive Student Self-Regulated Learning Safe Environment Relationships Effort Rewards	 See Figure 7, p. 57 for closer detail

Qualitative Themes	Preservation of themes in transformation	Transformed Structure of Latent Constructs	Quantitative Structure
Relevance Interest Relationships Rewards Goals Teaching Strategies Student Self-Regulated Learning Safe Environment Effort	No	Toolbox Relevance Interest Goals Teaching Strategies Socially Emotionally Supportive Student Self-Regulated Learning Safe Environment Relationships Effort	 See Figures 8 and 9, p. 60 for closer detail

After the linked transformation process for items (see Appendix F), we (Dr. Daniels and I) examined the TQPQ and its proposed transformed structure. Because quantitatively competing structures are often tested (Thompson, 2004), we wanted to identify possible other structures of the TQPQ. Thus, we entered into an integration process between qualitative and quantitative strands that is best described using the metaphor of DNA (Bazeley & Kemp, 2012): moving between sense and antisense lines of logic to arrive at different quantitative CFA models to test in the quantitative strand. This integration relied on both my qualitative data (sense) and additional literature that we were aware of due to our backgrounds in motivation and educational research (antisense). In other words, while we used both induction and then deduction in coming up with the first model that we could test, we used a process of abduction to come up with alternative competing models, which could be supported by literature (see Figure 6 for different models). Our specific thought processes are described next.

Default model. We initially assumed the default structure of the TQPQ would be a direct transformation of the qualitative themes resulting in nine unique latent variables (see Figure 5). Through a series of conversations, we identified three other possible transformed structures.

Alternative model A. Work on teacher self-efficacy suggests there are three main domains in which teachers may or may not feel efficacious: Instructional Strategies, Student Engagement, and Classroom Management (Tschannen-Moran & Woolfolk-Hoy, 2001). Thus, we wondered if this structure may also apply to domains in which teachers conceptualize their motivational practices. It seemed that certain themes were more about students and others that were more focused on teachers, perhaps indicating that teachers described distinct types of practices that could be united as a higher order construct. Specifically, we speculated that Relevance, Interest, Goals, Teaching Practices, and Effort are practices teachers themselves

Figure 5. Nine factor CFA model (Default model)

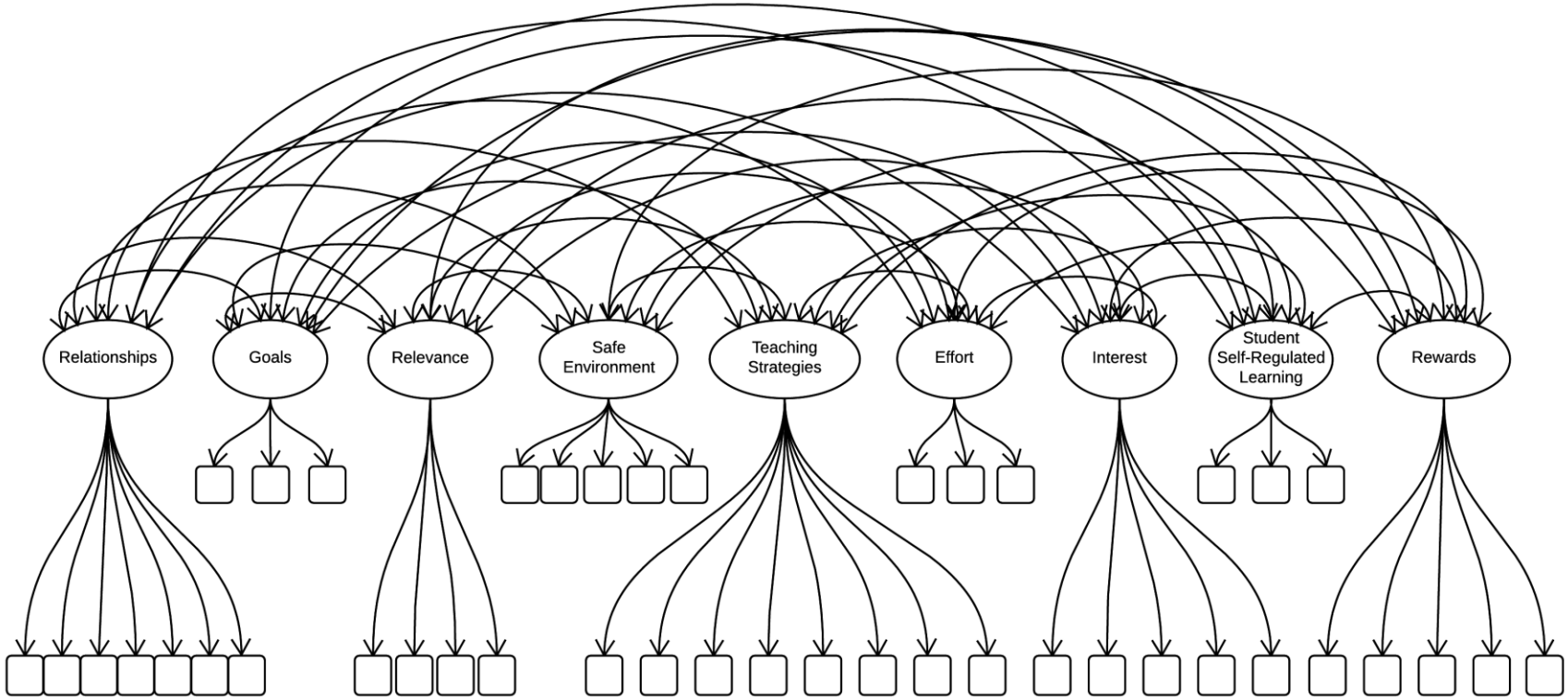


Figure 6. Teacher/student/management CFA model (Model A)

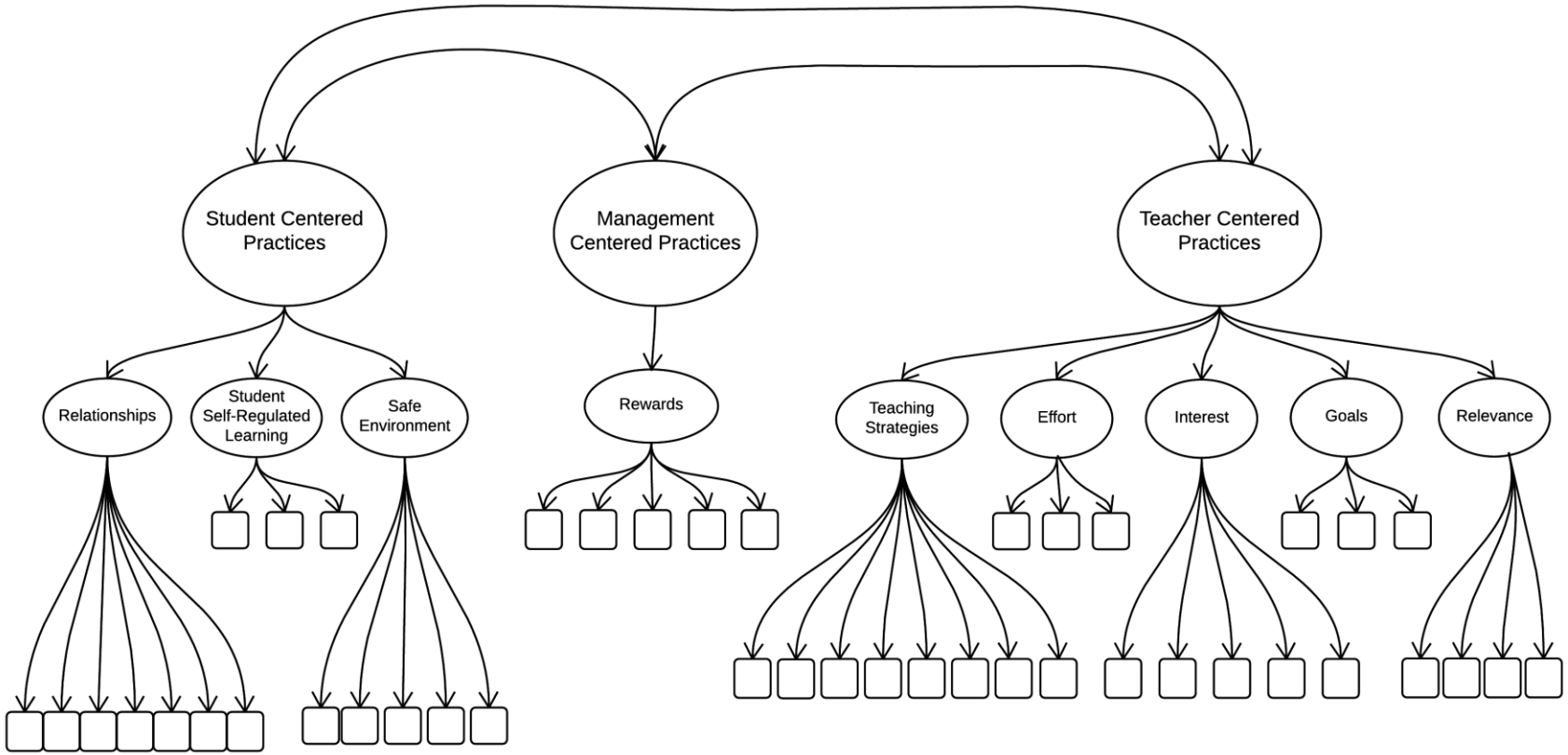
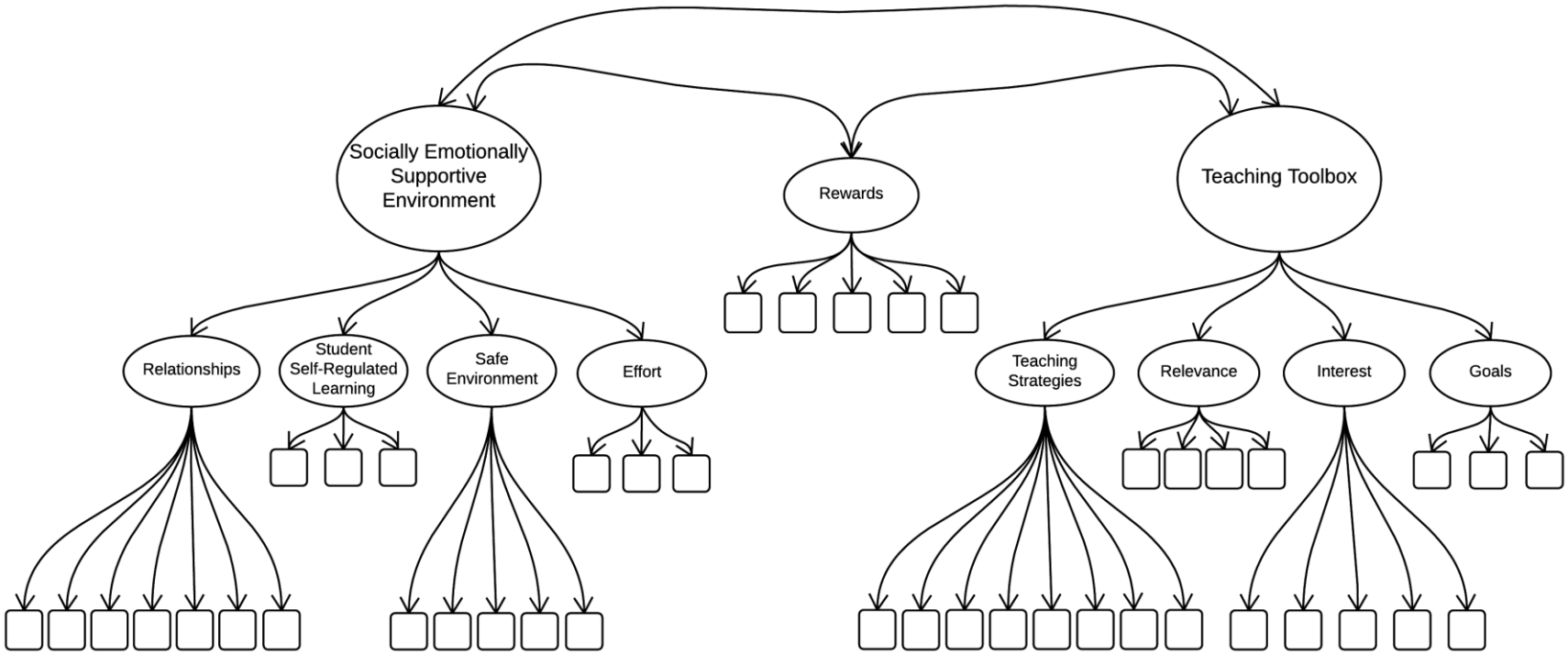


Figure 7. Social emotional competence/Teaching toolbox/Rewards CFA model (Model B)



enact; whereas Student Self Regulated Learning, Safe Environment, and Relationships are practices that involve students as well as the teacher. Finally, Rewards seemed closely related to classroom management. Thus, we decided to test a model in which these themes loaded onto three different higher order latent factors: teacher-focused, student-focused, and classroom-focused practices (see Figure 6).

Alternative model B. Two pieces of Model A remained under discussion. First, listing Rewards as the sole indicator of a higher order factor on Classroom Management seemed over simplified. Thus, we thought perhaps Rewards could stand as a factor itself. Added to this factor, we also wondered about the inclusion of Effort on the "teacher" side of the model. Although teachers can help students focus on effort, it is largely something students have to choose to do. Thus, we proposed moving Effort and re-envisioning the model as consisting of a higher order factor of practices that focused on social responsibility or social emotional competence (previously the teacher-focused factor) and one focused on practices that were more about having a toolbox of strategies to draw upon to impact student motivation (previously the student-focused factor + Effort; see Figure 7).

Alternative model C. Finally, in reflecting on the model created above, Dr. Daniels and I noticed that the practices seemed to be roughly separated by those common in the theoretical literature and those more common to the instructional literature. In other words, the structure harkened back to the disconnect between the motivational theory literature and the instructional practices literature – the very problem on which I based this dissertation (Kaplan & Patrick, 2016; Linnenbrink-Garcia & Patall 2015; Turner et al., 2011). We began to wonder if one of the pertinent reasons for the disconnect between theory and practice is that teachers do not necessarily think about these practices as a unitary whole. What if they think about practices that

focus on creating a socially and emotionally stable environment *separate from* practices that they can include in a toolbox of strategies to help motivate students? Thus, the final competing models were separate models representing Socially and Emotionally Stable Environment (Model C1 i.e., things promoted by the theoretical literature) and a Toolbox of Strategies (Model C2 i.e., things more common to the instructional practices literature; see Figures 8 and 9). This model no longer contained the theme of Rewards.

Figure 8. Socially emotionally supportive environment CFA Model (Model C1)

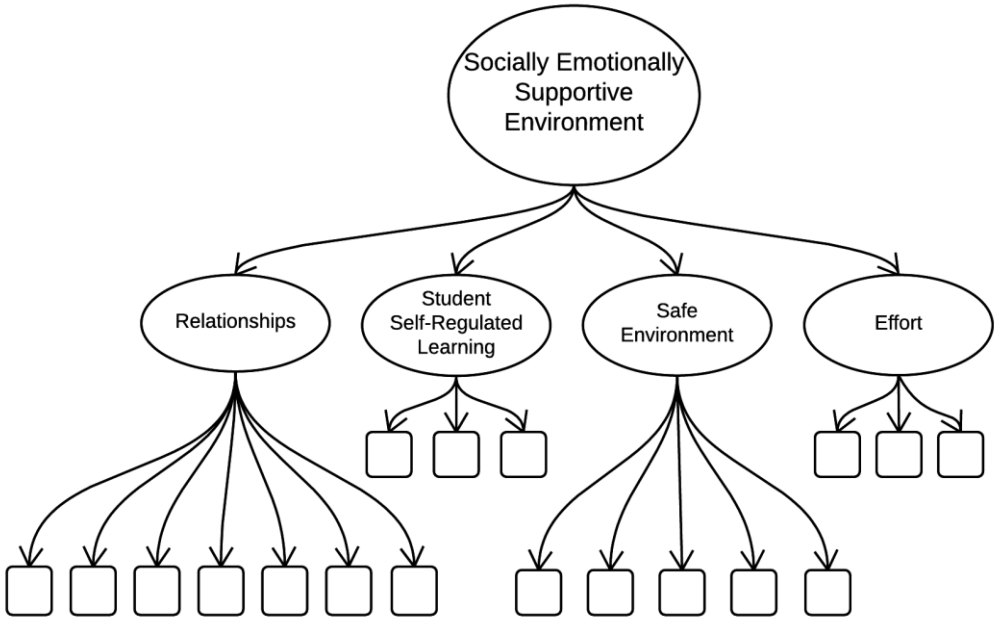
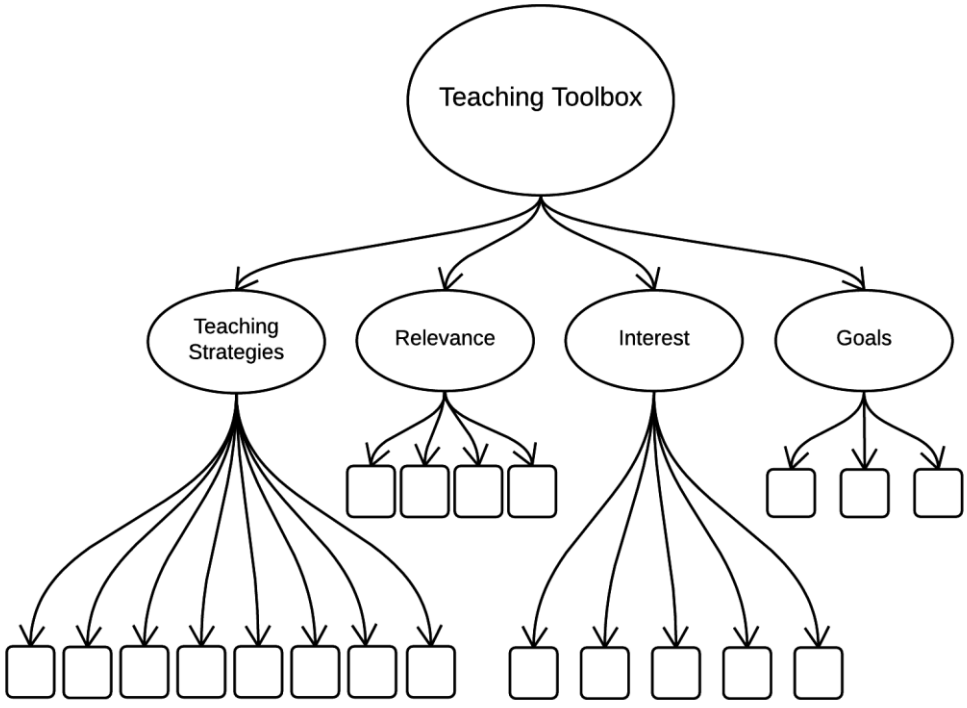


Figure 9. Teaching Toolbox CFA Model (Model C2)



Quantitative Strand Methodology: The Transformed Qualitative Practices Questionnaire

The second strand of my research used a quantitative correlational design to gather teachers' responses to the Transformed Qualitative Practices Questionnaire (TQPQ) and examine its descriptive statistics and factor structure. This strand addressed the specific research question: What is the reliability and structure of teachers' responses to developed scales operationalizing motivational practices? The purpose of this strand was to test the reliability of the nine individual scales and examine competing structural models. The study was approved by the University of Alberta Human Ethics Research Board (Pro00054513; see Appendix A for approval letter).

Participants and procedure. Participants (N = 370) for the quantitative strand were a convenience sample recruited from the Calgary Teacher Convention as well as Greater Edmonton Teachers Convention Association (GETCA) (N = 147) and online, through direct appeal and social media (N = 223). The researcher and team set up a booth at the Calgary Teacher Convention and GETCA and approached teachers to complete the survey using paper and pencil. Consent was implied through the completion of the survey (see Appendix G); participants were offered a chocolate as remuneration for completing the survey. Additionally, to increase variability and number of participants in the sample, a snowball sampling method was used (similar to the qualitative strand) whereby the researcher put the survey online and sent a link out to the research team's contacts and posted on Facebook (N = 205), along with recruited participants from Edmonton Public Schools and Edmonton Catholic Schools through the University of Alberta's Cooperative Activities program (N = 42), asking them to complete the online survey and /or to forward it to individuals they think might be interested (see Appendix

G). Initially, online recruitment was not intended to be used, but difficulties with using the original recruitment strategy (i.e. exclusively through teacher conventions) to gain an adequate sample size for the analysis strategies necessitated revisiting this process and expanding recruitment. While I acknowledge that a convenience sample is not ideal as it may not be representative of all currently practising teachers (Creswell, 2009) and is a threat to design adequacy, it was the most feasible and practical form of sampling for this research.

Of the 370 participants who completed the survey, 321 became the final sample. Forty-nine participants were removed from the online portion of the study because they were missing the majority of data. No one was removed based on their scores being outliers (Field, 2005) as the variability that was present in the data was expected. For other missing data, I made the decision to replace it with the mean of that particular item across the sample based on recommendations from Downey & King (1998), who suggested that when the percentage of missing data is less than 20%, replacing using the item mean is an acceptable representation of the original data. Having a full and complete data set is advantageous in completing Confirmatory Factor Analysis (Thompson, 2004). Thus, the final sample represented $N = 147$ teachers recruited in-person and $N = 174$ teachers recruited online. The sample was 15% male, 84% female and 1% other; this is consistent with the general trend in Canadian teaching to have more female teachers than male (Stats Canada, 2015). Participants had a mean age of 39 years ($SD = 11.34$, range 22-72 years) and had a mean of 12 years ($SD = 9.96$, range 0-40 years) years of teaching experience. 45% of the sample reported that they teach in elementary schools while 40% reported that they teach in secondary schools. A further 12% of the sample reported that they teach at both levels (i.e. both elementary and secondary schools) and 4% of the sample did not provide an answer to the question. I tested for differences in responses between those who completed the questionnaire in

Table 4. t-test Values for Differences between Sample Groups

Created Scale	t-value: In-person and Online
Relationships	1.52[a]
Safe Environment	1.11
Effort	2.06*[a]
Interest	2.93*[a]
Relevance	2.72*
Teaching Strategies	2.67*[a]
Goals	2.59*[a]
Rewards	3.44*
Student Self-Regulated Learning	-.38

Note. *=p<.05; [a]=homogeneity of variances cannot be assumed based on Levene's test

person versus on online using independent samples t-tests (see Table 4). There were significant differences between the groups on most of the variables. Although I cannot be certain, there are likely contextual factors contributing to these differences. For example, teachers who were likely to stop and speak with researchers at convention may be more likely to respond in a positive way to these kinds of questions as opposed to teachers who responded in a completely anonymous way or while taking time out of their personal life to complete an online questionnaire. Due to the number of indicators in the models, I was not able to control for these differences in the main analyses and used both groups in the final analyses.

Measures. The survey for this strand of the research was composed of seven parts representing two projects: demographics, a social desirability measure, the created scales, a measure of teacher burnout, a measure of teacher emotions, a measure of teacher engagement, a

measure of teacher self-efficacy and a measure of general classroom practices. Of interest to my dissertation research are the demographic information and the questionnaire items and scales transformed from the qualitative analyses, namely the TQPQ (Appendix F). We collected information on age, gender, amount of teaching experience and subject taught to describe the sample. The developed scales contained 43 items representing the nine themes extracted from the qualitative data. The instructions were "Please consider each of the following classroom practices and indicate the extent to which you agree or disagree with the use of each practice as a way to motivate your students. There are no right or wrong answers; we are simply interested in your practices." Participants indicated the extent to which they agreed with the stem "To motivate my students I . . .[each item]" on a 1 = strongly disagree to 7 = strongly agree rating scale. Descriptive information, along with reliability information, regarding each of the nine subscales will be presented in the results section.

Rationale for data analysis. Data analysis for this strand was completed in five steps. First, as preliminary analysis, data were screened, descriptive statistics were computed, correlations were run, and reliability analyses of all measures examined. Second, confirmatory factor analysis (CFA) testing the theorized structure of the TQPQ was completed. We began by testing the default nine-factor solution and then analyzed the three possible competing models (Models, A, B, and C1 and C2) that were identified during the transformation process (see Figures 6, 7, 8, and 9). I refer readers back to the transformation process for a description and justification of these models. Data were analyzed using the Statistical Package for the Social Sciences (SPSS) and Analysis of Movement Structures (AMOS). The purpose of confirmatory factor analyses was to establish the internal structure and dimensionality of the measure (Tabachnick & Fidell, 2007). Goodness of fit was determined by examining the Comparative Fit

Index (CFI), the Root mean square error of approximation (RMSEA), the standardized root-mean-square residual (sRMR) and the Chi-Square values from the output of the CFA. Ideally, the Chi-Square Test will have a value close to 0 and not be statistically significant. However, because Chi-Square is impacted by sample size, it is rare to have a non-significant result. Standards suggest that the RMSEA and sRMR, both of which account for sample size, are acceptable at values < .08, although < .06 is more desirable (Browne & Cudeck, 1993; Hu & Bentler, 1999; Thompson, 2004). For the CFI, the lower limit of acceptable fit is > .90 indicating an adequate fit between the data and the hypothesized model with > .95 as desirable (Thompson, 2004).

Results

Preliminary analyses. Descriptive information including alpha reliabilities for all of the variables is presented in Table 5. All the created scales were positively skewed, which was expected because the items were based on teachers' organic practices and thus we expected other teachers to also endorse them. While strategies, including data transformation and positively packing the scale were considered (Tabachnick & Fiddell, 2007; Field, 2005; Brown, 2004), I felt that maintaining the initial form of the data, outweighed the advantages of any one data transformation strategy. In light of this, the results of my dissertation are interpreted knowing that the developed scales are positively skewed, which may impact on the other methods of analysis brought to bear on the dissertation. The alpha coefficients for all of the scales ranged from .62 to .89 thus suggesting they were largely adequate. The Goals scale was the one exception with a less than optimal $\alpha = .62$. Removing items from the Goals scale did not meaningfully improve its reliability. One reason for this less than desirable reliability may be because the scales consists of both individual and class-wide goals because teachers talked about

Table 5. Descriptive Information for Variables

	N	N items	Mean	SD	Minimum	Maximum	Skew	α
Age	320	1	39.04	11.34	22	72	-.433	-
Years of Teaching Experience	316	1	11.99	9.96	0	40	.910	-
Relationships	321	7	5.99	.78	1.29	7.00	-1.62	.87
Safe Environment	321	5	6.34	1.20	1.20	7.00	-2.55	.88
Effort	321	3	6.36	.70	1.67	7.00	-1.93	.89
Interest	321	5	6.22	.72	1.50	7.00	-2.10	.84
Relevance	321	4	5.98	.78	1.29	7.00	-1.75	.84
Teaching Strategies	321	8	5.99	.76	1.83	7.00	-1.62	.82
Goals	321	3	5.83	.86	1.67	7.00	-1.17	.62
Rewards	321	5	4.00	.79	1.00	7.00	-.156	.75
Student Self-Regulated Learning	321	3	6.15	.81	1.67	7.00	-1.51	.79

both.

Correlations between variables are presented in Table 6. Notably, the scales on the TQPQ are strongly positively correlated, suggesting that they are assessing a similar overall construct. This could mean that teachers who endorse motivational practices tend to do so across the board. The one exception was Rewards which only correlated significantly and positively with Goals, $r = .19$, $p > .01$. This indicates that those teachers who endorsed using Rewards as a motivational practice in their classrooms were more likely to also endorse using Goals as a motivational practice in their classrooms.

Some significant correlations emerged between motivational practices and gender and years of teaching experience. For example, female teachers seemed to prefer Relationships, Safe Environment, Effort, Teaching Strategies, Goals and Student Self-Regulation. There were also positive significant correlations between length of time teaching and Safe Environment, Effort, Relevance, and Self-regulated learning. In addition, the more teaching experience participants had, the less likely they were to endorse Rewards as a motivational practice.

Table 6. Correlations between Variables

	1	2	3	4	5	6	7	8	9	10	11	12
1. Gender (1 = men; 2 = women)	1	-.026	-.02	.21*	.12*	.11*	.06	.05	.16*	.17*	-.05	.13*
2. Age		1	.85*	.11*	.12*	.11	.09	.22*	.11*	.06	-.24*	.16*
3. Years of Teaching Experience			1	.09	.14*	.14*	.10	.21*	.09	.07	-.15*	.20*
4. Relationships				1	.70*	.66*	.72*	.60*	.75*	.62*	.10	.63*
5. Safe Environment					1	.69*	.71*	.59*	.67*	.51*	.04	.63*
6. Effort						1	.63*	.55*	.65*	.58*	.06	.57*
7. Interest							1	.69*	.74*	.53*	.07	.59*
8. Relevance								1	.70*	.55*	.03	.59*
9. Teaching Strategies									1	.62*	.07	.63*
10. Goals										1	.19*	.54*
11. Rewards											1	-.02
12. Student Self-Regulated Learning												1

*. Correlation is significant at the 0.05 level (2-tailed).

Table 7. Goodness of Fit Information for Alternative Confirmatory Factor Analysis Models

Model	χ^2	df	CFI	RMSEA	sRMR
A - Teacher/Student/Classroom	2246.43	659	.75	.09	.09
B - 3 Higher Order Factors	1722.33	728	.87	.07	.06
C1 - Social Emotionally Stable	362.083	131	.94	.07	.05
C2 - Toolbox	380.471	114	.91	.09	.06

Confirmatory factor analysis. The original model consisted of 43 items loading onto nine factors that represent the nine themes from the thematic analysis in qualitative strand (see Figure 5). The fit was unacceptable: χ^2 (824) = 2086.72, CFI = .855, RMSEA = .069, SRMR = .065. Modification indices suggested removing two items; however, this did not improve model fit and thus we turned our attention to the competing models (all which were run with 43 items). The results for Models A and B were also unacceptable but the goodness of fit for the Models C1 and Model C2 were acceptable (see Table 7 for all fit indices). This final set of models (two separate models representing practices related to Safe and Emotionally Stable Environments and practices representing A Toolbox of Strategies were used to generate mixed inferences. Recall, in these Models the theme Rewards is not represented.

Discussion

This discussion answers the quantitative research question of: What is the reliability and structure of teachers' responses to developed scales operationalizing motivational practices? To do so, I highlight three relevant findings. First, on average, teachers responded strongly and positively to the items, suggesting possible ceiling effects. Second, the scales demonstrated adequate reliability and were positively correlated with each other. Finally, of the four models tested here, the one that fit best was actually two separate models, with one representing a set of

practices related to a socially emotionally supportive environment and the other related to a toolbox of strategies.

Responses to items on the TQPQ. Teachers responded positively (i.e., with high agreement) to the TQPQ items developed in the Linked Transformation. This is consistent with previous work showing pre-service teachers' responses to other questionnaires about motivational beliefs can be overwhelmingly positive (e.g., Radil, 2012). While this is optimistic as it indicates that teachers report motivating their students using a variety of strategies in the classroom, it is unlikely and perhaps even unrealistic to expect that all teachers apply all of these practices all the time in their classrooms. For example, it might be that teachers apply different practices depending on what they are attempting to do. Nolen & Nichols (1994) demonstrated that teachers respond differently when asked about increasing or sustaining students' motivation something that the generalized instructions on the TQPQ would not have tapped into. Finally, these results and their positive skew suggest that it may be appropriate to think about incorporating different methods of assessment, beyond the self-report measure to ensure confidence in results. Combining self-report measures with observations would be one way to possibly broaden the range of responses/observations.

High mean level endorsement aside, the scales demonstrated adequate reliability and were overall positively correlated with each other. However, the one scale that did not correlate strongly with the others was the Rewards scale. The items developed for the theme of Rewards were face valid and were clearly about rewarding students for their work; moreover, they were reliable and thus appear to assess the construct consistently. The Rewards scale was significantly correlated with the Goals scale, suggesting that teachers who set goals with their students were also more likely to endorse using rewards as another practice to motivate their

students. It may be that Rewards are more tangentially related to how teachers perceive their motivational practices as opposed to fully integrated in these perceptions, explaining the weak associations between Rewards and the other developed scales.

Structure of the TQPQ. Of the four competing models developed in the Linked Transformation section the one with the most acceptable fit was when practices related to a Socially Emotionally Support Environment were tested separately from those associated with A Toolbox of Strategies.

Included in the set of practices that support a Safe and Emotionally Stable Environment are those that encourage students to feel safe in their environment, that focus on creating relationships with students, that focus on student effort, and that focus on students developing more self-regulated learning strategies. These practices are regularly found in the motivational literature emanating from Self-Determination Theory and Achievement Goal Theory (Deci & Ryan, 2008a; Midgley et al., 2000). This model, composed of contextual factors that in my opinion seem to transcend any specific strategy, illustrates the importance that teachers place on designing an environment that can support student motivation. Teachers acknowledged the importance of having relationships and creating a safe environment for their students, as well as fostering effort and building capacity in students to learn on their own. I propose that the focus on these types of practices is consistent with SDT's need for relatedness (Deci & Ryan, 2008a) as well as a focus on developing social-emotional competence and social responsibility in students, which is of increasing importance in schools (Wentzel, 2003). This model is also consistent with the student engagement factor from the Teaching Sense of Efficacy Scale (TSES; Tschannen-Moran & Woolfolk-Hoy, 2001). Finally, it speaks to programs that have been developed, including the Safe and Caring Schools Initiative (Alberta Education, n.d.), to foster

these contextual factors in school. The focus on social-emotional support also lines up with a more humanistic view of teaching and motivation, focused on more personal factors (Kaplan & Patrick, 2016). Very generally, this model illuminates teachers' motivational practices that are about creating an environment where *all* students feel safe and valued and are thus in a position where motivation is high.

The set of practices associated with the "toolbox" include focusing on relevance with students, focusing on students' interest, setting goals with students, and actual teaching or learning practices. In my opinion, these practices seem much more applied and tangible than those in the other factor. These are things teachers *do* with students, not contextual pieces they put in place. In my experience, teachers often speak about having a toolbox of strategies from which they can draw practices to apply in their classrooms. While this may often be thought of as a toolbox of strategies as it relates to learning (i.e. different ways to teach specific math concepts), the current results suggest that teachers describe a similar toolbox as it relates to motivating students. Teachers acknowledged using relevance and interest to increase student motivation as well as goal setting and specific teaching practices ranging from videos to differentiation. I propose that the focus on these types of practices is consistent with SDT's needs for autonomy and competence (Deci & Ryan, 2008a), as well as constructs from Utility-Value theory (Wigfield & Eccles, 2000) and Achievement Goal Theory (Senko, Hulleman, & Harackweicz, 2011). This set of practices is more consistent with the instructional practices literature, including Hulleman & Harackiewcz's intervention study (2009) on promoting interest and relevance in science classrooms and Dornyei and Csizer's (1998) 10 commandments for motivating language learners. Moreover, it is also consistent with the TSES's instructional practices subscale (Tschannen-Moran & Woolfolk-Hoy, 2001). Thus, this factor represents

practices teachers might tailor for motivating individual students rather than an overarching environment they hope to establish for all students.

In some ways, my results reinforce the divide between theory and application as the different kinds of practices employed by the teachers I surveyed could not be adequately represented in a single model. The contrast between a set of practices focused on safety and emotional support and a set of practices conceptualized as a toolbox to be drawn upon could also be thought of as a difference between more humanistic aspects of teaching (caring, relationships) and more mechanistic aspects of teaching (creating interest, doing specific things to engender a specific response). More specifically, the humanistic aspects of teaching are consistent with SDT's relatedness (Ryan & Deci, 2000a; 2008), Wentzel's (1997) work on teacher caring, a focus on classrooms climate, and the recent incorporation of mindfulness and prosocial practices in classrooms (e.g. Mind Up Curriculum, Schonert-Reichl et al. (2015)). In contrast, the mechanistic aspects of teaching emanate from concepts including SDT's autonomy and competence (Ryan & Deci, 2000a; 2008a), creating specific goal orientations in classrooms (Ames, 1992), and the belief that teachers must consider their own behaviour and design tasks to best motivate students (i.e. there are specific things that teachers can do to motivate students).

Limitations & directions for future research. It is important to acknowledge two main limitations of my quantitative work. First, there are several issues arising from the sampling procedures and the final sample itself. Because of difficulty with initial recruitment through teacher conventions and the need for a large enough sample to conduct CFA, it became necessary to sample from two different populations (teachers in person in Alberta and teachers online within North America), using two different sampling methods (convenience and snowball). Unexpectedly, participants recruited through these different methods showed

differences in their responses to the TQPQ. We were not able to both account for these differences in the CFA and retain an adequate sample size; therefore, we chose to combine the samples despite the known differences. According to two different rules of thumb for CFA, namely a minimum sample size of N > 100-200 (Brown, 2015) or having 10 participants per estimated parameter (Schreiber, Nora, Stage, Barlow, & King, 2006), even the combined sample size is barely sufficient for the models I tested and indeed may have contributed to the final solution that involved separate models as the best fit. These series of limitations reinforce the need to establish partnerships with teachers, schools, and school divisions who are committed to student motivation and will facilitate recruitment of participants. In the end, the feasibility of completing this project outweighed the heterogeneity of the two groups.

In addition to sampling difficulties, I only collected self-report data from teachers about their motivational practices. While this is consistent with the literature, it is also a limitation as it reflects a relatively narrow perspective when considering who is influenced or impacted by motivation in the classroom. Future research may want to consider incorporating additional perspectives into the assessment of motivational practices, including students' and observers' as suggested by Linnenbrink-Garcia and Patall (2015). For example, creating a measure that would allow for comparison between teachers' reported practices and either students' experiences or observers' observations of these same practices would allow for a triangulated perspective of teachers' motivational practices.

CHAPTER III: Discussion

The final mixed method research question this project aimed to answer was: Are the categories of teachers' organic motivational practices preserved when transformed into a self-report questionnaire? This is a pertinent research topic as grassroots research with teachers, to see what kinds of motivational practices they organically apply in their classrooms, is lacking. Most of the research completed to date has encouraged teachers to apply or report on practices that fit within specific theoretical frameworks. As a result, there have been increasing calls within this research body to think cross-theoretically about practices that teachers may apply in their classrooms (e.g. Kaplan & Patrick, 2016; Linnenbrink-Garcia & Patall, 2016). To answer the mixed methods research question, I discuss mixed inferences from the qualitative and quantitative strands together with the intention of complementarity or clarifying the findings from one section with those from the other (Greene, 2007). Following my mixed inferences, I explore the implications of my dissertation work for researchers. Next, I assess the quality of the mixed inferences using Tashakkori & Teddlie's (2009) Integrative Framework for Inference Quality, using it to identify the limitations in my dissertation. Finally, I explore the variety of options for future research.

Mixed Inferences

I highlight three mixed inferences in this discussion: First, the codes from the qualitative analysis transformed to items well, with adequate evidence of reliability. This indicates that it is possible to capture teachers' motivational practices on a self-report questionnaire (the TQPQ). Second, although the reliabilities of the individual scales were adequate, the structure of the TQPQ did not support the original nine themes from which it was designed. In other words, although the codes transformed into items well, the structure of the categories of practices was

not preserved. Finally, two separate models fit the quantitative data best, reinforcing the possibility of a theory-practice divide when it comes to student motivation.

Measuring organic motivational practices. Building a questionnaire from the bottom up was important to me as it prioritized teachers' voices in research involving them. To do this, I asked teachers what they do to motivate their students and then used their words, verbatim in many cases, to create items on the TQPQ through a Linked Transformation process. The items and scales on the TQPQ were reliable, indicating that they consistently assessed the constructs that they were designed to measure. Thus, I demonstrated that it is possible to capture the motivational practices that teachers use in their classrooms on a questionnaire. This process also revealed that some of the practices that teachers organically use are quite similar to theory-based best practices while others are frowned upon by researchers.

Demonstrating that teachers organically use a broad variety of practices is particularly important as I advocate for researchers to incorporate the perspectives of teachers into their work: teachers provide a unique perspective as they are involved in the day to day application of these practices. Researchers who choose to work from a single theoretical perspective may benefit from considering teachers' organic practices to highlight areas that need more research. For example, teachers listed rewards, relationships, and safe environments as part of their organic practices and all of these appear to be emerging in the research realm recently. For rewards, Hidi (2016) provides a compelling argument for reconsidering their importance based on neuroscience and the brain-based rationale for rewards. Linnenbrink-Garcia and colleagues (2016) incorporate belonginess and relatedness in their recommendations about motivation design principles suggesting these are emerging domains of focus. While the motivation research literature has started to acknowledge the importance of these categories of practices,

they have yet to be integrated into empirical research in a consistent and meaningful way, something that future research will need to attend to.

Understanding the structure of motivational practices. In my original qualitative analyses I felt that teachers described each set of motivational practices in a way that made the themes separate from each other. For example, teachers did not speak of using Rewards to support Goals or using Relationships and Self-Regulation to support student growth. I am confident that teachers were thinking about these practices quite distinctly when they wrote about them and I used both member checks with teachers and checking with multiple peers to establish confidence in this analysis and interpretation. Therefore, during the integration process I confidently hypothesized that the themes representing teachers' organic practices would be synonymous with the structure of teachers' practices on the TQPQ. In other words, I expected the TQPQ to have nine scales, each representing a distinct category of organic practices. This hypothesis was not supported by the data, which instead revealed two separate models, neither of which retained the Rewards theme.

In trying to make sense of these findings I wonder if the lack of preservation in terms of structure might reflect the original qualitative question to which participants responded: *What do you do to motivate students?* Nothing in this question got at the process behind using the practices. In other words, I did not ask participants *how* they prioritized, combined, or linked motivational practices to support students, simply *what* they did. It is thus possible that I inferred a structure that was never captured by the qualitative data. The quantitative transformation at the item level, which would have been directly tied to the qualitative prompt, was largely successful in producing reliable scales. I realize now that perhaps an additional step was necessary to uncover the organic structure of the practices. For example, I could have

provided participants with the practices and asked them about how they organically combine them with the explicit intention of uncovering a qualitative structure that could be transformed. It is a novel idea to build both questionnaire items *and structure* from the bottom up and this idea could make an important contribution to scale development in general.

A model representing the theory-practice divide. The third mixed inference of my dissertation research was that a two model solution best fit the data. The Socially and Emotionally Supportive Environment model consisted of four latent factors (safe environment, relationships, effort, and student self-regulated learning) all of which point at ways teachers' focus on creating safe, supportive learning environments for students in an attempt to support their motivation. These ideas are consistent with research on teacher caring (Wentzel, 2003) and SDT's relatedness (Ryan & Deci, 2000a). In contrast, the Toolbox model consisted of four latent factors (relevance, interest, goals, and teaching strategies) all of which represent specific tactics teachers use to help to motivate their students. This approach is more consistent with the instructional practices literature, including focusing on relevance and developing interest (Hulleman & Harackiewicz, 2009). Future research would benefit from understanding how these two components fit together. It seems likely to me that teachers build the environment first and that a safe environment functions almost as a pre-requisite for the toolbox to work appropriately. Recent research on teachers' feelings of personal responsibility for student motivation supports this notion because teachers often state that before they can "do" anything to motivate students they must form a trusting relationship with the student (Daniels, Poth, & Goegan, forthcoming). Even the result that the final model did not retain the Rewards theme may also fit the notion of a theory-practice divide. I suspect that teachers are hesitant to endorse items that they are aware are meant to assess these kinds of practices as they have been established as less desirable in

relation to motivation not only through motivational research (e.g. SDT; Ryan & Deci, 2008a) but also popular media.

Overall, I believe that the fact that there was a split in the data such that a two-model solution fit best was important as it provides evidence of the split between the psychological or motivational theory literature and the instructional practices literature when it comes to motivational practices. This split is important and meaningful as it suggests that the theory-practice divide is not simply an academic exercise. Instead, my findings suggest that one pertinent reason the theory-practice divide exists is that it is something real, that exists within teachers and how they conceptualize their motivational practices. Although they are able to list any number of discrete practices, when they are transformed into a questionnaire a split appears between the things that they do to create an optimal classroom environment and the more specific motivational practices that they use with students.

Implications for Theory, Research, and Practice

As described in the introduction to my dissertation, motivation theories abound. Discrete theories of motivation such as Attribution Theory (Weiner, 1985), Achievement Goal Theory (Elliot, 1999), and Self-Determination Theory (Ryan & Deci, 20000) describe different ways that students are motivated and have been used to predict outcomes associated with different types of motivation (e,g. Froiland & Worrell, 2016; Haynes et al., 2009; Ratelle et al., 2007; Elliot, McGregor, & Gable, 1999). However, recently researchers have begun to recognize the limitations associated with a singular theoretical perspective (Linnenbrink-Garcia & Patall, 2015), particularly when it comes to having a meaningful impact on actual classrooms. As a result, contemporary thinking about student motivation is advocating for concepts and models to be considered cross-theoretically and dynamically (e.g. Kaplan & Patrick, 2016; Linnenbrink-

Garcia & Patall, 2015). The results of my dissertation are based on teachers' voices and suggest these calls for cross-theoretical perspectives (Urdan & Turner, 2013) are in line with the ways teachers themselves describe motivating students. Specifically, the results of the qualitative strand showed that teachers describe motivating their students according to the principles associated with many theoretical perspectives, not just one. Teachers wrote about a variety of practices, most of which were reflected in the research literature but from a variety of theoretical approaches. Thus, my results provide bottom-up evidence that reinforces the need for cross-theory research.

Another implication of the finding that teachers describe motivational practices that align with a variety of theories rather than just one is that researchers must re-conceptualize how they investigate student motivation. Most immediately, motivation researchers need to reconsider their reliance on self-report measures. Although self-report is widely used in social science research (Creswell, 2009), the mixed insights from this project reinforce that free response and questionnaires do not produce the same picture of teachers' motivational practices. Certain aspects of motivational practices applied by teachers in classrooms are present when they write about motivation practices qualitatively but are not supported by models when measured quantitatively. Specifically, the practice of using Rewards was present in the qualitative analysis but did not "fit" into the final models developed. The mean response to the Rewards scale was the lowest of all scales, but the reliability was adequate. Moreover, it had only one significant correlation. These discrepancies can be seen as a threat to interpretive efficacy (Tashakkori & Teddlie, 2009).

The fact that rewards did not fit into the overall models developed additionally suggests that this is an aspect of teachers' motivational practices that may be difficult to capture through a

self-report measure. If researchers are seeking to create the most parsimonious scale with the strongest evidence of validity, factors such as the Rewards one may be lost in the process of model identification – as was exactly the case in this project. However, because of my qualitative strand, I know that teachers organically described strategies that relate to rewards even though that theme "worked against" the construction of an acceptable model. This suggests that an aspect of teachers' motivational practices may be difficult to capture using the methods of assessment most common in this literature (i.e. questionnaires).

Refining the self-report measures that are used in the motivation research would be one way to address these issues. Other options include using qualitative methods, multisource and multi method approaches, and classroom observations (Linnenbrink-Garcia & Patall, 2015). Given my finding that something was different when teachers' motivational practices were assessed quantitatively than when they were assessed qualitatively, I support this call for more multisource research about motivational practices and I would add MMR to the list of ways to enhance the methodological designs used in studying motivation. In fact, I would give MMR precedence over multisource research because only MMR brings together the strengths of both quantitative and qualitative research to better understand the phenomenon being explored (Creswell, 2015). In the case of my dissertation research, MMR allowed me to come to an understanding that I would not have been able to through using either methodological approach alone. Indeed, had I taken a multi method approach to my dissertation rather than MMR, I would have had two separate studies with a very different outcome and would not have been able to make sense of my quantitative results.

Finally, there are practical implications of my results. I demonstrated that teachers spontaneously provide motivational practices that are not listed as generalized best practices and

overall describe motivational practices in a broad fashion. Due to the fact that teachers provided some motivational practices that are inconsistent with motivational best practices, it thus becomes important to think about *how teachers* think about motivating their students, as opposed to *how theory* suggests they should motivate their students. Although the TQPQ requires refinement and additional work in establishing evidence of its validity, it could eventually function as a type of diagnostic tool for teachers to assess their practices. Teachers may find a tool that was built on other teachers' practices and does not constrain them to a particular theoretical perspective appealing. It is my hope that by prioritizing teachers' perspectives in creating the TQPQ they will be able to see themselves in this research thereby allowing motivation theory to synergistically move forward in partnership with education professionals.

Identification of Limitations through Quality Assessment

Both the processes of drawing mixed inferences and evaluating their quality are relatively new. I have opted to consider the quality of my mixed inferences using Tashakkori & Teddlie's (2009) principles of design quality and interpretative rigour because they offer a practical and feasible way to assess the quality of the inferences and to identify limitations of the MMR design.

Design quality refers to "the degree to which the investigator has selected and implemented the most appropriate procedures for answering the research question" (Tashakkori & Teddlie, 2009, p. 302). Because this study was intentionally designed to answer an MMR question and to intentionally integrate at the linked transformation and mixed data interpretation points of design, the assessment of overall design quality is high. However, there are some limitations in terms of specific criteria (Table 8) that reduced the intended design quality. As mentioned in the limitations related to both strands, the sampling I ultimately employed was less than ideal.

Table 8. Meeting the Inference Quality Criteria of Tashakkori and Teddlie's Integrative Framework (2009)

Aspects of Quality	Research Criterion	Met or not Met
Design Quality	Design Suitability (appropriateness)	Yes
	Design Fidelity (adequacy)	Partially
	Within-design consistency	Yes
	Analytic adequacy	Yes to Partially
Interpretive Rigour	Interpretive consistency	Yes
	Theoretical consistency	Yes
	Interpretive Agreement	Partially
	Interpretive distinctiveness	Yes
	Integrative efficacy	Yes
	Interpretive correspondence	Yes

Specifically, the snowball sampling methods used across both strands resulted in convenience samples that are likely not representative of the population of practicing teachers. This procedure was not part of the original design; however, I experienced much more difficulty than expected in recruiting participants and ended up allowing practicalities of the mixed method design to take priority over rigorous sampling methods. The reality of a heterogenous final sample somewhat reduced design fidelity/adequacy (Tashakkori & Teddlie, 2009). Also the data collection method used in the qualitative strand could have been stronger so as to enhance the study's analytic adequacy. For example, rather than using open-ended written responses, focus groups may have led to richer qualitative responses. However, because my MMR design prioritized the

quantitative strand, the use of a more convenient data collection method in the qualitative strand largely aligned with the criterion of design consistency.

Interpretative rigour refers to "the degree to which credible interpretations have been made on the basis of obtained results" (Tashakkori & Teddlie, 2009, p. 303). Overall, the interpretive process undertaken in this dissertation adheres closely to all six criteria associated with interpretive rigour. The one exception is that the interpretive agreement of the study has yet to be established because the findings have not been formally reviewed. The dissertation defense is the primary way that this will happen, as will peer review once I turn the study into a manuscript. In anticipation of this process, I took several steps to try and maximize the likelihood of interpretive agreement by not completing this process in isolation (Creswell & Plano Clark, 2011; Creswell, 2015) and instead actively discussing the interpretations with my research laboratory and with my supervisor.

Directions for Future Research

The options for future research on this topic seem endless. However, I will explore four pertinent areas that seem ripe for additional research. First, future research is needed to refine and further validate the TQPQ. In particular, although the TQPQ was designed to prioritize teachers' voices it currently lacks an expert perspective. While teachers' perspectives are clearly represented in the scales, the perspective of the motivation research literature has not been thoroughly integrated. An expert review of these developed scales (deVilliers, 2012) would strengthen them and ultimately produce a measurement tool that balances teachers' voices with researchers needs. Following an expert review, a formal validation study of the developed measure is needed. During this process other measures (e.g. PALS, Midgley et al. 2000) need to be collected to provide evidence of construct validity (AERA, 2014).

Second, it is important to explore how, why, and when teachers apply the organic practices represented in this study. How do teachers' prioritize creating safe environments and their toolbox? How and for what purposes do teachers combine different practices? Are there certain characteristics of students that influence the practices used? These questions seem most suitable to qualitative research methods. Specifically, Urdan and Turner (2013) suggest that grounded theory may be one approach particularly well suited better understanding teachers' classroom motivational practices. A grounded theory approach would allow the researcher to create a theory to explain teachers' application of motivational practices thereby giving priority to teachers' voices in terms of theory generation. I would also suggest that further MMR would help contribute to understanding these "how" questions while at the same time allowing the results to be transformed into quantitative tools that can meaningfully impact future research.

Third, it is important to understand how contextual variables influence the application of these motivational practices. Some relevant contexts may include differences between elementary and secondary school, between content areas, at the beginning versus the end of the year, and in rural versus urban schools. I will elaborate on ideas specifically to investigate differences between elementary and secondary school teachers because research to date suggests differences in motivation in these contexts (Midgley, Anderman, & Hicks, 1995; Eccles & Midgley, 1990). Quantitatively differences between the groups could be tested by examining the mean differences between elementary and secondary teachers on the TQPQ. Qualitatively, elementary and secondary school teachers could participate in focus groups or interviews about their classroom motivation practices, and the themes that emerge from their participation could then be compared. Using an MMR approach, the two previous studies could be combined, with the quantitative data (e.g. teachers who differentially apply the categories of practices) providing

the basis for the sample (e.g. elementary and secondary teachers in four groups – high or low on each overall group of practices) in the qualitative portion. In turn, qualitative themes could then be quantified and a joint display created to compare between elementary and secondary teachers' endorsement of the themes and how they describe applying them. Similar methodological procedures could be applied to consider the impact of the other contexts listed above.

Finally, there is additional theoretical work necessary in terms of thinking cross-theoretically. Kaplan and Patrick (2016) advocate for using a "complexity science" (Waldrop, 1992) model to understand motivation in classroom. This approach would view motivation as a complex phenomenon that is dynamic, interdependent with environment, and non-linear and the authors call for "evaluating the characteristics of the phenomena among the particular participants in the particular context at the particular time" (Kaplan & Patrick, 2016, p. 34). Approaching motivation in this way would prioritize the viewpoints of all of those in the motivational system, thus advocating for understanding motivation from a multisource perspective. A complexity science approach would thus be interested in teacher responsiveness to students as well as students' agency in supporting their own motivation. I argue that MMR would again be excellently poised to respond to the emergence of motivation as a complex phenomenon.

Conclusion

In sum, it is important to continue advocating for and designing studies using a variety of methodologies to better and more deeply understand the dynamics of not only what teachers do to motivate students but how, why, and when teachers apply certain practices and not others. This dissertation provides evidence for the importance of integrating cross-theoretical perspectives about motivational practices and prioritizing teachers' perspectives. Building on

these results and recent advocacy in the literature, future research should focus on feasible, practical, cross-theoretical motivational practices that are both accessible to teachers and empirically supported. By balancing teachers' perspectives with motivational theory, researchers will then be able to best understand the gap between instructional practices and motivational theory and the reasons for its existence. By better understanding and acknowledging the reasons for this gap, I believe that researchers and teachers are best poised to move forward and dialogue about how to meaningfully incorporate motivational principles into learning environments.

References

Alberta Education (n.d.). Safe and Caring Schools. Retrieved from https://education.alberta.ca/safe-and-caring-schools/safe-and-caring-schools/.

American Educational Research Association, American Psychological Association and National Council on Measurement in Education (2014). *The Standards for Educational and Psychological Testing.* Washington, DC: AERA.

Ames, C. (1992). Classrooms: Goals, structures, and student motivation. *Journal of Educational Psychology, 84,* 261-271.

Anderman, L., Andrzejewski, C. E., & Allen, J. (2011). How do teachers support students' motivation and learning in their classrooms? *Teachers College Record, 113*, 963-1003.

Anderman, L.H., Patrick, H., Hruda, L.Z. & Linnenbrink, E.A. (2002). Observing classroom goal structures to clarify and expand goal theory. In C. Midgley, Ed. (pp. 243-278), *Goals, Goal Structure and Patterns of Adaptive Learning.* New Jersey: Lawrence Erlbaum Associates.

Archibald, M., Radil, A.I., Zhang, Z., & Hanson, B. (2015). Current mixed methods practices in qualitative research: a content analysis of leading journals. *International Journal of Qualitative Methods, Special Issue: How Mixed Methods Informs and Enhances Qualitative Research, 14, 5-33*. Retrieved from http://ejournals.library.ualberta.ca/index.php/IJQM/article/view/23006/18221.

Atkinson, J.W. & N.T. Feather (1966). Introduction and Overview. In J. Atkinson & N. Feather (Eds). *A Theory of Achievement Motivation* (pp. 3-10). New York: Wiley & Sons.

Bazeley, P. & Kemp, L. (2012). Mosaics, Triangles, and DNA: Metaphors for Integrated Analysis in Mixed Methods Research. *Journal of Mixed Methods Research, 6,* 55-72. doi: 10.1177/1558689811419514.

Bazeley, P. (2016, November). *Integration in Mixed Methods Research.* Webinar presented through the Mixed Methods Webinar Series through International Institute for Qualitative Methodology. Retrieved from: https://www.ualberta.ca/international-institute-for-qualitative-methodology/webinars/mixed-methods-webinar/archived-webinars.

Brown, G. T. L. (2004). Measuring attitude with positively packed self-report ratings: Comparison of agreement and frequency scales. *Psychological Reports*, 94, 1015-1024.

Brown, T.A. (2015). *Confirmatory Factor Analysis for Applied Research, 2nd Edition*. New York: Guildford.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136–162). Newbury Park, CA: Sage.

Bryman, A. (2007). Barriers to integrating quantitative and qualitative research. *Journal of Mixed Methods Research,* 1, 8-22. doi: 10.1177/2345678906290531.

Butler, R. (2012). Striving to connect: Extending an achievement goal approach to teacher motivation to include relational goals for teaching. *Journal of Educational Psychology, 104*, 726-742. doi: 10.1037/a0028613

Cheon, S.H., Reeve, J., Moon, I.K. (2012). Experimentally based, longitudinally designed, teacher-focused intervention to help physical education teacher be more autonomy supportive toward their students. *Journal of Sport & Exercise Psychology, 34,* 365-396.

Ciani, K.D. & Sheldon, K.M. (2010). Evaluating the mastery-avoidance goal construct: A study of elite college baseball players. *Psychology of Sport and Exercise, 11,* 127-132. doi:10.1016/j.psychsport.2009.04.005

Ciani, K.D., Sheldon, K.M., Hilpert, J.C., & Ester, M.A. (2011). Antecedents and trajectories of achievement goals: A self-determination theory perspective. *British Journal of Educational Psychology,* 81, 223-243. Doi: 10.1348/000709910X517399.

Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research* (2nd Ed.). Thousand Oaks, CA: Sage.

Creswell, J.W. (2009*). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (3rd Ed). Los Angeles, CA: Sage.

Creswell, J.W. (2015). *A concise introduction to Mixed Methods Research*. New York: Sage.

Daniels, L. M., Poth, C. A., & Goegan, L. D. (under consideration). Teachers' personal responsibility for student motivation: Exploring a construct that is broader than we measure. *Contemporary Educational Psychology, Special Issue on Mixed Methods.*

Deci, E.L., & Ryan, R.M. (2008a). Facilitating optimal motivation and psychological across life's domains. *Canadian Psychology, 49*, 14-23. doi:10.1037/0708-5591.49.1.14.

Deci, E.L., & Ryan. R.M. (2008b). Self-determination theory: A macrotheory of human motivation, development, and health. *Canadian Psychology, 49*, 182-185. doi:10.1037/a0012801.

Deci, E.L., & Ryan, R.M. (1994). Promoting self-determined education. *Scandaninavian Journal of Educational Research, 35*, 3-14. doi:10.1080/0031383940380101.

Deci, E.L., Koestner, R., & Ryan, R.M. (2001). Extrinsic rewards and intrinsic motivation in education: Reconsidered once again. *Review of Educational Research, 71*, 1-27.

Dekker, S., Krabbendam, L., Lee, N., Boschloo, A., de Groot, R., & Jolles, J. (2016). Dominant goal orientations predict differences in academic achievement during adolescence through metacognitive self-regulation. *Journal of Educational and Developmental Psychology, 6,* 47-58. doi:10.5539/jedp.v6n1p47.

Dellinger, A.B., & Leech, N.L. (2007). Toward a unified validation framework in Mixed Methods Research. *Journal of Mixed Methods Research,* 1, 309-332. Doi: 10.1177/1558689807306147.

DeVellis, R.F. (2012). *Scale Development: Theory and Applications, 3rd edition*. Los Angeles, CA: Sage Publications.

Di Domenico, S., & Ryan, R.M. (2017). The emerging neuroscience of intrinsic motivation: A new frontier in Self-Determination Theory research. *Frontiers in Human Neuroscience, 11,* 1-14. doi: 10.3389/fnhum.2017.00145.

Dornyei, Z., & Csizer, K. (1998). Ten commandments for motivating language learners: results of an empirical study. *Language Teaching Research,* 2, 203-229.

Downey, R.G., & King, C.V. (1998). Missing data in likert ratings: A comparison of replacement methods. *The Journal of General Psychology,* 125, 175-191. Doi: 10.1080/00221309809595542.

Eccles, J.S., & Midgley, C.(1990). Changes in academic motivation and self-perception during early adolescence. In R. Montemayor, G.R. Adams, & T. P. Gullotta (Eds.), *From Childhood to Adolescence: A Transitional Period?* (Ch.6, pp. 134-155). Newbury Park, CA: Sage Publications.

Elliot, A.J. (1999). Approach and avoidance motivation and achievement goals. *Educational Psychologist,* 3, 169-189, doi: 10.1207/s15326985ep3403_3.

Elliot, A.J., & MacGregor, H.A. (1999). Test anxiety and the hierarchiacal model of approach and avoidance achievement motivation. *Journal of Personality and Social Psychology, 76,* 628-644.

Elliott, A.J., McGregor, H.A. & Gable, S. (1999). Achievement goals, study strategies and exam performance: A meditational analysis. *Journal of Educational Psychology,* 91, 549-563.

Faye, C., & Sharpe, D. (2008). Academic motivation in university: The role of basic psychological needs and identity formation. *Canadian Psychology, 40*, 189-199. doi:10.1037/a0012858.

Field, A. (2005). *Discovering statistics using SPSS, 2nd ed*. London: Sage Publications

Fox, R. J. (2010). *Confirmatory Factor Analysis.* Wiley International Encyclopedia of Marketing.

Friedman, I.A. & Kass, E. (2002). Teacher self-efficacy: a classroom-organization conceptualization. *Teaching and Teacher Education,* 18, 675-686.

Froiland, J.M. & Worrell, F.C. (2016). Intrinsic motivation, learning goals, engagement, and achievement in a diverse high school. *Psychology in the Schools,* 53, 321-336. doi:10.1002/pits.21901.

Glasgow, K.L., Dornbusch, S.M., Troyer, L., Steinberg, L. & Ritter, P.L. (1997). Parenting styles, adolescents' attributions and educational outcomes in nine heterogeneous high schools. *Child Development, 68,* 507-529.

Graham, S. & Williams, C. (2009). An attributional approach to motivation in school. In Wentzel K. & Wigfield, A. (Eds.), *Handbook of Motivation at School* (pp.171-196). New York, NY: Taylor and Francis.

Greene, J.C (2007). *Mixed methods in social inquiry.* Hoboken, NJ: John Wiley and Sons.

Greene, J.C., Caracelli, V.C, & Graham, W.F. (1989). Toward a conceptual framework for mixed-method evaluation designs. *Education Evaluation and Policy Analysis, 11,* 255-274. doi: 10.3102/01623737011003255.

Guay, F., & Vallerand, R. J. (1997). Social context, students' motivation, and academic achievement: Toward a process model. *Social Psychology of Education, 1*, 211–233. Retrieved from http://www.er.uqam.ca/nobel/r26710/LRCS/papers/90.pdf.

Guay, F., Ratelle, C. F., & Chanal, J. (2008). Optimal learning in optimal contexts: The role of self-determination in education. *Canadian Psychology/Psychologie Canadienne, 49*, 233-240. doi:10.1037/a0012758

Hardre, P. L., & Sullivan, D. W. (2008). Teacher perceptions and individual differences: How they influence rural teachers' motivating strategies. *Teaching and Teacher Education, 24*, 2059-2075. doi:10.1016/j.tate.2008.04.007

Haynes Stewart, T.L., Clifton, R.A., Daniels, L.M., Perry, R.P., Chipperfield, J.G. & Ruthig, J. (2011). Attributional retraining: reducing the likelihood of failure. *Social Psychology of Education, 14,* 75-92. Doi:10.1007/s11218-010-9130-2

Haynes, T.L., Perry, R.P., Stupinky, R.H., & Daniels, L.M. (2009). A review of attributional retraining treatments: Fostering engagement and persistence in vulnerable college students. In J.C. Smart, Ed., pp. 227-272, *Higher Education: Handbook of Theory and Research.* Springer Science & Business.

Heller, K.A., & Ziegler, A. (1996). Gender differences in mathematics and the sciences : Can attributional retraining improve the performance of gifted females?. *Gifted Child Quarterly, 4*, 200-210. doi: 10.1177/001698629604000405

Hidi, S. (2016). Revisiting the role of rewards in motivation and learning: Implications of neuroscientific research. *Educational Psychology Review,* 28, 61-93. Doi: 10.1007/s10648-015-9307-5.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1–55. Doi: 10.1080/10705519909540118.

Hudley, C., Britsch, B., Wakefield, W. D., Smith, T., Demorat, M. and Cho, S.-J. (1998), An attribution retraining program to reduce aggression in elementary school students. *Psychology in the Schools, 35,* 271–282. doi: 10.1002/(SICI)1520-6807(199807)35:3<271::AID-PITS7>3.0.CO;2-Q

Hulleman, C.S. & Barron, K.E. (2015). Motivation interventions in education. In L. Corno & E. Anderman (Eds.), *Handbook of Educational Psychology* (pp. 160-171). New York; Routledge.

Hulleman, C.S., & Harackiewicz, J.M. (2009). Promoting interest and performance in high schools science class. *Science,* 326, 1410-1412. Doi: 10.1126/science.1177067.

Johnson, P. (2008). Inductive Analysis. In R. Thorpe & R. Holt (Eds.), *The SAGE Dictionary of Qualitative Management Research* (pp. 112-117). doi: 10.4135/9780857020109.

Johnson, R.B. & Onwuegbuzie, A.J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher, 33*, 14-26. doi: 10.3102/0013189X033007014.

Kaplan, A. & Maehr, M. (2007). The contributions and prospects of goal orientation theory. *Educational Psychology Review*, 19, 141-184. DOI 10.1007/s10648-006-9012-5

Kaplan, A. & Patrick, H. (2016). Learning environments and motivation. In K. Wentzel & D. Miele (Eds.). *Handbook of motivation at school* (2nd Ed., pp 251-274). New York: Routledge.

Kaplan, A., Katz, I., & Flum, H. (2012). Motivation theory in educational practice: Knowledge claims, challenges, and future directions. In K. R. Harris, S. G. Graham, & T. Urdan (Eds.), *APA Educational Psychology Handbook Vol. 2: Individual differences, cultural considerations, and contextual factors in educational psychology* (Ch. 7, pp. 165-194). Washington, DC: American Psychological Association.

Kumar, R., Cheen, M.H. & Kaplan, A. (2002). Goal structures in the learning environment and students' disaffection from learning and schooling. In C. Midgley, Ed. (pp. 143-174), *Goals, Goal Structure and Patterns of Adaptive Learning.* New Jersey: Lawrence Erlbaum Associates.

Lau S., & Nie, Y. (2008). Interplay between personal goals and classroom goal structures in predicting student outcomes: A multilevel analysis of person-context interactions. *Journal of Educational Psychology, 100*, 15-29. doi:10.1037/0022-0663.100.1.15

Levesque, C., Zuehlke, A. N., Stanek, L. R., & Ryan, R. M. (2004). Autonomy and competence in German and American university students: A comparative study based on self-determination theory. *Journal of Educational Psychology, 96*, 68-84. doi:10.1037/0022-0663.96.1.68

Linnenbrink, E. R. & Pintrich, P.R. (2002). Motivation as an Enabler for Academic Success. *School Psychology Review, 31*, 313-327.

Linnenbrink-Garcia, E., & Patall, E. (2015). Motivation. In L. Corno & E. Anderman (Eds.), *Handbook of Educational Psychology* (pp. 91-103). New York; Routledge.

Linnenbrink-Garcia, L., Patall, E.A., & Pekrun, R. (2016). Adaptive motivation and emotion in education: Research and principles for instructional design. *Policy Insights from the Behavioural and Brain Sciences,* 3, 228-236. Doi: 10.1177/2372732216644450.

Linnenbrink-Garcia, L., Tyson, D.F., & Patall, E.A. (2008). When are achievement goal orientations beneficial for academic achievement? A closer look at moderating factors. *International Review of Social Psychology*, 21, 19–70. doi:10.1016/j.edurev.2013.07.001.

Maehr, M.L. & Zusho, A. (2009). Achievement goal theory: The past, present and future. In K.T. Wentzel & A. Wigfield, Eds. (pp. 77-104), *Handbook of Motivation at School.* New York: Routledge.

McCroskey, J. C. (1992). *An introduction to communication in the classroom*. Edina, Minnesota: Burgess International Group.

McGrew, K., Johnson, D.R., Cosio, A., & Evans, J. (2004). *Increasing the chance of No Child Left Behind: Beyond Cognitive and Achievement abilities*. Retrieved from http://www.iapsych.com/articles/mcgrew2004.pdf

Meece, J.L, Anderman, E.M., & Anderman, L.H (2006). Classroom goal structure, students motivation and academic achievement. *Annual Review of Psychology, 57,* 487-503. doi: 10.1146/annurev.psych.56.091103.070258

Midgley, C., Anderman, E., & Hicks, L. (1995). Differences between elementary and middle school teachers and students: A goal theory approach. *The Journal of Early Adolescence, 15*(1), 90-113. doi:10.1177/0272431695015001006.

Midgley, C., Maehr, M., Hruda, L., Anderman, E., Amerman, L., Freema, K., et al. (2000). *Manual for the Patterns of Adaptive Learning Scales*. Ann Arbor: University of Michigan.

Morgan, D.L. (2014). Pragmatism as a paradigm for social research. *Qualitative Inquiry.* DOI: 10.1177/1077800413513733

Niemiec, C.P. & Ryan, R.M. (2009). Autonomy, competence and relatedness in the classroom: Applying self-determination theory to educational practice. *Theory and Research in Education, 7*, 133-144.

Noddings, N. (1992). *The challenge to care in schools: An alternative approach to education*. New York: Teachers College Press.

Nolen, S.B., & Nicholls, J.G. (1994). A place to begin (again) in research on student motivation: Teachers' beliefs. *Teaching and Teacher Education, 10,* 57 – 69.

O'Cathain, A., Murphy, E., & Nicholl, J. (2007). Integration and publications as indicators of "yield" from Mixed Methods Studies. *Journal of Mixed Methods Research,* 1, 147-163. Doi: 10.1177/1558689806299094.

Oliver, E.J., Markland, D., Hardy, J., & Petherick, C.M. (2008). The effects of autonomy-supportive versus controlling environments on self-talk. *Motivation and Emotion, 32*, 200-212. doi:10.1007/s11031-008-9097-x.

Onwuegbuzie, A.J., Bustamante, R.M., & Nelson, J.A. (2010). Mixed research as a tool for developing quantitative instruments. *Journal of Mixed Methods Research, 4,* 56-78. doi: 10.1177/1558689809355805.

Onwuegbuzie, A.J., Dickinson, W., Leech, N. & Zoran, A. (2009). A qualitative framework for collecting and analyzing data in focus group research. *International Journal of Qualitative Methods*, 8, 1-21.

Onwuegbuzie, A.J. & Johnson, R.B. (2006). The validity issue in Mixed Research. *Research in the Schools,* 13, 48-63.

Onwuegbuzie, A. J., Leech, N. L., & Collins, K. M. T. (2011). Toward a new era for conducting mixed analysis: The role of quantitative dominant and qualitative dominant crossover mixed analysis. In M. Williams & W. P. Vogt (Eds.), *The Sage Handbook of Innovation in Social Research Methods* (pp. 353-384). Thousand Oaks, CA.

Patrick, H., Anderman, L.H., Ryan, A.M., Edelin, K.C. & Midegley, C. (2001). Teachers' communication of goal orientations in four fifth-grade classrooms. *The Elementary School Journal, 102,* 35-58. Retrieved from http://www.jstor.org/stable/1002168 .

Patrick, H., Kaplan, A., & Ryan, A. M. (2011). Positive classroom motivational environments: Convergence between mastery goal structure and classroom social climate. *Journal of Educational Psychology, 103*, 367-382. doi:10.1037/a0023311

Paulick, I., Watermann, R., & Nuckles, M. (2013). Achievement goals and school achievement: The transition to different school tracks in secondary school. *Contemporary Educational Psychology, 38,* 75-86. DOI: 10.1016/j.cedpsych.2012.10.003.

Pei, J., Atkinson, E., Radil, A.I., Poth, C., Tremblay, M., Buhr, E., & Dayal, H. (2015). *Supporting the Prevention Conversation: A developmental evaluation of an innovative FASD awareness and prevention initiative*. Report prepared for Alberta Centre for Child, Family and Community Research. Retrieved from

https://preventionconversation.files.wordpress.com/2015/06/supporting_the_prevention_conversation_a_developmental_evaluation_of_an_innovative_fasd_awareness_and_prevention_initiative.pdf

Pietkiewicz, I. and Smith, J.A. (2014) A practical guide to using interpretative phenomenological analysis in qualitative research psychology. *Psychological Journal*, 20, 7-14.

Pintrich, P.R. (2003). A motivational science perspective on the role of student motivation in learning and teaching contexts. *Journal of Educational Psychology, 95,* 667-686. DOI: 10.1037/0022-0663.95.4.667

Putwain, D. W., & Symes, W. (2011). Teachers' use of fear appeals in the mathematics classroom: Worrying or motivating students?. *British Journal of Educational Psychology, 81*, 456-474. doi:10.1348/2044-8279.002005

Radil, A.I. (2012). An autonomy-support motivation intervention with preservice teachers: Do the strategies they intend to use change? Unpublished masters thesis.

Radil, A.I., Atkinson, E., Buhr, E., & Daniels, L.M. (in prep). Motivated Students: Preservice teachers definitions, profiles and beliefs.

Ratelle, C. F., Guay, F., Vallerand, R.J., Larose, S., & Senécal, C. (2007). Autonomous, Controlled, and Amotivated Types of Academic Motivation: A Person-Oriented Analysis. *Journal of Educational Psychology, 99,* 734-746. doi:10.1037/0022-0663.99.4.734.

Reeve, J. (2006). Teachers as facilitators: What autonomy supportive teachers do and why their students benefit. *The Elementary School Journal, 106,* 225-237.

Reeve, J. (2009). Why Teachers Adopt a Controlling Motivating Style Toward Students and How They Can Become More Autonomy Supportive. *Educational Psychologist, 44,* 159-175, doi: 10.1080/00461520903028990

Reeve, J., Jang, H., & Deci, E.L. (2010). Engaging students in learning activities: It is not autonomy support or structure but autonomy support and structure. *Journal of Educational Psychology, 102,* 588-600. DOI: 10.1037/a0019682.

Reeve, J., Vansteenkiste, M., Assor, A., Ahmad, I., Cheon, S.H., Jang, H., Kaplan, H., Moss, J.D., Olaussen, B.S., & Wang, C.K.J. (2013). The beliefs that underlie autonomy-supportive and controlling teaching: A multinational investigation. *Motivation and Emotion.* DOI 10.1007/s11031-013-9367-0

Reis, H.T., Sheldon, K.M., Gable, S.L., Roscoe, J., & Ryan, R.M. (2000). Daily well-being: The role of autonomy, competence and relatedness. *Personality and Social Psychology Bulletin, 26*, 419-435. doi:10.1177/0146167200266002.

Ryan, R.M. & Deci, E.L (2013). *Key note address at the 5th International Conference on Self-Determination Theory.*

Ryan, R.M., & Deci, E.L. (2000a). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*, 68-78. doi:10.1037//0003-066X.55.1.68.

Ryan, R.M., & Deci, E.L. (2000b). Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions. *Contemporary Educational Psychology*, 25, 54-67. doi:10.1006/ceps.1999.1020.

Schonert-Reichl, K.A., Oberle, E., Stewart Lawlor, M., Abbott, D., Thompson, K., Oberlander, T.F., & Diamond, A. (2015). Enhancing Cognitive and Social–Emotional

Development Through a Simple-to-Administer Mindfulness-Based School Program for Elementary School Children: A Randomized Controlled Trial. *Developmental Psychology,* 51, 52-66. Doi:10.1037/a0038454.

Schreiber, J.B., Nora, A., Stage, F.K., Barlow, E.A., & King, J. (2006) Reporting Structural Equation Modeling and Confirmatory Factor Analysis Results: A Review. *The Journal of Educational Research*, 99, 323-338, DOI: 10.3200/JOER.99.6.323-338.

Schunk, D.H., Pintrich, P.R. & Meece, J.L (2008). *Motivation in Education: Theory, Research and Applications, 3rd edition.* Pearson.

Senko, C., Belmonte, K., & Yakhkind, A. (2012). How students' achievement goals shape their beliefs about effective teaching: a "build a professor" study. *British Journal of Educational Psychology, 82,* 420-435. DOI:10.1111/j.2044-8279.2011.02036.x

Senko, C., Hulleman, C. S., & Harackiewicz, J. M. (2011). Achievement goal theory at the crossroads: Old controversies, current challenges, and new directions. *Educational Psychologist, 46*, 26-47. doi:10.1080/00461520.2011.538646

Snow, R.E., & Jackson, D.N. (1994). Individual differences in conation: Selected constructs and measures. In H.F. O'Neil & M. Drillings (Eds.) *Motivation: Theory and Research* (Ch. 5, pp. 71-100).

Statistics Canada (2015). *Back to school . . . by the numbers*. Retrieved from http://www.statcan.gc.ca/eng/dai/smr08/2014/smr08_190_2014#a4.

Tabachnick, B. G., and Fidell, L. S. (2007). *Using Multivariate Statistics* , 5th ed. Boston : Allyn and Bacon.

Tashakkori, A. & Teddlie, C. (2009). *Foundations of Mixed Methods Research: Integrating Quantitative and Qualitative Approaches in the Social and Behavioural Sciences*. Sage.

Thomas, D.R. (2006). A general inductive approach for analyzing qualitative evaluation data. *American Journal of Evaluation, 27,* 236-246. doi: 10.1177/1098214005283748.

Thompson, B. (2004). *Exploratory and Confirmatory Factor Analysis: Understanding concepts and applications.* APA.

Tschannen-Moran, M., & Woolfolk Hoy, A. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and Teacher Education, 17,* 783-805.

Turner, J.C., Bogner Warzon, K., & Christensen, A. (2011). Motivating mathematics learning: Changes in teachers' practices and beliefs during a nine-month collaboration. *American Educational Research Journal,* 48, 718-762. Doi: 10.3102/0002831210385103.

Turner, J.C., Gray, D.L., Anderman, L.H., Dawson, H.S., & Anderman, E.M.. (2011). Getting to know my teacher: Does the relation between perceived mastery goal structures and perceived teacher support change across the school year? *Contemporary Educational Psychology*. *38*, 316-327

Urdan, T. & Turner, J.C. (2013). Competence motivation in the classroom. In A.J. Elliot & C.S. Dweck (Eds). Handbook of Competence and Motivation, 1st Edition (pp. 297-317). Retrieved from http://www.ebrary.com.

Vallerand, R. J., Blais, M. R., Briere, N. M., & Pelletier, L. G. (1989). Construction et validation de l'Echelle de Motivation en Education [Construction and validation of the Academic Motivation Scale]. *Canadian Journal of Behavioural Sciences, 21*, 323–349. Retrieved from http://www.er.uqam.ca/nobel/r26710/LRCS/papers/33.pdf.

Vallerand, R.J., Fortier, M.S., & Guay, F. (1997). Self-determination and persistence in a real-life setting: Toward a motivation model of high school dropout. *Journal of Personality and Social Psychology,* 72, 1161-1176.

Vansteenkiste, M., Lens, W., & Deci, E.L. (2006). Intrinsic versus extrinsic goal contents in self-determination theory: Another look at the quality of academic motivation. *Educational Psychologist, 41,* 19-31.

Vansteenkiste, M., Simons, J., Lens, W., Sheldon, K. M., Deci, E. L. (2004). Motivating learning, performance, and persistence: The synergistic role of intrinsic goals and autonomy-support. *Journal of Personality and Social Psychology, 87*, 246-260. doi: 10.1037/0022-3514.87.2.246.

Vedder Weiss, D., & Fortus, D. (2017). Teachers' Mastery Goals: Using a Self-Report Survey to Study the Relations between Teaching Practices and Students' Motivation for Science Learning. *Research in Science Education (2017).* doi: 10.1007/s11165-016-9565-3.

Waldrop, M.M. (1992). *Complexity: The emerging science at the edge of order and chaos.* New York: Touchstone.

Wagner, E., & Szamoskozi, S. (2012). Effects of direct academic motivation – enhancing intervention programs: A meta-analysis. *Journal of Cognitive and Behavioural Psychotherapies, 12,* 85-101. Retrieved from http://jebp.psychotherapy.ro/.

Weiner, B. (1985). An attributional theory of achievement motivation and emotion. *Psychological Review, 92,* 548-573.

Weiner, B. (1988). Attribution theory and attributional therapy: Some theoretical observations and suggestions. *British Journal of Clinical Psychology, 27,* 99-104. DOI: 10.1111/j.2044-8260.1988.tb00757.x

Weiner, B. (2000). Intrapersonal and Interpersonal Theories of Motivation from an Attributional Perspective. *Educational Psychology Review,* 12, 1-14.

Wentzel, K. (2003). Motivating Students to Behave in Socially Competent Ways. *Theory Into Practice*, 42, 319-326, DOI: 10.1207/s15430421tip4204_9.

Wentzel, K.R. (1997). Student motivation in middle school: The role of perceived pedagogical caring. *Journal of Educational Psychology,* 89, 411-419.

Wigfield, A., & Eccles, J.S. (2000). Expectancy-value theory of achievement motivation. *Contemporary Educational Psychology, 25,* 68-81. doi:10.1006/ceps.1999.1015

Williamson, G. (2015). Self-regulated learning: an overview of metacognition, motivation, and behaviour. *Journal of Initial Teacher Inquiry,* 1, 25-27. Retrieved from: https://ir.canterbury.ac.nz/handle/10092/11442.

Won, S., Wolters, C. A., & Mueller, S. A. (2017). Sense of belonging and self-regulated learning: Testing achievement goals as mediators. *The Journal of Experimental Education,* , 1-17. doi:10.1080/00220973.2016.1277337.

Appendix A.

Ethics Approval Letters

Notification of Approval

Date:	November 7, 2012
Study ID:	Pro00033881
Principal Investigator:	Lia Daniels
Study Title:	Exploring Teachers' Current Motivational Practices in the Classroom
Approval Expiry Date:	November 6, 2013

Approved Consent Form:	Approval Date	Approved Document
	11/7/2012	Info Letter.doc

Thank you for submitting the above study to the Research Ethics Board 2 . Your application has been reviewed and approved on behalf of the committee.

A renewal report must be submitted next year prior to the expiry of this approval if your study still requires ethics approval. If you do not renew on or before the renewal expiry date, you will have to re-submit an ethics application.

Approval by the Research Ethics Board does not encompass authorization to access the staff, students, facilities or resources of local institutions for the purposes of the research.

Sincerely,

Dr. Stanley Varnhagen
Chair, Research Ethics Board 2

Note: This correspondence includes an electronic signature (validation and approval via an online system).

Notification of Approval

Date:	October 06, 2014
Study ID:	Pro00051148
Principal Investigator:	Lia Daniels
Study Title:	Listening to Teachers Talk about Motivating Students
Approval Expiry Date:	October-05-15

Approved Consent Form:	Approval Date	Approved Document
	10/06/2014	Focus Group LOI d1.doc
	10/06/2014	Focus Group Consent Form d1.doc

Sponsor/Funding Agency:	RISE Catalyst Grant VPR's 4A SSHRC Bridge Funding

Thank you for submitting the above study to the Research Ethics Board 1. Your application has been reviewed and approved on behalf of the committee.

A renewal report must be submitted next year prior to the expiry of this approval if your study still requires ethics approval. If you do not renew on or before the renewal expiry date, you will have to re-submit an ethics application.

Approval by the Research Ethics Board does not encompass authorization to access the staff, students, facilities or resources of local institutions for the purposes of the research.

Sincerely,

William Dunn, PhD
Chair, Research Ethics Board 1

Note: This correspondence includes an electronic signature (validation and approval via an online system).

Notification of Approval

Date:	January 29, 2015
Study ID:	Pro00054513
Principal Investigator:	Lia Daniels
Study Title:	Exploring Practicing Teachers' Beliefs and Emotions about Teaching
Approval Expiry Date:	January-28-16

Approved Consent Form:	Approval Date	Approved Document
	29/01/2015	LOI and Consent Form.doc

Sponsor/Funding Agency:	VPR's 4A SSHRC Bridge Funding RISE Catalyst Grant

RSO-Managed Funding:

Project ID	Project Title	Speed Code	Other Information
RES0024429	Development and Validation of The Teachers' Motivational Practices Questionnaire (TMPQ)		
RES0024467	Highly motivating classrooms: Observing practices, building an intervention, equipping future teachers		

Thank you for submitting the above study to the Research Ethics Board 2. Your application has been reviewed and approved on behalf of the committee.

A renewal report must be submitted next year prior to the expiry of this approval if your study still requires ethics approval. If you do not renew on or before the renewal expiry date, you will have to re-submit an ethics application.

Approval by the Research Ethics Board does not encompass authorization to access the staff, students, facilities or resources of local institutions for the purposes of the research.

Sincerely,

Stanley Varnhagen, PhD
Chair, Research Ethics Board 2

Note: This correspondence includes an electronic signature (validation and approval via an online system).

Appendix B.

Qualitative Survey

Open-ended Questions

1. Take a few minutes and describe a motivated student
2. What do you do to motivate your students?
3. Where did you learn to motivate your students?
4. What are the top three threats to student motivation?

Demographic Questions:

1. Age:
2. Gender: Male/Female/Other
3. Ethnic/Cultural Heritage:
4. Years of Teaching Experience:
5. Province/State of Teaching:
6. Grade(s) Taught: K 1 2 3 4 5 6 7 8 9 10 11 12 Other (please specify)
7. Major Teaching Areas: Math Science English/LA Phys Ed Music Social Studies Technology Other (please specify)
8. Average number of students in your class:
9. Current Employment Status: Full-time, Part-time, On-Call, Unemployed, Other (please specify)

Appendix C.

Qualitative Strand Recruitment and Information Letters

Hi.

I am a graduate student in Educational Psychology at the University of Alberta, working on my PhD in School and Clinical Child Psychology under the supervision of Dr. Lia Daniels. Dr. Daniels and I are currently looking for volunteers to complete an online research project.

The project is looking to better understand the motivational practices of teachers in their classrooms. We are aiming to expand the knowledge base about what teachers do in their classrooms and why they implement these different strategies. We are looking for current teachers to complete this online survey and hope that you will be one of these people!

The link for the survey is below. You will be asked to read a consent form and then complete the survey from the comfort of your own computer. The survey will be open August 12, 2013 to October 31, 2013, and will take about 15 minutes or less to complete.

https://www.surveymonkey.com/s/F3J7ZMN

If you have any questions or concerns please contact me at radil@ualberta.ca

I want to thank-you for taking the time to support this research and for helping us to expand the knowledge base about teachers' current motivational practices!

Thanks again!

Amanda Radil, M.Ed
Graduate Research Assistant
Alberta Centre for Motivation and Emotion (ACME)
http://albertacentre4me.wordpress.com/
radil@ualberta.ca

Dear Participant,

We are requesting your consent to participate in a research project entitled "Exploring Teachers' Current Motivational Practices in the Classroom." As a currently practicing teacher, you are being asked to participate in this project to help us better understand what strategies teachers are currently using in the classroom concerning student motivation.

If you choose to take part in the study, you will complete an online survey of approximately 15 minutes that will ask you questions about your teaching strategies and their relationship to student motivation. The survey results will be collated and analyzed; only the research team will have access to the raw data collected in the project. Your name or any identifying information will not appear in any reports of this research. All identifying information will be removed from the data at the end of the term. The digital datafile will be kept indefinitely on password protected computers.

Your participation in this project is completely voluntary. You are not obliged to answer any specific questions even if participating in the study. You have the right to withdraw from participation at any time. By clicking through to the next page, you are indicating your consent to take part in the study.

Participants will be guaranteed confidentiality, and will not be identified by the researchers. Because this project is completely anonymous, you will not be able to request that your data be removed from the project. Other research personnel (e.g., graduate research assistants) will sign a confidentiality agreement before working on this project. There may be risks to being in this study that are not known. If we learn of any unanticipated risks during the research, we will inform participants through our website at http:// albertacentre4me.wordpress.com as due to the anonymous nature of the data, we are unable to contact participants directly.

The results from this study will help researchers and educators to better understand the motivation practices of currently practicing teachers and help to inform future development of measures and interventions. A summary of the results will be available at http://albertacentre4me.wordpress.com/ at the conclusion of the study. The results from this study will likely be presented at academic conferences, and published in research journals. We may use the data we obtain from this study in future research, but this must first be approved by a Research Ethics Board.

For further information about this project, you may contact the research team (acme@ualberta.ca) or call Dr. Jacqueline Leighton, Chair, Department of Educational Psychology at 7804921163.

The plan for this study has been reviewed for its adherence to ethical guidelines and approved by the University of Alberta Research Ethics Board 2 (REB2). For questions regarding participant rights and ethical conduct of research, contact the Research Ethics Office at 7804922615.

Your completion of this survey indicates your consent.

Thank you very much,

Dr. Lia Daniels

Department of Educational Psychology, University of Alberta

To contact the researchers, email: acme@ualberta.ca

*Disclaimer: please note that the data collected through the confidential online program "Survey Monkey©" houses its' data on servers located in the U.S. and is subject to review by U.S. Federal Authorities under the U.S. Patriot Act (section 215 Access to Records).

Participant Interview Letter of Introduction
Talking to Teachers about Motivating Students

November 2014
Dear Participant:

This letter introduces a research project entitled "Talking to Teachers about Motivating Students." As a currently practicing teacher, you are being asked to participate in this project to help us better understand what strategies teachers are currently using in the classroom concerning student motivation.

The conversation about learning and education rarely touches explicitly on the idea of motivation. This is something that teachers seem to be expected to know: how to motivate their students. Additionally, we rarely talk in any depth about the quality of motivation in the classroom environment, which can have huge effects on student outcomes, both short and long term. As a result, we think that it is important to solicit teachers' thoughts on motivating students and what this can look like in the classroom. We would like to engage you in a discussion about what you do in your classroom to motivate your students and where you have learned these practices.

If you choose to take part in the study, we request your participation in an interview of approximately one (1) hour, to be conducted by a research assistant. We may ask you questions about student motivation, your teaching practices, what works and what doesn't and how your practices are related to student motivation. After the interview, you will be provided with a summary of findings at which point your feedback and any additional information you wish to share will be welcomed.

The interview will be audio-recorded; audio recordings will be transcribed. Your participation is voluntary. You may also withdraw your data from this project prior to December 31, 2014, without penalty, simply by notifying the researchers. Only the researchers will have access to this information and the analyzed data, to protect the rights, dignity, and welfare of all those who have agreed to participate. If you should have any concerns at any time about the project you are urged to contact us at the information listed below.

While there are no direct benefits to you for your participation, sharing your teaching experiences will provide us with valuable information about on the ground teaching practices and help to inform our future research. To reimburse you for your time, we will provide you with a $20 gift card.

The plan for this study has been reviewed for its adherence to ethical guidelines and approved by Research Ethics Board 1 at the University of Alberta. For questions regarding participant rights and ethical conduct of research, contract the Research Ethics Office at (780) 492-2615.

Please keep this description of our work together for your records. Thank you in advance for supporting our exploration of teachers' motivational practices in the classroom.

Sincerely,

Dr. Lia M. Daniels
Email :lia.daniels@ualberta.ca

Consent of Interview Participants
"Talking to Teachers about Motivating Students"

- I have read and retained a copy of the letter of information concerning the study "Talking to Teachers about Motivating Students" project and agree to participate in the study. All questions have been explained to my satisfaction. I am aware of the purpose and procedures of this study.

- I understand that my participation will involve participation in an interview, to be conducted by a research assistant.

- I have been notified that participation is voluntary and that I may withdraw prior to December 31, 2014 without any consequences to myself. I understand that all measures to protect confidentiality will be taken with appropriate storage, access of data, and the use of pseudonyms.

- I understand that I will be provided with a summary of findings after the completion of this research for my review and I will then have the opportunity to provide feedback. I understand that the researchers may intend to present the findings of this study at a conference, to publish results, and to inform future intervention design.

- I am aware that I can contact the research assistant, Amanda Radil, by email at amanda.radil@ualberta.ca, if I have any questions about this project.

- I understand that the plan for this study has been reviewed for its adherence to ethical guidelines and approved by Research Ethics Board 1 at the University of Alberta. For questions regarding participant rights and ethical conduct of research, contact the Research Ethics Office at (780) 492-2615.

- Please sign this copy of the consent form and return to the study team

I HAVE READ AND UNDERSTOOD THE LETTER OR INFORMATION AND THIS CONSENT FORM, AND I AGREE TO PARTICIPATE IN THE STUDY.

Participant's Name: _____

Signature: _____

Date: _____

Appendix D.

Interview Protocol

Interviewer's Guide

Interviewer's Role

- The facilitator's role is to moderate the discussion, to keep the conversation on track, to probe when interviewees are talking, rather than engaging in question and answer, and to ensure that all topics are covered in the available time.
- Each key question has been written as a probe to spark discussion. **Some key questions have two or three questions within them. Read the whole of each key question. Then repeat the first part if there are two or more parts. The second and third parts may be repeated or used as a probe**.
- Direct discussion toward concrete and specific accounts of participants' experiences so that the conversations elaborate on the detail and are not too general.

Facilitator's Introductory Script—Please Read, Or "Ad Lib" The Ideas

Opening - [Interviewer introduces self.]

Please review your information letter and sign your consent form before we begin. Feel free to ask if you have any questions.

Our research is aimed at exploring the practices that teachers use in their classrooms to motivate their students. In this case, we want to hear from you about how you define a motivated student, the practices that you use to motivate your students and what works and what doesn't seem to work.

Before we get underway, I just want to review with you the ground rules for our conversation today:

- Either you or I will steer the discussion to another topic if conversation becomes unproductive.
- There are ***five main or key questions***, so we will allow approximately 10 minutes for each question.
- Just a quick reminder about confidentiality. As you know from the information letter, your name will not be recorded in the write up. As well, in order to maintain privacy, please speak in general terms about colleagues and do not refer to anyone by name. In addition, the discussion from this interview is considered confidential.

Transition:

Let's begin by asking you to introduce yourself by your first name. You may use a pseudonym if you prefer.

Key questions

1. What does the word "motivate" mean to you? How would you define it?
2. Can you share with us what you think of when you think of a motivated student?
    a. What about an unmotivated student?
3. What are some of the things that you do in your classroom to try to motivate your students?
    a. What seems to work well?
    b. What doesn't seem to work well?
    c. Do you notice any differences in which practices work for which students?
4. We've talked with teachers before about what they do to motivate their students and have heard them talk about a few different general practices they use. We would like to discuss each of these different areas and hear what you think about them and perhaps how you use them in your classrooms.
    a. Utility
    b. Interest
    c. Relationships
    d. Rewards
    e. Student Based Learning Strategies
    f. Teacher Based Learning Strategies
    g. Safe Environment
    h. Effort
5. What additional supports, resources, and/or training might you be interested in seeking out about how to motivate your students?

Summary of Key Points

*The interviewer takes the last few minutes of the interview to summarize a few key points of the conversation. This might include speaking just to one question, or briefly going over general themes. The point here is to ensure participants' feel accurately heard.

Appendix E.

Qualitative Data Code Chart

Theme	Code	Definition	What it is not	Example
Relevance				
	1. Make outcomes salient	Focus on future outcomes with students	Focusing on outcomes to the exclusion of all else	highlight intrinsic motivators (sense of accomplishment, post-secondary opportunities, etc)
	2. Make real world connections	Meaningfully connect student learning to everyday life	Making superficial connections to everyday life	Let them know the importance of the assignment/information and how it relates to their every-day or future lives
	3. Point out relevance	Connect student learning to future needs	Focusing on outcomes; making connections to everyday life	Make learning relevant to the students
Interest				
	4. Engage	Facilitate student interest in activities/tasks	Having students interact with material or each others	attempt to create engaging activities which spark student interest
	5. Fun	Create enjoyable activities/tasks	Differentiating for students' interests	learn about what they like and try to incorporate it into my program
	6. Good attitude	No negative bias towards students	Having preconceived ideas about students	having a general good attitude towards students
	7. Model enthusiasm	Model enthusiasm for a subject/task for students	Having a good attitude	Teach with energy and enthusiasm; Try and convey passion about subject matter.

Theme	Code	Definition	What it is not	Example
Relationships				
	8. Accept emotions	Allow students to express emotions in the classroom	Valuing certain emotions above others	talk openly about the fact that it's totally natural (desirable, even) to feel frustrated and uncomfortable during learning
	9. Home/School partnership	Create a relationship with students' parents	Telling parents what to do	develop a communication path between teacher-student-parents
	10. Interest in personal life	Show an interest in students' personal lives	Being involved in students' lives outside of school	Take interest in their personal life
	11. Peer support	Allow students to work with their peers and learn from them	Having students work with peers to make it easier for the teacher	I give students opportunities to share their learning with one another and with those outside the classroom
	12. Personal relationship/rapport	Develop a genuine, caring relationship with students	Having a superficial relationship with students	Make personal connections with students
	13. Validate	Make students feel that their thoughts are important	Belittling students whose opinions differ from the majority	Ensure [assure] them that their inquiry is always valid
Rewards				
	14. Competition	Create rivalry among students in the classroom	Rivalry that students create organically	it becomes a competition with others in the class [the points system]

Theme	Code	Definition	What it is not	Example
	15. Use of tokens	Award tokens to students based on how they act in class (e.g. points, stickers)	Using a behavioural plan for students with EBD	I play my "10 points" game. At first students don't know what is going on (unless they have been in my class before). When a student gives an insightful answer in a class discussion, or answers a question that no one else is able to, or makes an insightful observation, I call out "10 points!" Students soon catch on and start to ask if these points add up to anything or is there any reward. I say no, just personal satisfaction. Often the student who is not engaged in class starts paying attention and giving answers in hopes of gaining 10 points. It is obvious that it is an internal reward for them because they often call out proudly how many points they have now. For some it becomes a competition with others in the class and for some it is a case of personal satisfaction.
	16. Praise	Admiring students' work/behaviour in class	Unconditional positive regard; Acknowledging effort or improvement	I try to make learning fun and I try to celebrate students' successes (big and small...they vary for each student) as much as I can. I often will make sure to tell the student's parent as well. Then they get double praise!

Theme	Code	Definition	What it is not	Example
	17. Reward with recognition	Compensating students who perform where a teacher thinks that they should with extra attention	Acknowledging improvement or effort	Reward success with recognition and calls home
	18. Use as an example	Pointing students out as an example to follow to their fellow students based on their work/behaviour	Acknowledging students' work/behaviour to them individually	take time to point out instances of motivated/hard-working behaviour in the classroom
Goals				
	19. Attainable goals	Setting meaningful and achievable goals with students	Setting easy to achieve goals; Setting goals without considering attainability	set challenging, yet attainable learning goals
	20. Create goals	Setting goals with students	Working to outcomes	Making and tracking goals , making both individual and class goals
Teaching Strategies				
	21. Choice	Provides meaningful choice to students	Providing superficial choices	Provide choice to students in what they learn and how they show their learning
	22. Differentiate	Providing different work to students in the same class based on their current ability level	Providing a variety of tasks randomly; giving additional work to some students	implement differentiated tasks

Theme	Code	Definition	What it is not	Example
	23. Interactive activities	Providing students with activities where they directly interact with materials and/or each other	Providing interesting tasks for students	try to offer as many hand-on activities as I can; Construct interactive activities
	24. Provide additional material	Giving students extra work or information as they demonstrate interest in topics	Giving extra work or information	If a student makes a point about something, I'll try to match it with research or an article that furthers their understanding about that point
	25. Self-reflection	Encouraging students to think about their work/behaviour	Having students think about their thinking or how they learn	self assessing current behaviors, work, and results
	26. Support students	Provide support for students as necessary	Not allowing students to try to work on things themselves	provide as much support as possible for their assignments and exams
Student Self-Regulated Learning				
	27. Encourage higher order thinking/metacognition/inquiry	Encouraging students to think critically about what they learn and think about how they learned it	Asking students to respond to questions	Encourage students to look critically and what are participating in
	28. Support strengths	Knowing students' strengths and helping them express them	Knowing strengths	Support their interests/strengths

Theme	Code	Definition	What it is not	Example
	29. Variety in teaching	Using a variety of media and/or teaching techniques	Providing extra material; not being purposeful about choices made in techniques	incorporate a variety of teaching methods, including utilizing technology, small-group learning, learning centres, and in-class discussions; use tools like dvds, corny youtube videos, and music to draw my students in
Safe Environment				
	30. Encourage questions	Creating an environment where students feel safe asking questions	Asking students to ask questions; students do not ask questions	students feel safe to ask questions
	31. Safe place to make mistakes	Creating an environment where students feel safe	Students feel unsafe and do not take risks	creating a safe and empathetic environment with students where they know it is ok to make mistakes and take risks.
	32. Decrease stress	Lowering the level of distress in the classroom	Accepting emotions	lower stress atmosphere seems to work in a lot of different workplaces
Effort				
	33. Acknowledge accomplishments	Recognizing students' progress to date	Rewarding this	encouragement and acknowledging their progress and accomplishments
	34. Acknowledge improvement	Recognizing students' improvement to date	Rewarding this	Point out improvement
	35. Encourage effort	Reassure students as they attempt work that may be difficult	Being focused on the outcome(s) of the attempts	Encourage their efforts

Appendix F.

Transformed Qualitative Practices Questionnaire, with Verbatim Items Indicated

Instructions: Please consider each of the following classroom practices and indicate the extent to which you agree or disagree with the use of each practice as a way to motivate your students. There are no right or wrong answers; we are simply interested in your practices.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree

Scale	To motivate my students I….	Verbatim
Teaching Strategies	1. Provide students with choice in learning goals	X
Teaching Strategies	2. Provide students with options in how they demonstrate their learning	
Relevance	3. Focus on future outcomes with students	
Relevance	4. Explain the importance of what students are learning	
Relevance	5. Meaningfully connect students' learning to their everyday lives	X
Relevance	6. Make learning relevant to students	X
Interest	7. Create activities that spark student interest	X
Interest	8. Incorporate activities students enjoy into the classroom	
Interest	9. Demonstrate a good attitude towards students	X
Interest	10. Teach with energy and enthusiasm	X
Interest	11. Convey your passion for learning	X
Relationships	12. Encourage students to express a variety of emotions in classroom	
Relationships	13. Maintain a relationship with students' parents	
Relationships	14. Demonstrate an interest in students' personal lives	X
Relationships	15. Encourage students to learn from their peers	

Scale	To motivate my students I….	Verbatim
Relationships	16. Teach students how to use cooperative learning strategies	
Relationships	17. Develop genuine, caring relationships with students	
Relationships	18. Validate students' inquiry, feelings and experiences	X
Rewards	19. Create competition among students in the classroom	X
Rewards	20. Use a points system with students	X
Rewards	21. Reward students who perform well with additional attention	
Rewards	22. Point out students as examples to follow based on their behaviour	X
Rewards	23. Use students' work as an example for their peers to follow	
Goals	24. Set challenging, yet attainable learning goals with students	X
Goals	25. Set goals with students individually	X
Goals	26. Set class-wide goals with my students	X
Teaching Strategies	27. Provide varied work for my students based on their ability level	
Teaching Strategies	28. Offer opportunities for hands-on activities	X
Teaching Strategies	29. Provide students with additional information when they are interested in a topic	
Student Self-Regulated Learning	30. Encourage students to reflect on their work after it is complete	
Student Self-Regulated Learning	31. Encourage students to seek help and access support as needed	
Student Self-Regulated Learning	32. Encourage students to think critically about what they learn	X
Teaching Strategies	33. Support students' strengths	X
Teaching Strategies	34. Incorporate a variety of teaching methods	X
Teaching Strategies	35. Use multiple modalities in lessons	
Safe Environment	36. Create an environment where students feel safe asking questions	X

Scale	To motivate my students I….	Verbatim
Safe Environment	37. Make sure students feel safe taking risks	X
Safe Environment	38. Encourage students to make and learn from their mistakes	X
Safe Environment	39. Maintain a calm and relaxed classroom environment	
Safe Environment	40. Create a sense of community in the classroom	
Effort	41. Recognize students' progress	X
Effort	42. Recognize students' improvement	X
Effort	43. Reassure students as they attempt work that may be difficult	

Appendix G.

Quantitative Strand Recruitment and Information Letters.

We are currently recruiting practising teachers to complete an online research project and are asking you to help us understand what you actually do to motivate the students in your classroom. The empirical literature on motivational practices distinctly lacks teachers' perspectives so we have spent the past two years interviewing teachers and creating a measure containing the practices they tell us they use. Now we are looking for teachers to weigh in on the practices they reported by completing an online questionnaire. As a token of our appreciation, you can enter to win one of three $100 gift cards to Indigo.

The link for the survey is below. You will be asked to read a consent form and then complete the survey from the comfort of your own computer. The survey will be open January 12, 2016 and will close on April 15 2016. It will take about 15 minutes or less to complete.

https://www.surveymonkey.com/r/Teacher_BeliefsandEmotions

If you have any questions or concerns please contact me at amanda.radil@ualberta.ca.

I want to thank you for taking the time to support this research and for helping us to expand the knowledge base about teachers' current thoughts, feelings, and practices about teaching!

Regards,

Amanda Radil, M.Ed
Graduate Research Assistant
Alberta Centre for Motivation and Emotion (ACME)
https://sites.google.com/a/ualberta.ca/acme/
amanda.radil@ualberta.ca

Exploring Practicing Teachers' Beliefs and Emotions about Teaching
Information/Consent Letter

Thank you very much for volunteering **10-15 minutes** of your time today to complete our online survey that addresses you as a person and teacher. We are requesting your consent to participate in a research project entitled "***Exploring Practicing Teachers' Beliefs and Emotions about Teaching".*** The purpose of the research is to support several ongoing research projects investigating teachers' beliefs and practices about teaching, strategies for engaging students in the classroom and beliefs about teaching as a profession.

You do not need to supply your name, school, or district. The survey results will be collated and analyzed; only the research team (primary investigator and graduate research assistants) will have access to the raw data collected in the project. Your participation in this project is completely voluntary. You are not obliged to answer any specific questions even if participating in the study. You have the right to withdraw from participation at any time prior to submitting your data. Because this project is completely anonymous, you will not be able to request that your data be removed from the project. By clicking through to the next page, you are indicating your consent to take part in the study.

Participants will be guaranteed confidentiality, and will not be identified by the researchers. There may be risks to being in this study that are not known. If we learn of any unanticipated risks during the research, we will inform participants through our website at http:// albertacentre4me.wordpress.com as due to the anonymous nature of the data, we are unable to contact participants directly. The raw data will be kept in a secured storage space for a minimum of 5 years after the study is completed. The electronic data file will be retained indefinitely on password protected computers.

The results from this study will be presented at academic conferences, and published in research journals. For further information about this project, you may contact Lia Daniels, 780-492-4761, lia.daniels@ualberta.ca.

The plan for this study has been reviewed for its adherence to ethical guidelines and approved by the University of Alberta Research Ethics Board (REB2). If you have any questions or concerns regarding how this study is being conducted, you may contact the University of Alberta's Research Ethics Office at 780-492-2615. This office has no affiliation with the study investigators.

By answering this survey honestly and conscientiously you make an important contribution to modern research on teachers' experiences personally and in the classroom. By completing and returning the survey during this convention you are consenting to having your survey data included in our study.

Please note that the data collected through the confidential online program "Survey Monkey©" houses its' data on servers located in the U.S. and is subject to review by U.S. Federal Authorities under the U.S. Patriot Act (section 215 Access to Records).

The email addresses of each person who completes the survey and provides us their email address will be entered into a draw for a $100 gift certificate to Chapter's Book Store. This method of providing a modest incentive is commonly used, has been approved by the University of Alberta ethical review board in previous research, and was reviewed and is funded by SSHRC.

You may also contact us for further information:
Dr. Lia Daniels, University of Alberta: lia.daniels@ualberta.ca
Amanda Radil, Graduate Research Assistant, amanda.radil@ualberta.ca