



Enhancing Our Understanding of Teachers' Personal Responsibility for Student Motivation: A Mixed Methods Study

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As measured by the Teachers Responsibility Scale, teachers appear to have surprisingly low levels of personal responsibility for student motivation even though they qualitatively identify low student motivation as a major teaching concern. Thus, the purpose of the current mixed methods research was to compare the way teachers' respond to items about personal responsibility for student motivation quantitatively and qualitatively. We used a convergent sequential mixed method design to answer the following research question: How do practicing teachers' perceptions and experiences of being personally responsible for student motivation converge with a quantitative measure of the construct? One hundred and 80 practicing teachers completed a self-report questionnaire on personal responsibility and then six teachers were purposefully sampled to participate in small-group interviews sharing their perspectives on responsibility for motivation specifically. The quantitative and qualitative data were analyzed separately and then integrated through a qualitative dominant crossover mixed analyses. Five mixed insights emerged and are represented in a joint display: dominance of interest, shared responsibility, divergent specificity and valence, complete alignment, and missingness of professional perspective. The mixed insights have important implications for theory, research, and practice and highlight the contribution that mixed methods can have in advancing motivation research.

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INTRODUCTION

Current evidence from research-practitioner partnerships suggests that even though student motivation is one of teachers' most persistent concerns, they feel underprepared to resolve this crisis (Turner et al., 2011). This lack of preparation may be related to an emerging trend in research that shows teachers report surprisingly low levels of personal responsibility for student motivation when measured quantitatively (e.g., Lauermann and Karabenick, 2013; Eren, 2014; Daniels et al., 2016). These low levels are concerning for motivation researchers who argue that students' motivation to learn "represent[s] perhaps the greatest resource educators can tap" (Niemiec and Ryan, 2009, p. 134). In response, researchers may focus on trying to increase teachers' responsibility as evidenced by scores on these scales. Before sounding this alarm, however, researchers would be prudent to ask teachers about their personal understanding of being

responsible for student motivation. Combining these often-disparate approaches, the purpose of the current research was to compare the way personal responsibility for motivation is measured quantitatively with teachers' qualitative reports of being responsible for student motivation to better understand the extent of convergence between the two perspectives. Because this work sheds light on how teachers conceptualize their role in supporting student motivation, it has important implications for initial and continuing teacher education.

Accountability and Responsibility Frameworks

The psychological experience of being personally responsible is not synonymous with being held externally accountable, and thus they have different implications for teachers and teaching (Lauermann, 2014). These differences have become particularly important in the current era of increased teacher accountability (Linn, 2006) as results from primarily quantitative research have come to highlight the problems with being held externally accountable and the benefits associated with personal responsibility. For example, when teachers are held directly accountable for student learning through experimental manipulations or naturally occurring testing policies, they tend to rely on negative teaching strategies including increased controlling language, less choice, greater criticism (Deci et al., 1982; Flink et al., 1990), and exert greater control over their students (Pelletier et al., 2002). In contrast, when teachers view responsibility as something personal and internal they report feeling more intrinsic motivation, self-regulation, and concern for others (Guskey, 1981; Pelletier et al., 2002; Lauermann and Karabenick, 2009; Ryan and Weinstein, 2009; Lauermann, 2014).

Lauermann and Karabenick (2013) argue these different outcomes occur because teachers who feel personally responsible are more self-determined and thus motivated to invest effort even without externally imposed sanctions. Supporting this theoretical argument, Matteucci et al. (2017) tested a path model and found that a strong sense of teaching efficacy, collaborative school climates, and growth mindsets were positively associated with teachers' personal responsibility. In turn, teachers' personal responsibility contributed to greater career satisfaction, work engagement, and mastery instructional practices.

In Alberta, Canada, where the current research was conducted external accountability is not rigidly assessed (Alberta Teachers' Association, 2004) and therefore personal responsibility for student motivation may matter greatly. Unfortunately, according to the Alberta Report on the Teaching and Learning International Survey (TALIS) "[m]otivating students appears to be the sole area in which teachers in Alberta are significantly less likely than their international colleagues to report efficacy" (Alberta Education, 2014, p. 144). Thus, the conditions noted in previous research that cultivate personal responsibility for motivation such as efficacy (Matteucci et al., 2017) appear somewhat lacking in Alberta teachers. By understanding this particular study context, we may be able to inform reliable measures of teachers' personal responsibility for motivation in similar jurisdictions or any

context in which efficacy for student motivation is lacking in teachers.

Personal Responsibility

Committed to refining the construct of personal responsibility as separate from external accountability, Lauermann and Karabenick (2011a) offered the following definition: "a sense of internal obligation and commitment to produce or prevent designated outcomes, or that these outcomes should have been produced or prevented" (p. 135).

Within this perspective, both quantitative and qualitative research has recorded that teachers describe feeling personally responsible for a wide range of activities both inside and outside of the classroom including creating a positive classroom climate that is safe for all students, preparing excellent lessons/materials that encourage creativity, supporting students' development along with their achievement, promoting interactions with parents, upholding school policies, leading extracurricular activities, and seeking professional development (Fischman et al., 2006; Halvorsen et al., 2009; Lauermann, 2014). Trying to bring order to these domains, Lauermann and Karabenick (2013) sought to "develop a scale that teachers would consider highly relevant for their professional lives" (p. 17). This led to their creation of the Teacher Responsibility Scale (TRS), which measures four domains of teachers' personal responsibility: student achievement, student motivation, relationships with students, and responsibility for one's own teaching.

Using the TRS, research has revealed positive correlations between each domain of personal responsibility and a variety of adaptive teacher outcomes including career choice satisfaction, hope, enjoyment of teaching, and optimism (Eren, 2014, 2015, 2017). The domains of responsibility have also been differentially correlated with teachers' instructional practices such as mastery or performance classroom goal structures (Lauermann and Karabenick, 2011b; Daniels et al., 2016, 2017), use of rewards and rationales (Daniels et al., 2016), and autonomy supportive practices (Berger et al., 2013).

Mean Level Endorsements on the TRS

In the growing literature, the associations between personal responsibility for student motivation and outcomes are generally adaptive, which is good news in a profession ripe with stress and burnout (Skaalvik and Skaalvik, 2017). However, a more troubling pattern has emerged in the mean level endorsement of responsibility for student motivation specifically. Results from the eight published studies including the domain of personal responsibility for motivation of the TRS show that teachers have the lowest scores on the personal responsibility for student motivation subscale (Lauermann and Karabenick, 2011b, 2013; Berger et al., 2013; Eren, 2014, 2015, 2017; Daniels et al., 2016, 2017). Moreover, these results appear to be consistent across countries including the United States, Canada, Germany, Turkey, and Switzerland as well as for pre-service and practicing teachers.

Perhaps teachers' low personal responsibility for student motivation may be explained by the complexity of the classroom. According to a recent analysis of the State of Inclusion in Alberta, elementary classrooms have on average 29 students; whereas,

junior high school teachers are responsible for instruction for 115 students per year, a number that increases to 152 in high school (Alberta Teachers' Association, 2015). In the same report, the challenges of classroom composition are highlighted with an average of 25% of students across all grade levels and up to 44% of students in kindergarten requiring high levels of individualized support. According to teachers, these increasing complexities have not been paired with increased resources. In fact, teachers reported being less satisfied with the amount and types of support and resources they receive than they were seven years ago.

In addition to classroom composition, motivation theory also offers several explanations supporting the legitimacy of low scores on the responsibility for student motivation scale. First, teachers may believe that motivation is an innate quality of students that cannot be influenced (Dweck, 1999). Dweck (2002) has argued that a people often approach a variety of personal qualities such as intelligence and ability with either a fixed mindset, meaning the quality cannot be increased, or a growth mindset, meaning that the quality can be developed. Motivation may be another personal quality that could be conceptualized as either fixed or growth. Second, teachers may expect that their students will be adequately motivated (Shalter-Bruening, 2010) making this an area in which they do not have to devote feelings of personal responsibility - at least in comparison to being responsible for relationships, achievement, and their own teaching.

Although these explanations are contextually relevant or theoretically grounded, a third possibility exists that has received little attention: Perhaps, there is a disconnect between teachers' conceptualizations of being responsible for student motivation and the quantitatively measured questionnaire items. In other words, researchers' understanding of the construct may not align with teachers' understanding in the field. This may be particularly important for the domain of responsibility for student motivation since it is such a complex phenomenon and one teachers already admit to feel low efficacy to support (Turner et al., 2011; Alberta Education, 2014). Although Lauer mann (2014) conversed with teachers in the development and refinement of the construct of personal motivation, exclusively quantitative procedures were used to create and offer evidence of validity for the TRS (Lauer mann and Karabenick, 2013). Thus, there is a need conceptually and methodologically for teachers' perspectives on responsibility for student motivation to be combined with the TRS in order to understand the extent to which they converge. Mixed methods research offers an innovative perspective to these concerns through the integration of both qualitative and quantitative data.

METHODS

Mixed methods research (MMR) is well suited for our research because of its usefulness for offsetting the limitations of exclusively quantitative or qualitative approaches (e.g., Bryman, 2006; Creswell and Plano Clark, 2011). To that end, we used a convergent sequential MMR design (Figure 1) to answer the following MMR question: How do practicing teachers'

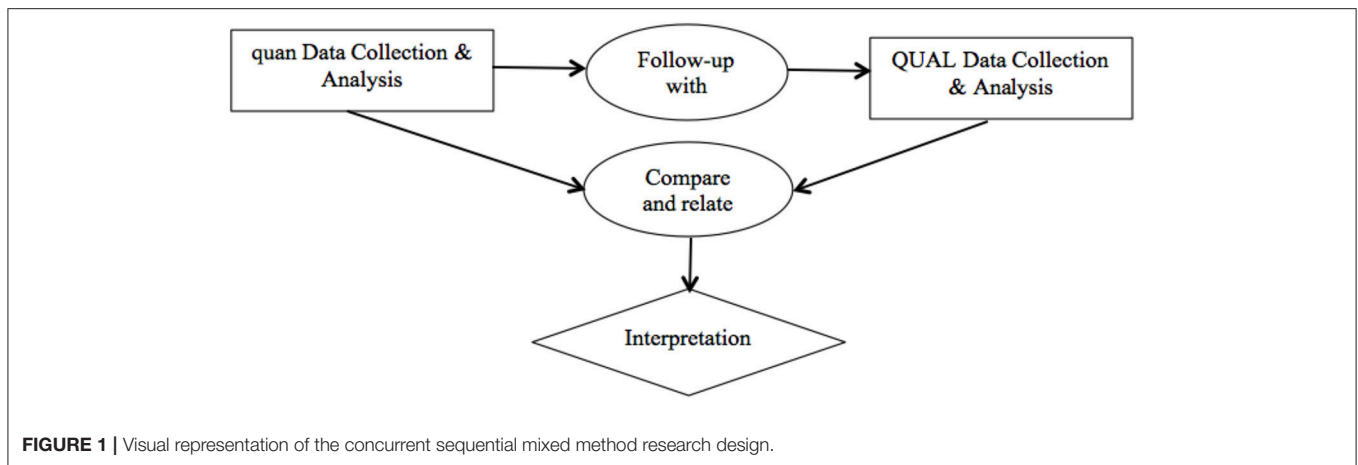
perceptions and experiences of being personally responsible for student motivation converge with a quantitative measure of the construct? A unique aspect of our research was the sequential timing of collection and analysis of quantitative and then qualitative data because convergent designs often involve concurrent collection of quantitative and qualitative data (Creswell, 2015). The sequential procedures were necessary in this instance for two reasons. First, we needed to ensure that this sample reflected the common trend of responsibility for student motivation being endorsed significantly less than the other three domains of personal responsibility. Second, we wanted to purposefully sample participants for the qualitative strand based on their scores on the responsibility for student motivation subscale. Thus, we used a correlational design in the quantitative strand in order to confirm the characteristics of the sample and then proceeded to the qualitative strand. The qualitative strand was based on an Interpretive Phenomenological design (Smith et al., 2009) intended to highlight teachers' perceptions of what it means to be responsible for student motivation and the contextual factors that influence that responsibility. Integration happened after both strands had been separately analyzed. The study design and procedures were reviewed and approved by the university's institutional review board and the research team undertook all appropriate measures to protect confidentiality including consent and data storage and security.

Team Approach

According to Teddlie and Tashakkori (2009), a collaborative team approach is especially useful for mixed methods studies. Thus, the authors of this paper formed a team in terms of conceptualizing, implementing, analyzing, and reporting this research. One educational faculty member trained as a social psychologist brought extensive expertise in motivational and quantitative research as well as familiarity with qualitative research and served as the project lead. A second education faculty member trained as a classroom teacher brought extensive expertise in assessment, mixed methods and qualitative research as well as familiarity with quantitative research as served as the mixed methods practitioner. The third member of the team was a doctoral student who was actively acquiring diverse experiences across both the content area of motivation and diverse research methodologies and served as the data collection coordinator. Throughout the study, the team met to bring together their diverse expertise to move forward the research and their collaborative work generated mixed insights that would otherwise have been inaccessible by each researcher alone.

Quantitative Strand: Participants, Procedure, Measures, and Analyses

A convenience sample of practicing teachers from the major school boards in Alberta, Canada responded to a request from a centralized system to complete a questionnaire. Informed consent was indicated by the overt action of choosing to complete the questionnaire, which could be done online ($n = 37$) or during attendance at an annual professional development conference ($n = 143$). The sample had an age range 22–72 years old ($M = 40$), consisted of predominantly women (85%), and had on



average $M = 12.5$ years teaching experience (range = <1 year to 40 years). This profile is similar to that of the education service industry in the province that, in 2015, consisted of 71% women with 67% of teachers between the ages of 25 and 54 (Government of Alberta, 2016). Approximately 47% taught in elementary school (K-6), 33% taught in junior high school, and 41% taught in high school. The fact that these percentages add to more than 100% suggest that some teachers taught in schools that combined elementary and junior high school or junior high school and senior high school. On average teachers reported about 24 students in their current class (range 4–40) with the majority of teachers estimating their student body to be of average (31%) socioeconomic status, with smaller groups reporting low-average (26%) or high-average (20%) socioeconomic status.

The omnibus questionnaire contained 116 items measuring teachers' beliefs and practices related to teaching and student motivation. Pertinent to this study are the four subscales of the Teachers' Responsibility Scale (TRS; Lauermaann and Karabenick, 2013) measuring personal responsibility for student motivation, student achievement, relationships with students, and for one's own teaching. Fourteen items make up the four subscales and no other items on the questionnaire were included in these analyses because of our desire to focus specifically on personal responsibility for teaching. Participants indicated their agreement on a 1 = strongly disagree to 7 = strongly agree scale. For analyses, we measured differences among four subscales of the TRS using paired-samples t -tests in order to replicate the common finding that teachers have significantly lower levels of personal responsibility for student motivation than the three other subscales.

Qualitative Strand: Participants, Procedure, Materials, and Analyses

Of the 180 participants who completed the questionnaire, 22 agreed to be contacted to participate in a follow-up small group interview. We initially extended invitations to 12 purposefully sampled teachers who had maximum or minimum scores on their responsibility for student motivation scale. Four of these accepted our initial offer. We extended six more invitations

of which two were accepted. The six participants were given pseudonyms. Arthur is a 65-year-old male principal at a primary school, and has been teaching for 38 years. He obtained a score of 21 out of a possible 28 on the subscale. Amanda is a 32-year-old woman and has 7 years of teaching experience. She currently teaches grade 1 at a primary school, and she obtained a score of 24 on the subscale. Alice is a 70-year-old female substitute teacher with 30 years of teaching experience at various elementary schools. She obtained a score of 22 on the subscale. These three teachers participated in the first small group interview together and generally were considered to have high scores on the TRS responsibility for motivation subscale. Danielle is a junior/senior high teacher, who is 34-years-old and has 4 years of teaching experience. She obtained a score of 8 on the subscale. Daisy is also a junior/senior high teacher. She is 28 years old, has 5 years of teaching experience, and obtained a score of 10 on the subscale. Donna is a 52-year-old female primary school teacher who has 23 years of teaching experience. She obtained a score of 10 on the subscale. These three teachers participated in the second small group interview and were considered to have low scores on the TRS responsibility for motivation subscale. We justify our small purposeful sample size because we reached theoretical saturation (Guest et al., 2006).

Prior to collecting the qualitative data, the first and third authors undertook a journaling activity in order to identify and set aside their preconceptions and biases as motivation researchers. In particular, these researchers believe that teachers should be responsible for student motivation and thus needed to bracket these beliefs in order to openly hear teachers' lived experiences that might involve not feeling personally responsible for student motivation (Fischer, 2009).

The small group interviews were conducted at the University and lasted approximately 1 h. Small group interviews were chosen over individual interviews to allow participants to build momentum in their conversations and share their experiences with other teachers. Often research with teachers is recommended to involve a small-group component (e.g., Reeve and Cheon, 2014) to capitalize on the relational nature of teaching and sharing of experiences. Upon arrival, participants

signed consent forms, gave permission to digitally record the session, were offered light refreshments, and were invited to talk about their perspectives on feeling personally responsible for student motivation. To guide the conversation, we created and followed a semi-structured interview protocol that focused on three descriptive questions: (A) How would you define motivation and describe what a motivated student looks like? (B) Can you describe specific experiences with high/low motivated students? (C) What types of things/context/situations have influenced the way you think about responsibility for student motivation? The same research assistant conducted both small group interviews and encouraged participants to use “I” statements instead of “we” statements in order to best capture lived experiences. Participants were remunerated \$10 for their time.

For analyses, we transcribed the small group interviews verbatim and followed an iterative and inductive analysis cycle guided by Interpretive Phenomenological Analysis strategies (Smith et al., 2009). The thematic analysis was undertaken using NVivo and began with a close interpretive reading of the transcript from teachers who had high scores for personal responsibility for student motivation. Each of the three researchers separately highlighted the text into large meaning units and made initial comments. This was particularly important to build consensus and to ensure the researchers did not only seek content that supported existing speculations. Then, the researchers collectively discussed these comments and used them to establish descriptions of initial categories and codes. After applying the codes to the meaning units previously identified, the researchers met to discuss this coding and were able to identify and resolve all discrepancies and finalize the codebook. The codebook consisted of five columns: thematic category, codes, definition (i.e., what the code means), anti-definition (i.e., what the code is not), and examples of verbatim quotes that represent the code. This process was repeated for the transcript of small group interview with teachers who had low scores on the responsibility for student motivation scale and adjustments were made to the codebook to represent the perspectives from both groups. A summary of the categories was provided to all six participants and feedback sought for member-checking purposes. Five of the six participants responded and offered no revisions to the categories or descriptions.

Integration: Strategies and Procedures

Quantitative and qualitative results from the six participants who completed both strands were converged via a qualitative dominant crossover mixed analysis. To do this, we used the wording and mean item score of the quantitative items measuring teachers’ personal responsibility for student motivation as the organizational framework onto which we integrated the qualitative categories (Onwuegbuzie et al., 2011). Specifically, we created a 4×4 matrix to guide the crossover mixed analysis whereby four rows containing the categories from the thematic analysis were crossed with four columns containing the exact wording of the items from the TRS responsibility for student motivation scale along with the mean responses to each item. To populate the resultant 16 cells, the first author revisited all

coded statements in order to identify direct quotes that related to the quantitative items. The third author repeated this process to assess completeness. There were no instances of disagreement between the coders. Then the first and second authors analyzed the matrix to identify spaces of convergence and divergence between the qualitative thematic categories and the quantitative questionnaire items in terms of wording and mean response level. The crossover mixed analysis resulted in five mixed insights.

FINDINGS AND DISCUSSION

Quantitative Strand

According to paired samples *t*-tests the mean level of endorsement of each domain of responsibility was significantly different from all others. Specifically, confirming the emergent trend, responsibility for motivation was least strongly endorsed ($M = 4.04$) and differed significantly from personal responsibility for achievement, $M = 4.50$, $t_{(171)} = -6.06$, $p < 0.001$, $d = 0.46$, relationships, $M = 5.31$, $t_{(175)} = -10.27$, $p < 0.001$, $d = 0.77$, and one’s own teaching, $M = 5.55$, $t_{(175)} = -15.28$, $p < 0.001$, $d = 1.15$. The effect sizes for these analyses would be considered moderate to large according to Cohen’s (1988) conventions. In terms of correlations, all responsibilities were positively and significantly related (Table 1). In particular, the correlation between personal responsibility for motivation and achievement was high as was the relationship between personal responsibility for achievement and being responsible for one’s own teaching.

Overall, as expected the mean level of endorsement of feeling personally responsible for student motivation was the lowest of the four domains. However, it is impossible to determine why this is the case without speaking directly to teachers. In other words, in order to understand this persistent quantitative finding qualitative data about teachers’ experiences of responsibility for student motivation are necessary.

Qualitative Strand

The thematic analysis of teachers’ experiences with personal responsibility for student motivation resulted in 13 unique codes that gave rise to the following four overarching thematic categories: quality of motivation, enactment of teacher responsibility for student motivation, student responsibility for their own motivation, and professional perspectives on motivation (see Table 2). Each thematic category is described in detail next.

Quality of Student Motivation

The conversations began by teachers sharing their perceptions of student motivation. Through this dialog, it became clear that there are many behaviors teachers take into consideration when determining student motivation. Largely motivation was described as active including words such as curious and engaged. Arthur described motivated students as the “ones who know how to play with things, ideas, um, materials, that we’ve put in front of them.” Alice also described the momentum associated with motivation as being “a certain pace to motivated students. Um, and it, if there is a subject in particular that they’re working with, it will take them somewhere else. They will make other

TABLE 1 | Descriptive statistics and correlations for the teacher responsibility scale in the quantitative strand ($n = 180$).

	Descriptive statistics							Zero-order correlations			
	N items	Mean	SD	Range	α	Skewness	Kurtosis	1	2	3	4
1. Student motivation	4	4.04	1.60	1–7	0.93	−0.04	−0.82	–			
2. Student achievement	4	4.50	1.42	1–7	0.90	−0.26	−0.71	0.79*	–		
3. Relationships with students	3	5.31	1.46	1–7	0.86	−0.89	0.27	0.44*	0.55*	–	
4. Own teaching	3	5.55	1.18	1–7	0.88	−1.03	1.27	0.60*	0.72*	0.65*	
Sample information											
Age	1	39.95	12.07	22–72	–	0.38	−0.80	−0.10	−0.10	−0.07	−0.07
Years experience	1	12.46	10.39	0.5–40	–	0.87	−0.12	−0.03	−0.05	−0.06	−0.03

* $p < 0.01$.**TABLE 2** | Qualitative thematic categories related to feeling personally responsible for student motivation in the qualitative strand ($n = 6$).

Thematic category	Definition	Codes
Quality of student motivation	Evidence teachers' look for to infer whether or not a student is motivated	Active Collaborative Relationship to achievement (\pm) Avoidance
Enactment of teacher responsibility for student motivation	Contexts and factors that teachers view as supporting or hindering their role in student motivation	Caring relationship Strategies Uncontrollable
Student responsibility for their own motivation	Perspectives that students bring that interact with teachers' being responsible for motivation	Perspective on learning (\pm) Fear of failure Motivation as innate (\pm)
Professional perspective on student motivation	The way teachers make sense of balancing the work and rewards associated with motivating students	Emotion (\pm) Intensity (\pm) Core to work

(\pm) Indicates that the relationship with responsibility for student motivation is described in both positive, enhancing ways and negative, preventing ways.

connections, and they will continue to build upon it.” However, at times motivation was also described as actively avoiding or moving away from the action desired by the teacher. Arthur said “[the student’s] not motivated to do the kinds of things that are happening in the classroom, but he’s certainly motivated to avoid it.”

Participants also noted that motivation has a complex relationship with achievement that is not linear. For example, Amanda explained that “a lot of times motivated students, they might not be the, you know, the best at reading or math or whatever, but um they have this sort of interest or passion for whatever they’re learning.” Adding to this complexity, participants described ways in which they perceived and experienced student motivation as something collaborative that must be mutually constructed and reciprocal between

teachers and students. For example, Amanda explained that “I feel motivated as a teacher, so um, I think my students are motivated when they’re giving that back to me.” Daisy stated that “it takes two to tango. You can do what you can, but they [students] have to also be willing to meet you half way.” A similar notion of reciprocity has emerged in research on teacher emotions that show that enjoyment and enthusiasm can be transmitted from teachers to students (Frenzel et al., 2009).

Enactment of Teacher Responsibility for Student Motivation

When talking about ways that they enact their responsibility for student motivation the teachers’ conversations centered on building caring relationships with students. This notion was raised early in conversations and revisited often. Thus, caring relationships were viewed as an essential foundation for being responsible for student motivation. For example, Amanda stated that “I felt like I had to sort of like love them in a way, like, um that was the place to start” and Donna said “I think a whole lot of motivation is developing relationships and that mutual trust and belief in each other.”

In addition to the foundation of a caring relationship, teachers described a wide range of strategies they used to help motivate students. These strategies included general principles such as building interest, ensuring both structure and adequate timing, using rewards, providing control, and making learning applicable to the real world. For example, Alice described being “aware of the tiniest little things that we can use to wake up the motivation that [students] have.” Many of these practices align with recommended design principles for creating optimally motivating classroom (Linnenbrink-Garcia et al., 2016) drawn across many of the contemporary theoretical perspectives on motivation. Teachers also described specific strategies such as showing movies, conducting experiments, using music, debates, creating games, or the Socratic method.

Participants with lower scores on the personal responsibility for motivation scale also discussed how factors they perceive as uncontrollable limit their enactment of personal responsibility. For example, Danielle described a shift over time in terms of her responsibility and acknowledging a host of external factors:

Okay so, how many students are in my class, how many have - supports or aids are there, what they're dealing with at home, if the districts' able to coordinate the services they need to help them with their specific disability, if another teacher is teaching another way, if they had a blow up in the hallway, if they had another student's, anything that, I, where I can't take over somebody's body like a body snatcher and change the way that something happened, I feel less responsible for the things I can't change anymore and I use to feel very responsible for the things I couldn't change.

Daisy expressed a similar sentiment stating, "I can't control what happened before they got to me and that's definitely been a big change from when I first started where I felt like I had to control what happened before they got me somehow." There was no mention of uncontrollable factors limiting responsibility in the small group interview with teachers who had high scores on the student motivation subscale of the TRS.

Student Responsibility for Their Own Motivation

Teachers pointed out that student motivation was not solely their responsibility but one that students had a role in as well. In particular, they highlighted three student perspectives that can enhance or hinder their efforts to motivate students. Teachers acknowledged that students' general perspectives on learning as something either exciting or boring influence how they can be motivated. For example, Arthur explained that when students feel bored although he wants to work with them to "make it non-boring" ultimately "boring is [the student's] problem, not mine." Teachers also pointed out that their responsibility is impacted by students' beliefs about motivation as something innate. For example, Alice explained that while "some people seem to have been born with motivation... and that carries them" other times "the word motivation sometimes may scare students to you know think 'am I motivated' or, and then 'if I'm not, like, what then?'" Dweck (2006) has argued that certain characteristics such as intelligence are regularly viewed as something that is either fixed or able to grow. These perspectives seem to suggest that this distinction may also apply to student motivation. Finally, teachers agreed that when students fear failure it undermines motivation. For example, Arthur describes fear of failure as a "road block":

Well that that fear of making mistakes and looking foolish in some way, really undermines I think the curiosity that kids have, and the motivation that kids have. They they they see kids getting the right answer. One of the things they have to, I think we have to do is let them know that learning doesn't move forward unless you make mistakes.

The reference to helping students understand how growth can come through failure suggests teachers view this component of motivation as part of their responsibility.

Professional Perspectives on Student Motivation

Teachers described being responsible for student motivation as emotional and intense but ultimately core to their work (see **Table 3** for a direct quote from each participant). Teachers with

TABLE 3 | Participant statements on responsibility for student motivation as core to their work.

Participant	Direct quote
Amanda	I think like motivation is almost like a skill, and part of our job as teachers is to like hone that skill in the kids. The job is teaching kids to be motivated, in my opinion.
Arthur	That's what the relationships are all about, that's what, that's what the little thematic things are all about. That's what the, the patter all about. That's what, that's what sitting down with a kid and going through something 18 times is all about. The motivation, that's really it.
Alice	And I think this is part of our work in education. And it doesn't matter if we're in kindergarten or if we're at university or we are at work taking all of these workshops or presentations, or, do we want to be actively involved in our own learning, the big question is and how can we support that [motivation]?
Donna	I feel that's why I am a teacher [motivation], you know I am not there to just stamp them and send them down to the factory, I am there for more than that.
Danielle	I feel extremely responsible to motivate the students to know that they have a path to a purposeful independent life.
Daisy	[Motivation's] a 50–50 split between me and the students.

high scores focused on positive emotional experiences associated with student motivation. For example, both Amanda and Arthur described the satisfaction associated with capturing student interest: "I feel like, oh that's why I'm a teacher, like to hear those sayings, and to see how these kids think. Like it's so exciting." And "they get involved in, in the work that you've given them, um, and it, it I, I just, I find it really fascinating just watching kids do that." In contrast, teachers with lower scores reported both positive and negative emotions associated with being responsible for student motivation. For example, Daisy recalled "I've gotten better over the years at feeling less stressed out and blaming myself less, when things don't work out, which I think is a healthy thing and realizing half of it's on me half of it's on them." Regardless of the emotional response, both groups described being responsible for student motivation as intense. Arthur stated: "it takes a lot of energy. I'm getting too old for that. But but it, you know, it's a really good – and it goes back to those relationships." Thus, no matter what the effort or restrictions, it seemed that all teachers' appreciated that being responsible for student motivation is part of their job.

Overall, the qualitative results highlight that teachers' experience of personal responsibility for student motivation is multifaceted. They look for evidence of student motivation, use a variety of techniques to enact their personal responsibility, and expect students to be responsible for their own motivation as well. These are notions that are central to prominent motivation theories including Attribution Theory (Weiner, 1985). They also view responsibility for student motivation as core to the work they do as teachers. How these personal experiences of being responsible for student motivation converge with the quantitative measurement of responsibility for student motivation as defined by the TRS is addressed next through a process of data integration.

Integration

The qualitative dominant crossover mixed analysis resulted in five mixed insights: dominance of interest, shared responsibility, divergent specificity and valence, complete alignment, and missingness of professional perspective. Qualitative results from all participants except Danielle were able to be included in the crossover mixed analysis. Eleven cells contained qualitative results and five cells contained no qualitative results. The mixed insights are summarized in a joint display that utilizes the same 4×4 presentation format as the matrix that guided the crossover mixed analysis (Table 4). As one source of validity evidence for the mixed insights, we visually plotted how the qualitative dominant crossover analysis strategy generated the mixed insights (Figure 2).

Dominance of Interest

Teachers mentioned student interest often in the small group interviews with a total of 11 statements related to interest included in the crossover analysis. Moreover, the quantitative scores for the TRS item targeting student (dis)interest was the most strongly endorsed item by teachers who participated in the small group interviews with a mean score 0.5–1.0 higher than any other item. Thus, when teachers talked about responsibility for student motivation and when teachers answered items about responsibility for motivation, interest seemed to dominate both their conversation and their ratings. Interest is a core construct in the field of achievement motivation and is closely related to notions of intrinsic motivation (Renninger, 2000). The crossover analysis suggests that teachers also see interest as central to student motivation. However, researchers who study interest distinguish between situational and individual interest. Situational interest “refers to the likelihood that particular subject content or events will trigger a response in the moment” whereas individual interest “refers to an ongoing and deepening relation of a person to particular subject content” (Renninger, 2000, p. 373). The present crossover analysis did not disentangle situational interest from individual interest. Future research may want to consider how teachers distinguish “catch” vs. “hold” interest (Hidi and Renninger, 2006) in light of their personal responsibilities for motivation. It is possible that teachers focus on initiating motivation through situational interest (e.g., Schraw et al., 2001) and then believe that students are responsible for translating those efforts into individual interest.

Shared Responsibility

The notion of shared responsibility also emerged in the crossover analysis. The TRS was designed to assess *teachers'* personal responsibility, however, teachers include a strong *student* perspective in their qualitative descriptions of responsibility. Based on the analysis, the notion of shared responsibility is represented in seven of the 16 cells of the joint display. Through the crossover analysis we concluded that these cells represent how teachers viewed students as sharing in the responsibility for motivation in a collaborative way. Although the notion of shared responsibility is not new (e.g., Brandt et al., 1975), future research may want to revisit this notion particular because teachers describe their own responsibility in conjunction with students. It

is possible that student motivation may be perceived as having the greatest shared variance between students and teachers and this again may help explain why teachers have low scores on the scale when it only reflects their portion of the responsibility. Indeed the qualitative results describing shared responsibility were most often related to the quantitative items measuring dislike and not caring—the two items on which teachers had the lowest quantitative scores.

Divergent Specificity and Valence

The TRS was intentionally designed to “focus on negatively valenced items” with the hope that “there may be greater variance in [teachers'] willingness to hold themselves responsible if these outcomes did not occur” (Lauermaann and Karabenick, 2013, p. 18). Although the TRS was designed to have a moderate level of specificity relevant to all classrooms (Lauermaann and Karabenick, 2013), all motivation TRS items focus on a specific subject area. Precedent for this type of domain specificity exists with many measurement tools in the area of educational psychology including teachers' self-efficacy beliefs (Tschannen-Moran and Woolfolk Hoy, 2001) and their emotions (Frenzel et al., 2016). Despite this common practice, other authors have cautioned that “specificity and precision are often purchased at the expense of external validity and practical relevance” (Pajares, 1996, p. 561), and indeed this seems to be the case to some extent according to the results of our crossover analysis.

The crossover results show that the focus on subject specific negative outcomes conflicts with teachers' authentic descriptions of their responsibility for student motivation, which are described more generally. Moreover, all of the quotes associated with the “not interested,” “dislike,” and “did not value” TRS items actually contained *positive* descriptions of being responsible for students' “interest,” “like,” and “value.” This divergence in specificity and valence may be one reason that teachers consistently have low scores on responsibility for student motivation scale. Having identified divergence in the domain of personal responsibility for student motivation, future research may want to adjust the TRS items to reflect outcomes teachers want to produce and test how that impacts the way they respond to the items. This adjustment to the measurement tool would still adhere to the definition for personal responsibility offered by Lauermaann and Karabenick (2011a) but focus on personal responsibility for producing desired outcomes.

Complete Alignment

The categories of Quality of Student Motivation (four quotes) and Enactment of Teacher Responsibility for Student Motivation (12 quotes) mapped onto each of the four quantitative items in the crossover analysis. This points to high alignment between these categories and each of the quantitative items designed to collectively measure responsibility for student motivation. In other words, the personal responsibility for student motivation subscale as a whole seems to be best supported by teachers' authentic descriptions about what student motivation is and the actions they take to enact that quality of motivation in students. From the quantitative perspective, maximum scores would have been reached on the TRS based

TABLE 4 | Joint display representing spaces of convergence and divergence between the qualitative and quantitative results ($n = 6$).

Qualitative category	I would feel personally responsible if a student...				Crossover qual & quan
	...was not interested in the subject I teach $M = 4.83$...disliked the subject I teach $M = 3.83$...did not value learning the subject I teach $M = 4.33$...did not care about the subject I teach $M = 3.83$	
Quality of student motivation	TQ = 1, DSV Exemplary quote: "a lot of times motivated students, they might not be the, you know, the best at reading or math or whatever, but um they have this sort of interest" – Amanda	TQ = 1, DSV, SH Exemplary quote: "They are excited about learning" - Donna	TQ = 1, DSV, SH Exemplary quote: "they want to come to school, they want to learn, they're curious, they ask questions, their interrupting they've got so much they want to share with you" – Donna	TQ = 1, DSV, SH Exemplary quote: "I would say that I've seen kids that are motivated by grades, so they aren't really caring that much about learning." – Daisy	100% CA
Enactment of teacher responsibility for student motivation	TQ = 7, DSV Exemplary quote: "you almost have to figure out um how um, what will trigger them" – Alice	TQ = 2, DSV, SH Exemplary quote: "once I felt like I had you know a relationship built with them, then I could sort of like shuffle them along and try to get them like enthusiastic." – Amanda	TQ = 1, DSV Exemplary quote: "can I use this in my life right now, or will I definitely or almost definitely be using it in the future" - Daisy	TQ = 2, DSV, SH Exemplary quote: "they still may not choose to care because they have been brought up not to think that it's important" – Daisy	100% CA
Student responsibility for their own motivation	TQ = 3, DSV, SH Exemplary quote: "they [students] are taking an interest and they're remembering what they're learning, they're applying it outside of the classroom, they are thinking about how it relates into their lives" – Daisy	TQ = 1, DSV Exemplary quote: "they're curious, naturally curious" – Arthur	TQ = 0	TQ = 1, DSV, SH Exemplary quote: "you [students] can like drive yourself or care about what you're doing you just have to find a reason to care about what you're doing and to move forward" – Amanda	75%
Professional perspectives on student motivation	TQ = 0	TQ = 0	TQ = 0	TQ = 0	0% MPP
Total quotes:	TQ = 11 DOI	TQ = 4	TQ = 2	TQ = 4	

TQ, total quotes; DSV, Divergent specificity and valence; SH, Shared responsibility; DOI, Dominance of Interest; CA, Complete alignment; MPP, Missingness of the professional perspective.

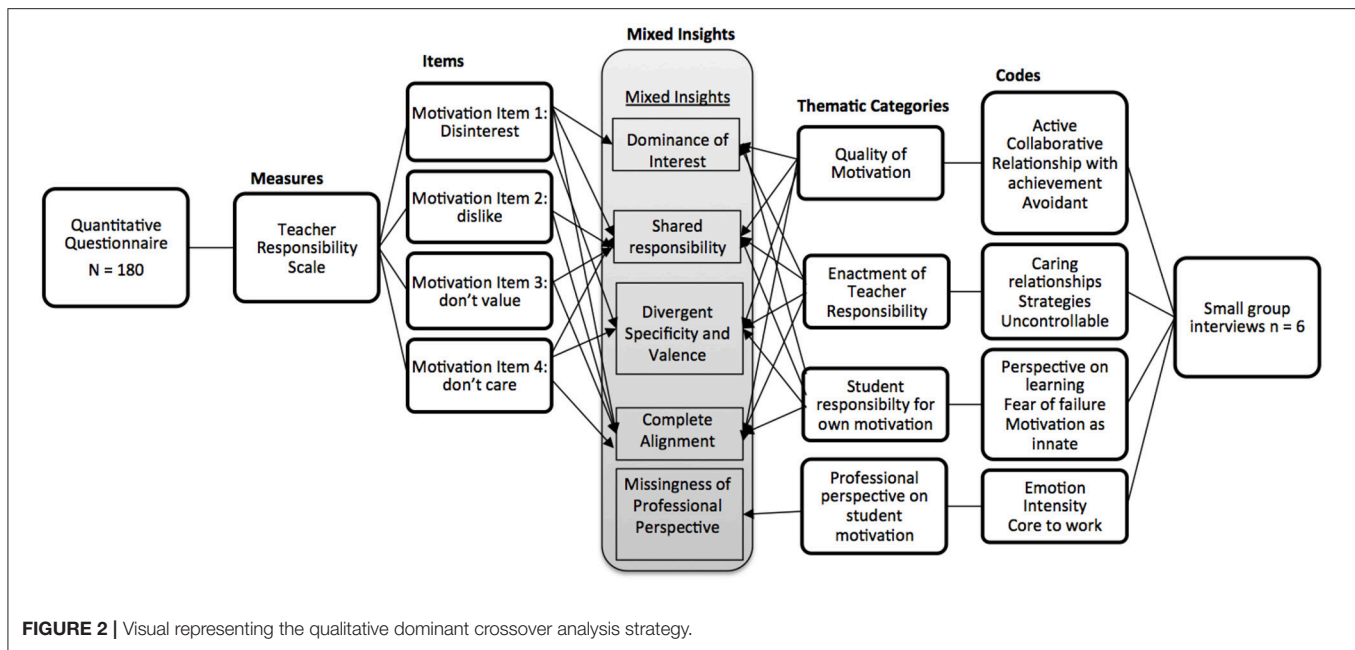
on responses in these categories. Looking at the qualitative results, it seems that teachers' descriptions here honed in on both the controllable and uncontrollable components of student motivation. This relationship between control and responsibility is longstanding; however, our interpretation of the crossover analysis suggests that the relationship between control and responsibility may be more complex than predictive models suggest (e.g., Weiner, 1985). Given that teachers described uncontrollable factors as restricting their sense of responsibility for motivation, this may also help explain why responsibility for student motivation is regularly endorsed so weakly on the TRS (e.g., Eren, 2014; Daniels et al., 2016).

Missingness of the Professional Perspective

The final mixed insight emerged from a lack of overlap between the qualitative and quantitative data. Specifically, there was no overlap between the category Professional Perspectives on Student Motivation and the questionnaire items. The finding that this perspective was missing in how responsibility for student

motivation is quantitatively measured is concerning from a validity perspective because every teacher, even those with low scores on the responsibility for student motivation scale, clearly stated during interviews that they do indeed feel personally responsible for student motivation. In fact, supporting student motivation was considered core to their work as teachers and separate from any mention of external accountability (Table 4). Thus, the divergence between this category and the measured items signals a troubling possibility that the questionnaire items do not represent teachers' professional understanding of responsibly for student motivation. Stated differently, our interpretation of the crossover data suggests that the sum of personal responsibility for student motivation appears to be greater than the measured parts.

In addition to this missingness at the category level, we also noted that of the 13 possible unique codes only seven were part of the crossover analysis. Thus, although it seems that there is a relatively high level of convergence at an omnibus level because most cells contained information and most participants were represented in the crossover analysis, only slightly more than half



of the unique codes were represented. The inability to utilize all codes in the crossover analysis reinforces that perhaps teachers' conceptualize responsibility for motivation as something broader than what the quantitative items on the TRS currently measure.

IMPLICATIONS AND LIMITATIONS

The mixed insights offer important implications in terms of advancing theory, research, and practice. First, in terms of theory and research, the advancements made by Lauermaann and Karabenick (2011a, 2013) are an excellent starting place for furthering quantitative study of teachers' personal responsibility. However, personal responsibility for student motivation specifically may require additional reasoning in terms of theory and measurement, and this reasoning may need to come directly from teachers. For example, the study of motivation is increasingly recognizing the complex and dynamic nature of motivation (Kaplan et al., 2012). Regularly researchers tackle these issues of complexity either by simplifying and remaining consistent with a single approach to motivation such as Attribution Theory (Weiner, 1985) or Self-determination Theory (Ryan and Weinstein, 2009) or by applying cross-theoretical reasoning (e.g., Linnenbrink-Garcia et al., 2016). It seems that teachers' personal responsibility for student motivation is also complex and thus theory and research in this area needs to heed the same calls as the field of motivation more generally. This includes not only refining theory and measurement tools so that responsibility for student motivation is not underrepresented quantitatively. One way to explore this precisely may be by applying cognitive processing methods to pinpoint ways to modify individual items to secure a more valid rating (Karabenick et al., 2007). Although these are excellent methodologies for

reducing the gaps between measurement and responses, other innovated methodologies such as MMR remain needed to bridge the gap between measurement and overall experience. Moreover, teachers will need to be invited to be not just participants in this research, but to hold roles central to its conception and enactment. This has important implications for how we go forward in the study of teachers' personal responsibility for motivation and we need to be aware of bias introduced by their more participatory approach to research.

Second, in terms of practice, teachers need to be aware of their own sense of personal responsibility for student motivation. Inasmuch as personal responsibility for motivation is low relative to the other domains, teachers may need to shift their mindsets to view student motivation as something they can influence. There are a variety of interventions designed to help teachers create more motivating classrooms (e.g., Reeve and Cheon, 2014); however, their effectiveness may interact with the teachers' level of personal responsibility. It is possible that responsibility may need to be clarified and enhanced before teachers are ready to be receptive to the training provided by motivation interventions. This has important implications for how we approach the preparation of teachers in their initial teacher education programs and indeed in continuing professional development initiatives. For example, it may be that teachers who see their personal responsibility for motivation are most receptive to this type of training.

We designed this research with the four dimensions of high quality research in mixed methods (Collins, 2015) and the criteria for publishing (Onwuegbuzie and Poth, 2016) in mind. Based on these standards, this research represents high quality mixed method research in the following four ways: The use of

literature to clearly justify the warrantedness of a mixed methods approach; the detailed descriptions of the procedures to create transparency of methodology; the mixing strategy to address the convergent purpose underpinning the intentional integration; and the multiple indicators of validity and trustworthiness built into the itself design and gathered to support the findings from each strand separately as well as the mixed insights.

However, the results need to be interpreted with the following four limitations in mind. First, our mixed methodology relies on convenience sampling and is somewhat unique with the qualitative data being collected following the quantitative data in a convergent design. In this process, we did not collect qualitative data from the full sample who participated in the quantitative strand. However, because of the smaller sample in the qualitative strand we were able to gather richer descriptions than had we asked all participants to, for example, complete an open-ended written questionnaire item. Thus, the depth of qualitative data offsets the design limitation of not having all participants in both strands. This depth, however, does not offset a related limitation regarding the qualitative data, namely that the sample size was small regardless of its source. Creswell and Poth (2018) state that phenomenological studies have ranged in sample size from 1 to 325. Perhaps then the greatest limitation with our sample is not the size itself but that we did not have more participants from which to recruit into the qualitative strand had we felt the need to do so.

Second, the use of small group interviews rather than individual interviews is uncommon in IPA. However, due to the relational nature of teaching, we believe that the small group interviews allowed each participant to tell their lived experience and also be reassured or challenged in their perspectives by colleagues thereby making the qualitative data collection more authentic to teachers.

Third, we only thoroughly investigated convergence in the domain of responsibility for student motivation and not how the qualitative results converged with the other three domains of teacher responsibility. For example, teachers described caring relationships as central to the way they enacted their responsibility for motivation, and caring relationships may have high convergence with the items on the personal responsibility for relationships subscale of the TRS. We felt it was necessary to focus exclusively on teachers' personal responsibility for student motivation because of its consistent low quantitative score, but also because teachers scored low on efficacy for student motivation relative to other competencies (Alberta Education, 2014) and describe motivation as a domain in which they desire additional support (Turner et al., 2011). Nonetheless, future research may want to examine the overlap in the authentic experience of responsibility as a whole and the full TRS. This, however, was beyond the scope of the present study and would have prevented us from fully exploring the utility of MMR to examine convergence.

CONCLUSIONS

The results of this mixed methods research offer interesting points of convergence and divergence in ways teachers quantitatively report vs. qualitatively describe feeling personally responsible for student motivation. All participants in the qualitative strand stated they felt personally responsible regardless of their score on the TRS, which for half the participants was low. Thus, the troubling concern that teachers report low levels of personal responsibility for motivation (e.g., Lauermaann and Karabenick, 2013; Eren, 2014; Daniels et al., 2016) may be more an issue of measurement than experience. Our quantitative results provide more evidence of internal consistency for the TRS; however, the crossover analysis highlights that the tool may underrepresent teachers' levels of personal responsibility for student motivation. Our results reinforce the importance of understanding and valuing the experiences and perspectives of the teachers who are actually living out the constructs that researchers want to measure, in this case, personal responsibility for student motivation.

ETHICS STATEMENT

This study was carried out in accordance with the recommendations of the University of Alberta Research Ethics and Online Management System. The protocol was approved by the Research Ethics Board 2 (REB2) (Pro00059887). All interview participants gave written informed consent in accordance with the Declaration of Helsinki and consent for the questionnaire was implied by overt action as allowed by REB2. The research team undertook all appropriate measures to protect confidentiality including consent and data storage and security.

AUTHOR CONTRIBUTIONS

LD was the lead author on this paper. Her expertise is in motivation research. The work is part of her SSHRC funded research. She designed the question, undertook analyses, and was primarily responsible for writing. CP was the leading methodologist on the paper. She is a co-investigator on the funded research providing methodological expertise. She provided instruction and guidance in all aspects of analyses and undertook analyses. She writing contributed original writing to the paper as well as feedback on drafts. LG was the lead research assistant associated with the project. She coordinated and conducted the data collection, organized the data files, and participated in data analysis. She contributed original writing to the paper as well as feedback on the drafts.

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Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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