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Concordance between pre-service teachers' personal responsibilities and intended instructional practices

Abstract

During their education, pre-service teachers begin to assume professional responsibilities and gain pedagogical knowledge. However, the question remains if pre-service teachers intend to use instructional practices that are effective in meeting their assumed responsibilities. Thus, we examined the concordance between pre-service teachers' responsibilities and their intended instructional practices. At the start of the semester there was no concordance. At the end of the semester there was high concordance in two instances: responsibility for student motivation negatively predicted performance goal-oriented practices; responsibility for teaching positively predicted rationales and negatively predicted extrinsic rewards. Instructional practices associated with responsibility for achievement and motivation were not concordant. We discuss how pre-service teachers understand these responsibilities and their readiness to adopt evidence-based practices.

Keywords: teacher preparation; motivation; instruction; correlational analysis; beliefs

The classroom that students experience represents a series of intentional instructional decisions made by the teacher that are largely invisible to the student eye (Kagan, 1992; Wilson, Shulman, & Richert, 1987). What a grade one student sees as a sticker his teacher chose as a way to motivate. The revision process that frustrates a grade nine student is her English teacher's way to maximize her chance of a high grade. During their training pre-service teachers face the massive challenge of reinterpreting years of student experiences in light of the theoretical and pedagogical foundation that underpins the teaching profession (Britzman, 1986).

The scenarios presented above share two underlying components. First, the teacher felt responsible for some outcome. Lauermann & Karabenick (2011a) suggest that pre-service and practicing teachers' daily sense of personal responsibility can be summarized by the following four categories: responsibility for students' achievement, motivation, relationships, and the quality of their own teaching. Second, the teacher implemented some instructional practice with the hope that it would allow him or her to fulfill the corresponding responsibility. Pre-service teachers receive implicit and explicit instruction in a range of instructional practices during their education (Darling-Hammond & Bransford, 2005). Educational research based on achievement goal theory (Elliot, 1999) and self-determination theory (Deci & Ryan, 2000) suggests that some of these practices will be more successful at meeting particular responsibilities than others. As pre-service teachers accumulate this type of professional knowledge during their training we would expect to see greater concordance between their responsibilities and their chosen practices. Unfortunately, research on pre-service teachers' beliefs goes against this notion and, instead, suggests that they are as likely to make instructional decisions based upon evidence as based on personal preference (Kagan, 1992; Pajares, 1993). Thus, we proposed three research questions. First, for which area (achievement, motivation, relationships, and their own teaching) do pre-

service teachers' feel most responsible? Second, to what extent do pre-service teachers choose instructional strategies that evidence suggests will be successful in meeting their assumed responsibilities? Third, during a single semester adolescent development course, is there greater alignment between responsibilities and evidence-based instructional practices at the end of the semester relative to the beginning?

Personal Responsibility

Educational authorities or professional bodies tend to govern teachers' rights and responsibilities. In the Canadian province where this research was conducted, the teachers' association articulates the following responsibilities for teachers amongst others: reviewing competence and seeking professional development, creating an optimal learning environment, and using resources efficiently (Alberta Teachers' Association, 2004). Although an era of accountability puts teachers' responsibility for student achievement on a pedestal (Schraw, 2010), teachers themselves report a wide range of responsibilities in addition to academic outcomes including broad developmental, social, and emotional needs (Fischman, DiBara, & Gardner, 2006). Summing across the work on teacher responsibility in its various theoretical and empirical conceptualizations, Lauermann and Karabenick (2011a) define *personal responsibility* "as a sense of internal obligation and commitment to produce or prevent designated outcomes, or that these outcomes should have been produced or prevented" (135). Personal responsibility is a multifaceted concept related to bringing about certain outcomes or avoiding others, can refer to past, present or future events, and can be dispositional and situational (see also Lauermann & Karabenick, 2013). This definition and specificity represent a major advancement for quantitative research of teacher responsibility, which has historically relied on poor measures and approximations (e.g., Barnabe & Burns, 1994; Guskey, 1981; Lee, 2000; Matteucci, 2007).

Despite methodological and conceptual difficulties, research supports the notion that when teachers *feel* responsible, as opposed to being *held* responsible through high stakes testing, administrative demands, or some such practice, they tend to hold themselves more accountable for outcomes beyond their professional obligations. As such, these teachers are more internally motivated, self-regulated, proactive, and express more concern about others and the consequences of their own actions (Fishman et al., 2006; Guskey, 1981; Lauermaun, in press; Lauermaun & Karabenick, 2009; Pelletier, Seguin-Levesque, & Legault, 2002; Ryan & Weinstein, 2009).

Teachers describe feeling responsible for a positive classroom atmosphere, interactions with parents, school policies, voluntary work and extracurricular activities, creativity, a safe learning environment, facilitating an understanding of the world, achievement, preparing quality lessons, supporting students, and improving their teaching (Fischman et al., 2006; Halvorsen, Lee, & Andrade, 2009; Lauermaun, in press). Synthesizing these domains, Lauermaun and Karabenick (2013) sought to “develop a scale that teachers would consider highly relevant for their professional lives” (17). The resulting Teacher Responsibility Scale (TRS) focuses on outcome-based responsibilities of teachers while taking into account specificity, authenticity, time perspective, and valence of the outcome – all components that extend directly from their definition of personal responsibility. During the validation process, one domain (responsibility for student’s self-confidence) was eliminated due to high cross loadings and four factors were ultimately retained: student achievement, student motivation, relationships with students, and responsibility for one’s own teaching. The TRS was validated for both pre-service and practicing teachers and was empirically distinct from self-efficacy for teaching, suggesting that indeed teacher personal responsibility represents an independent construct. Both practicing and

pre-service teachers expressed the most personal responsibility for relationships, followed by teaching, then achievement, and lastly motivation (Lauermann & Karabenick, 2013; 2011b).

Although there is currently no articulated theory of personal responsibility, teachers' own accounts suggest that this construct may be influenced by personal and contextual characteristics and in turn exerts an influence on instructional decisions. Lauermann (in press) labels these complicated relationships "hierarchically structured responsibilities" and explains that "such hierarchies link overarching outcomes such as student learning [and] suggest that even when teachers feel highly responsible for a given outcome, they may choose different paths toward fulfilling this responsibility, some of which may be more or less effective (23)." To efficiently fulfill their responsibilities they need to choose instructional practices that are associated with their desired outcomes. In other words, the extent to which one is successful in fulfilling a particular responsibility is determined by the outcomes seen in students. Teachers are likely to feel successful in fulfilling their responsibility for achievement when students have good grades, for motivation when their students are engaged, for relationships when their students are willing to confide in them, and for their own teaching if they enjoy their work and are committed. Inasmuch as pre-service teachers increase their pedagogical understandings of teaching as well as their repertoire of skills during their education, there is reason to believe that their responsibilities should become more closely aligned with more rather than less effective instructional practices over time, in this case, by the end of the academic semester (i.e., from September to December). For this research we consider a responsibility and instructional practice to be concordant when the selected instructional practice has been shown empirically to bring about the desired outcome associated with the responsibility.

Instructional Practices

Nothing in teaching is “one size fits all” and instructional practices are no exception: Some practices will be more effective for increasing achievement, others for motivation, and others for relationships (Meece, Anderman, & Anderman, 2006; Reeve, 2009). At the same time, research emanating from social-cognitive theories of motivation demonstrates that many instructional practices cast a broad net and impact a variety of outcomes (Butler, 2012; Lau & Nie, 2008). We chose to focus on four types of instructional practices (mastery, performance, rationales, and rewards) grounded in two social-cognitive theories of motivation (achievement goal theory and self-determination theory) because these theories are linked to specific classroom practices.

Achievement goal theory: Mastery vs. performance goal-oriented practices. The notion of classroom goal structures extends from achievement goal theory (Meece et al., 2006), arguably one of the most influential approaches to the study of motivation across a wide range of achievement settings (Kaplan & Maehr, 2007; Senko, Hulleman, & Harackiewicz, 2011). Achievement goal theory emphasizes four personal goals: mastery-approach is viewed as the desire to gain competence; performance-approach as the desire to demonstrate competence relative to others; mastery-avoidance is the desire to avoid incompetence; and performance-avoidance as the desire to avoid demonstrating incompetence relative to others (Elliot, 1999; Elliot & Murayama, 2008). Decades of research suggest that relative to the other three types of goals, mastery-approach goals are linked with a broad range of adaptive cognitive, emotional, and achievement outcomes for students from kindergarten to university (e.g., Kaplan & Maehr, 2007). Seeking to understand the instructional practices that give rise to mastery-approach relative to performance goals, Ames (1992) identified certain teacher behaviors that influence student motivation beliefs. For example, a teacher who focuses on effort and revision

encourages students to adopt mastery-approach goals; whereas, a teacher who focuses on competition encourages students to adopt performance goals.

Teachers' mastery goal-oriented practices positively predict a constellation of positive student academic and motivational outcomes including achievement, effort, belonging, and persistence, and negatively predict procrastination, cheating, withdrawal, and avoidance above and beyond the effects of personal achievement goals. In contrast, teachers' performance goal-oriented practices are generally associated with higher levels of student procrastination, cheating, avoidance-coping, and withdrawal, and lower persistence and engagement (Anderman, Cupp, & Lane, 2009; Lau & Nie, 2008; Shim, Kiefer, & Wang, 2013; Walker, 2012; Wolters, 2004). One exception to this negative trend is that Wolters (2004) reported that performance goal-oriented practices were positively associated with classroom efficacy. Rolland's (2012) meta-analysis established that classroom mastery goal-oriented practices are positively associated with student achievement (< grade 6), personal mastery goals, self-esteem, competence, and efficacy – adaptive outcomes not associated with performance goal-oriented practices in the review. Other researchers have shown that performance goal-oriented practices were negatively related to elementary school achievement (Lau & Nie, 2008) and unrelated to achievement for junior or senior high school students (Anderman et al., 2009; Wolters, 2004; see also Rolland, 2012). Lauermaann and Karabenick (2011b) showed that feeling responsible for achievement positively predicted mastery goal-oriented practices.

Evidence is also quickly accumulating to support that mastery goal-oriented practices are beneficial in terms of enhancing relationships with students. Most directly, Lauermaann and Karabenick (2011b) showed that teachers who felt responsible for relationships were inclined towards mastery goal-oriented practices. Indeed some research suggests that mastery goal-

oriented practices and student perceptions of teacher support may reflect similar constructs (Patrick, Kaplan, & Ryan, 2011). For example, Butler (2012) showed that mastery goal structures correlate positively with teachers' provision of social support, but performance goal-oriented practices do not (see also Rolland, 2012). In addition, Kaufman and Dodge (2009) found that mastery goal-oriented practices positively predicted relatedness with students and Walker (2012) demonstrated that mastery structures positively predicted a sense of belonging, but neither study found a statistically significant effect for performance structures. Most recently, Turner, Gray, Anderman, Dawson, and Anderman (2013) showed that not only are mastery goal-oriented practices positively associated with students' perceptions of teacher support, but over the course of a school year the two constructs come to reflect a single integrated notion.

Finally, there is some evidence that mastery goal-oriented practices are associated with a variety of outcomes that may be akin to feeling responsible for one's own teaching. For example, pre-service teachers who reported an intention to use mastery goal-oriented practices also reported a strong commitment to teaching, a relationship that was not present for performance goal-oriented practices (Daniels, Stupnisky, Perry, Mandzuk, & Clifton, 2008). Retelsdorf, Butler, Streblov, and Schiefele (2010) reported a positive correlation between mastery goal-oriented practices and interest in teaching and a statistically significant negative correlation between mastery goal-oriented practices and burnout – neither of which were statistically significant for performance goal-oriented practices. Elementary and middle school teachers who perceive their school goal structures as mastery goal-oriented reported higher levels of value consonance and, by extension, greater job satisfaction and lower likelihood of early career departure (Skaalvik & Skaalvik, 2011). However, teachers who perceived a performance climate reported a lower sense of belonging and increased likelihood to leave teaching.

Based on the empirical literature reviewed above we hypothesized that mastery goal-oriented practices should be positively predicted by all four responsibilities because they are regularly associated with the desired student outcomes. In contrast, we hypothesized that performance goal-oriented practices should be negatively predicted by responsibilities for achievement and motivation because these practices are regularly associated with difficulties in bringing about these outcomes.

Pre-service and practicing teachers' preferences. The evidence suggests that students' perceptions of mastery goal-oriented practices are high during elementary schooling and then drop in later years in exchange for increased performance goal-oriented practices (Anderman & Midgley, 1996; Urdan & Midgley, 2003). Teachers' reports tended to parallel these results and suggest that relative to elementary school teachers, middle school teachers report using more rigid assessment practices (Eccles & Midgley, 1989) and high school teachers report less use of mastery goal-oriented practices (Retelsdorf et al., 2010). Specific to pre-service teachers, Daniels, Frenzel, Stupnisky, Stewart, and Perry (2013) showed a statistically significantly stronger preference to enact classroom mastery goal-oriented practices than classroom performance goal-oriented practices at both the elementary and secondary level. Even though these mastery intentions decreased sharply once pre-service teachers started practicing, mastery goal-oriented practices remained the practice of choice for novice teachers at both levels as well (Daniels, 2013). Thus, in terms of mastery relative to performance goal-oriented practices, pre-service and practicing teachers appear to report a preference for mastery. A limitation of the reports listed above is that preference is inferred from mean levels of the scales and is not linked to a specific outcome or responsibility. Speaking to this, Lauermann and Karabenick (2011b) showed that pre-service and practicing teachers who felt responsible for achievement and

motivation were inclined towards performance goal-oriented practices even though these practices conflict with theory-based empirical research. Based on the literature reviewed above that focuses on preferences rather than evidence-based practices, an alternative hypothesis is that mastery goal-oriented practices will be negatively predicted by a responsibility for achievement and positively predicted by a responsibility for relationships. Likewise, although contrary to most empirical evidence, an alternative hypothesis is that intended performance goal-oriented practices may be positively predicted by responsibilities for achievement and motivation.

Self determination theory: Rationales vs. rewards. Like achievement goal theory, self-determination theory is a pivotal theory of achievement motivation. Self-determination theory posits that there are three basic needs, autonomy, competence, and relatedness which, when satisfied, give rise to optimal (or self-determined) motivated behavior. Briefly, autonomy is defined as experiencing control and choice over one's actions; competence is defined as experiencing oneself as effective in bringing about said actions, and; relatedness is defined as experiencing "close and connected" relationships (Reis, Sheldon, Gable, Roscoe, & Ryan, 2000, p. 420). When these needs are met, individuals are more self-determined and harder working even in absence of extrinsic rewards (Hollembek & Amorose, 2005). Individuals who are more self-determined tend to have higher self-esteem (Coatsworth & Conroy, 2009), are more engaged (Assor, Kaplan & Roth, 2002), and tend to achieve higher academically (Guay, Ratelle & Chantal, 2008). Noting the adaptive outcomes associated with self-determined behavior, these researchers also became interested in the instructional practices that help create conditions to meet the basic psychological needs. In education there has been a large focus on meeting the need for autonomy by creating autonomy-supportive classrooms: "Autonomy support refers to the readiness of an individual in a position of authority...to take the other's...perspective,

provide appropriate and meaningful information, offering opportunities for choice, while at the same time minimizing external pressures and demands” (Reinboth, Duda, & Ntoumanis, 2004, p. 298). Although the notion of autonomy is brought about by a host of practices, two common and opposing practices are the use of extrinsic rewards (a controlling practice that does not support autonomy) and the use of rationales (a supportive practice that does support autonomy).

The use of extrinsic rewards is a common instructional practice: In fact both observational and self-report research suggests that not only are teachers more inclined towards rewards than rationales but observers rate teachers who use rewards as more effective (Assor, Kaplan, Kanat-Maymom, & Roth, 2005; Flink, Boggiano, & Barrett, 1990; Reeve, Jang, Carrell, Barch, & Jeon, 2004). Recently Berger, Girardet, and Aprea (2013) showed that vocational teachers who felt personally responsible for the quality of their teaching were less likely to report using controlling strategies. Because no other research has specifically examined the link between responsibilities and these practices, we infer associations from documented relationships between the practices and outcomes that correspond to those described by the responsibilities. For example, the debate on if and how extrinsic rewards influenced motivation and achievement was heated (see Cameron & Pierce, 1994; Eisenberger & Cameron, 1996; Deci, Koestner, & Ryan, 1999; Deci, Koestner, & Ryan, 2001). The most recent and thorough meta-analysis of 128 studies examining extrinsic rewards on intrinsic motivation concluded that promised tangible rewards undermine intrinsic motivation and interest (Deci et al., 2001). To the extent that intrinsic motivation is positively associated with academic achievement (e.g., Lepper, Corpus, & Iyengar, 2005), we can infer that rewards indirectly impair achievement. Gottfried, Fleming and Gottfried (1994) showed this was exactly the case for students’ verbal and math achievement, which decreased indirectly because of parents’ use of rewards. Other evidence

showing a direct negative effect of rewards on students' achievement, at least operationalized in terms of grades, is sparse. This may be because grades are often viewed as the ultimate extrinsic reward and therefore it can seem redundant to consider the influence of one on the other.

Nonetheless, there is ample evidence suggesting that extrinsic rewards impair various operationalizations of achievement including standardized test scores, learning strategies, creativity (e.g., Boggiano, Flink, Shields, Seelbach, & Barrett, 1993; Hennessey & Amabile, 1998; and others as cited in Kohn, 1993), completion time, and formulating logical hypotheses (Lepper, 1981). Many of these arguments are summarized in Kohn's (1993) book *Punished by Rewards*, which summarizes a large amount of evidence and concludes that rewards can be just as maladaptive as punishments.

As an effective alternative to rewards, the use of meaningful rationales, defined as "a verbal explanation of why putting forth effort during the activity might be a useful thing to do" (Reeve, Jang, Hardre, & Omura, 2002, 185), has been positively correlated with motivation, engagement, learning, and achievement (e.g., Green-Demers, Pelletier, Stewart, & Gushue, 1998; Jang, 2008). Experimental evidence also supports this association (e.g., Deci, Eghrari, Patrick, & Leone, 1994; Sansone, Weir, Harpster, & Morgan, 1992). In one such investigation, Reeve and colleagues (2002) created three experimental conditions in which participants were asked to complete a task for an external reason (i.e., there would be a test), an introjected reason (i.e., because they should), or an identified reason (i.e., because it is useful). Compared to no reason and to external and introjected reasons, only the provision of a meaningful reason resulted in a statistically significant increase in interest and effort. In the only investigation to date to explicitly link responsibility to autonomy-supportive practices, Berger and colleagues (2013)

showed that vocational teachers' personal responsibility for the quality of their teaching positively predicted autonomy-supportive strategies.

The evidence linking the use of either rewards or rationales to cultivating good relationships or to a commitment to teaching is sparse. Kohn (1993) states that “rewards rupture relationships.... There is a significant difference between developing a caring alliance of openness and trust with children and offering rewards to elicit certain behaviors” (p. 175). Although this statement extends logically from the multitude of evidence Kohn reviews, there is no explicit reference to empirical data showing that teachers are more or less likely to use rewards to try and create good relationships with their students (although one can imagine teachers who try to “win” over students with rewards) or when they feel particularly responsible for their own teaching. An examination of the broader notion of autonomy-supportive compared to controlling strategies –of which rationales and rewards are a subset- provides a small amount of empirical data. For example, Roth, Assor, Kanat-Maymon, and Kaplan (2007) found that teachers who use autonomy-supportive strategies, which could include providing a rationale, report higher levels of personal accomplishment associated with teaching and less emotional exhaustion than those who rely on controlling strategies. Autonomy has also been positively associated with feelings of enhanced relatedness to college instructors (Kaufman & Dodge, 2009).

Based on the empirical literature reviewed above, we hypothesized that an intention to use rationales should be positively predicted by all four responsibilities because they are regularly associated with the desired student outcomes. In contrast, we hypothesized that an intention to use rewards should be negatively predicted by all four responsibilities.

Pre-service and practicing teachers' preferences: Reeve (2009) identified seven forces from within, below, and above teachers that incline them towards controlling practices rather than supportive ones. One reason that is relevant here is the tendency for teachers to be both responsible and accountable. Deci and colleagues (1982) conducted a laboratory experiment in which teachers were randomly assigned to either a condition in which they were explicitly told they were responsible for a students' performance on a task or a control condition without the explicit statement of responsibility. They found that teachers in the high responsibility for achievement condition used more controlling practices than those in the control condition. Similar results have been found in field studies as well (e.g., Flink, Boggiano, & Barrett, 1990). Thus, although the empirical evidence suggests that meaningful rationales are a more effective instructional practice, feeling responsible for achievement may incline teachers towards the use of controlling practices, such as extrinsic rewards. Thus we offer two alternative hypotheses based on teachers experiences or perceptions: Rationales may be negatively predicted by responsibilities for achievement and teaching; whereas, rewards may be positively predicted by responsibilities for achievement and teaching.

Conceptual Framework of Concordance

In the design of their scale, Lauermaann and Karabenick (2013) explicitly chose outcome-based responsibilities. In other words, the extent to which one is successful in fulfilling a particular responsibility is determined by the outcomes seen in students. Thus, our research question focuses on the link between responsibility and the instructional practices (Figure 1) that give rise to the desired student outcome. Instances in which we find high concordance between responsibilities and use of evidence-based practices can be inferred to suggest that pre-service teachers understand the link between the instructional practice and student outcomes. In contrast,

instances in which the alternative hypotheses emerge may suggest that pre-service teachers are either unaware of the empirical evidence or choose not to adhere to it. Because pre-service teachers are actively engaged in learning about effective instructional practices during their coursework in the semester, we expect that there will be greater amounts of theory-based concordance between pre-service teachers' responsibilities and their intended instructional practices at the end of the semester than at the beginning.

Method

Participants and Procedures

Participants were 97 pre-service teachers 60% of who were in the last year of their undergraduate degree in the Faculty of Education. The remaining 40% expected to graduate within an additional year of the time data was collected. Time left in the program is a good descriptor of these students because there are many routes to teacher certification that vary in how much time students spend in the Faculty of Education before receiving their degrees (e.g., four-year programs, five-year combined degree programs, 2 year after degree programs, etc.). Only 19 of the participants had already completed an undergraduate degree before pursuing their B.Ed. Most participants were in the secondary ($n = 72$) rather than elementary teaching stream, were female ($n = 73$), and were 21 years old (24%, range 19-47). These pre-service teachers were majoring in 12 different content areas with the largest concentrations of students in physical education ($n = 18$), social studies ($n = 16$), English ($n = 12$), or biological sciences ($n=10$).

Participants were recruited from two sections of an elective adolescent development course. Although the course is an elective four sections tend to run each academic year, often filled to capacity of 80 students. In October 2013 there were 1533 students enrolled in the secondary stream across the four years students are in the faculty (approximate $n/\text{year} = 384$).

This may mean that up to 83% of the secondary stream students take this course out of interest, fit with their program, or as a pre-requisite to various graduate programs. This development course uses a common Adolescent Development textbook to address topics such as biological and cognitive development, adolescents in the contexts of family, friends, work and school, and adolescent morality, identity, problems, and resilience. Moreover the course specifically targets educators and thus many developmental principles are considered in light of classroom practices, interactions, and student learning. For example, the standard discussion of the timing of the onset of puberty is linked to peer acceptance and ways that teachers can be prepared to deal with issues related to onset in their classrooms. The presentation of information on families is linked to school-family partnerships and how teachers can work with parents to support adolescents. Although a large class, it usually involves lecture format as well as discussions facilitated by videos or case studies. Forty-one students in the course had not completed any practicum placements in the schools ($n = 41$) and 54 had completed one of two practicum placements¹. Students could be enrolled concurrently in a variety of other courses including curriculum and teaching method courses. They completed an omnibus survey that contained several questionnaires related to their beliefs about responsibility and their intended instructional practices. Consent was implied by completion of the survey and the instructor was not present during data collection to reduce coercion. The same survey was completed twice: once at the start of the course and again at the end. There were no differences between the participants in the two course sections in terms of demographics; however, students in one section felt more responsible than students in the other, thus we controlled for course section in our analyses.

Measures

Responsibility. At Time 1, pre-service teachers completed the Teacher Responsibility Scale (TRS, Lauermann & Karabenick, 2013). The instructions were as follows: “Imagine that you have classes of your own. To what extent would you feel PERSONALLY responsible that you should have prevented each of the following?” Fourteen items measured the following four areas of personal responsibility (1=not at all; 7=completely): student motivation (e.g., “I would feel personally responsible if a student of mine was not interested in the subject I teach”), student achievement (e.g., “I would feel personally responsible if a student of mine had very low achievement”), relationships with students (e.g., “I would feel personally responsible if a student of mine thought he/she could not count on me when he/she needed help”), and their own teaching (e.g., “I would feel personally responsible if a lesson I taught was not as effective for student learning as I could have possibly made it”). Descriptive statistics are presented in Table 1.

Instructional practices. At both Time 1 and Time 2 we used The Patterns of Adaptive Learning Scale (PALS; Midgley et al., 2000) to assess mastery and performance goal-oriented instructional practices. The items and instructions were adjusted slightly in order to accommodate pre-service teachers’ intentions: “The following items are about what type of classroom you intend to establish once teaching. Please think about things you plan to do when you have your own classroom” (1=strongly disagree; 5=strongly agree). We created two items to measure pre-service teachers’ inclination towards providing a rationale and four items to measure inclination towards using extrinsic rewards (see Appendix A). These items were measured on a 1=not at all true to 4=very true, likert-type scale.

Rationale for Analyses

As preliminary analyses we correlated all variables and looked at the mean level of endorsement of each responsibility. After converting the scores to the same metric (by dividing by the number of items in each scale), we compared them using paired samples *t*-tests with a Bonferonni corrected alpha level $.05/6 = .008$. Next, we used hierarchical regression analyses with stepwise forced entry of blocks of variables (Field, 2009) to test the main purpose of this study; namely, if pre-service teachers' personal responsibility predicted appropriate (i.e., empirically supported) instructional strategies. We used four separate regression equations with instructional practices as outcomes and responsibility as predictors while controlling for age, stream, and course section. This set of analyses was conducted twice: First, Time 1 instructional practices served as the dependent variables thus examining the concordance between responsibilities and practices at the start of the semester. Second, Time 2 instructional practices served as the dependent variables and we controlled for Time 1 endorsement of each practice thereby examining concordance later in the semester and beyond an initial preference for any particular instructional practice. We examined all our results for multicollinearity and found no cause for serious concern according to the standards outlined in Field (2009) and Kleinbaum, Kupper, Nizam, & Muller, (2008): all average VIFs were close to = 1.0, all tolerance statistics $> .20$, and no diagnostic condition indices were > 30 and paired with ≥ 2 variance proportions $> .50$.

Results

Correlations

All responsibility measures were moderately positively correlated (range $r_s = .41$ to $.60$, $p < .05$, see Table 2). The instructional practices were correlated, as would be expected based on existing literature. Mastery goal-oriented practices correlated positively with providing

rationales at Time 1 and Time 2 consistent with the idea that both reflect instructional practices that are supportive and adaptive. Performance goal-oriented practices correlated positively with extrinsic rewards at Time 1 and Time 2 consistent with the idea that both reflect instructional practices often considered controlling and external. Neither mastery goal-oriented practices nor the use of rationales had statistically significant correlations with either performance goal-oriented practices or the use of extrinsic rewards at Time 1; however, at Time 2 mastery goal-oriented practices correlated positively with extrinsic rewards. As expected, each Time 1 measure of an instructional practice had a moderate positive correlation with its Time 2 assessment (range $r_s = .36$ to $.56$). The correlational patterns between responsibility and the instructional practices will be discussed subsequently in the context of the regression results.

Mean levels of responsibilities

Figure 2 represents the mean level endorsement of each of the four personal responsibilities. Pre-service teachers felt least personally responsible for student motivation, followed by achievement, and then equally responsible for their own teaching and relationships with their students. According to paired samples t -tests, all comparisons were significantly different ($p < .001$) except for the comparison between responsibility for teaching and relationships, which was non-significant, $t(89) = -0.16, p = .87$. Next we examine the extent to which each domain of responsibility predicted appropriate instructional practices.

Regression Analyses²

Predicting intended instructional practices at the start of the semester. Although several zero order correlations were significant between Time 1 responsibilities and instructional practices, none emerged in the regression analyses (Table 3). Thus, although separately responsibility for achievement, motivation, and teaching each positively and significantly

correlate with mastery goal-oriented practices, no particular responsibility was predictive after controlling for the others. These non-significant regression results may suggest that at the outset of the semester pre-service teachers did not systematically link their personal responsibilities to any type of specific instructional practice.

Predicting intended instructional practices at the end of the semester. For mastery goal-oriented practices initially stream was a statistically significant positive predictor such that pre-service teachers enrolled in the secondary stream were more likely to endorse mastery (Table 4). This finding conflicted with the existing literature (Daniels et al., 2013) and was no longer statistically significant with the inclusion of responsibilities. As we hypothesized, a positive concordant relationship emerged between responsibility for relationships and mastery goal-oriented practices even after controlling for initial endorsement of mastery. However, responsibility for achievement negatively predicted intended mastery goal-oriented practices ($\beta = -.29, p < .05$). This relationship is contrary to evidence-based recommendations and rather aligns with evidence on pre-service teachers' beliefs or preferences. It is also in conflict with the non-significant Time 2 zero-order correlation between responsibility for achievement and mastery goal-oriented practices ($r = .09$) perhaps indicating a potential suppression effect (Tzelgov & Henik, 1991). To test this possibility we systematically removed each of the other predictors from the model. In this process, we discovered that while responsibility for achievement had no statistically significant zero-order correlation with mastery goal-oriented practices, it predicted lower mastery goal-oriented practices once taking responsibility for relationships, in particular, into account. In other words, responsibility for relationships suppressed or reduced the part of responsibility for achievement that was uncorrelated with mastery practices leading to a significant effect. This suppression is likely a byproduct of the fact that responsibility for

achievement and relationships are positively correlated ($r = .46$) and responsibility for relationships is positively correlated with mastery practices ($r = .24$). Finally, contrary to our hypotheses, responsibility for motivation and teaching were both non-significant predictors despite having significant zero-order correlations. In total, the model explained 36% of the variance, $F(8,68) = 6.38, p < .001$.

For performance goal-oriented practices age emerged as a statistically significant predictor at Step 3. This finding suggests that older pre-service teachers were more inclined to endorse these practices than younger pre-service teachers, perhaps reflecting the type of schooling they themselves experienced as students (Beghetto, 2007; Nolen & Nichols, 1994). As hypothesized and in line with the zero-order correlations, responsibility for motivation negatively predicted performance goal-oriented practices after controlling for Time 1 endorsement of performance goal-oriented practices thus revealing a concordant relationship. Contrary to our hypotheses, however, responsibility for student achievement was a non-significant predictor. In total the model explained 24% of the variance in performance practices, $F(8,67) = 4.03, p < .01$.

In terms of rationales one of our four theory-based hypotheses was supported. Specifically, responsibility for one's own teaching positively predicted the use of rationales above and beyond the effects of an initial preference for using rationales. Aligning with evidence on teachers' preferences and contrary to suggested best practices, responsibility for achievement was a statistically significant negative predictor of their intention to use rationales. This effect may also imply a possible suppression effect because the Time 2 zero-order correlation was non-significant (Tzelgov & Henik, 1991). Again, to identify the suppressor we systematically removed each of the other predictors from the model. In this process, we discovered that while responsibility for achievement had no statistically significant zero-order

correlation with the use of rationales, it predicted lower use of rationales once taking responsibility for teaching, in particular, into account. In this case, responsibility for teaching suppressed the uncorrelated part of responsibility for achievement with the use of rationales, again increasing its predictive power. This suppression likely occurs because responsibility for achievement and teaching are positively correlated ($r = .55$) and responsibility for teaching is positively correlated with use of rationales ($r = .34$). Neither responsibility for motivation nor relationships were significantly related to intended use of rationales. In total the model explained 20% of the variance, $F(8,68) = 3.34, p < .01$.

Finally, one of our four hypotheses regarding extrinsic rewards was supported. As expected, pre-service teachers who reported low responsibility for their teaching were more likely to intend to use extrinsic rewards. In addition to a statistically significant effect for Time 1 intentions to use extrinsic rewards, this effect accounted for 25% of the variance, $F(8,65) = 4.04, p < .01$.

Discussion and Implications

At best our results suggest moderate concordance between pre-service teachers' responsibilities and their intended instructional practices at the end of an academic semester in which they completed an elective adolescent development course. With this in mind, we elaborate on four specific findings. First, it seems that over the course of one semester, pre-service teachers come to better align their intended instructional practices with their responsibilities than they did at the start of the semester. Second, the practices chosen by pre-service teachers to meet their responsibility for relationships and their own teaching represent the largest agreement with the empirical literature, or can be considered the most concordant. Third, in terms of both responsibility for motivation and achievement, our results provide a better

picture of what pre-service teachers do *not* intend to do than what they do intend to do.

Moreover the intended instructional practices in these domains are more closely aligned with the literature on preferences or beliefs than evidence-based recommendations. Fourth, we discuss implications associated with the finding that pre-service teachers feel less responsible for student motivation and achievement than for relationships and their own teaching.

Concordance over Time

We conducted our analyses twice, once examining relationships between personal responsibilities and intended practices at the start of the semester and then again at the end of the semester, controlling for initial intentions. The original regression analyses showed no statistically significant associations between responsibilities and intended practices, even though some existed in the zero-order correlations. Perhaps the inability for the instructional practices to emerge as statistically significant in the regressions shows that at Time 1 the pre-service teachers had difficulties distinguishing between the different practices, something that they resolved over the course of the semester allowing statistically significant regression relationships to emerge at Time 2. Although there is little empirical support for this premise in the current study, research in other professions such as medicine and law (e.g., Eva, 2004; Mitchell, 1989) have documented a shift in decision making as novices gain experience and this may be the case here. In teacher education, however, this remains an empirical question that could be answered by future research carefully designed to target pre-service teachers throughout their degree program. One way to do this is to examine pre-service teachers' perspectives at the outset of their education, then at various points throughout as they take method classes that explicitly teach instructional practices, and after they complete practicum placements thereby gaining real classroom experiences. One additional consideration would be the extent to which course work

and practicum placements endorse instructional practices that either align or conflict with evidence-based recommendations. To date the extent to which this is the case remains in question (Darling-Hammond & Bransford, 2000; MacDonald, 1993; MacKinnon, 1989).

Responsibility for Relationships and Teaching: Some Evidence of Concordance

This sample of pre-service teachers felt most responsible for relationships with their students and for the quality of their own teaching. Encouragingly, they also selected instructional practices that aligned with meeting these goals according to empirical evidence. Specifically, pre-service teachers who wanted good relationships with their students were inclined towards mastery goal-oriented practices. This replicates earlier research (Lauermann & Karabenick, 2011b) and adds to a growing body of research linking mastery goal-oriented practices with student-teacher relationships (Butler, 2012; Kaufman & Dodge, 2009; Rolland, 2012). As for responsibility for their own teaching, participants chose two practices recommended by the literature: they intended to use rationales (Roth et al., 2007) and intended to avoid the use of rewards (Kohn, 1993), replicating the work by Berger and colleagues (2013). This finding is particularly interesting because some research suggests that teachers who use traditional instructional practices like rewards may be rated by observers as more competent than those who use alternative instructional practices (Flink, Boggiano, & Barrett, 1990). It seems here that these pre-service teachers, regardless of their amount of training or the level of schooling they intend to teach, already recognize what these raters may not: rewards are not necessarily a signal of a highly competent teacher and have effects that are often temporary (Reeve, 2009). Thus, although this sample did not endorse every instructional practice that could help them fulfill their responsibilities for relationships and their own teaching, positive

relationships did emerge suggesting they have some idea what type of practices may be beneficial in these domains of responsibility.

Responsibility for Motivation and Achievement: Practices to Avoid

The empirical literature repeatedly suggests that student motivation is enhanced by mastery goal-oriented practices and rationales and hurt by performance goal-oriented practices and extrinsic rewards (Meece et al., 2006; Reeve, 2009). Our results suggest that pre-service teachers who feel responsible for motivation know to avoid performance goal-oriented practices but are uncertain on other practices. Thus, although our findings are conservatively more optimistic than those of Lauermaun and Karabenick (2011b) by showing that pre-service teachers are not choosing an inappropriate practice, they fail to document which practices pre-service teachers actually intend to pursue when they feel responsible for student motivation. In short, we did not find alignment between responsibility for student motivation and instructional practices that have been proven successful in this area, although we did document that pre-service teachers are aware of one practice that may be maladaptive for motivation. One possibility is that pre-service teachers are better able to rule out a practice than deciding what practice to endorse. Perhaps “ruling out” is a first step in these types of complex instructional decisions for pre-service teachers. Although this specific trend is not formalized in any theory of teachers’ decision-making, theories have indeed shown differences between novice and expert teachers (e.g., Westerman, 1991) and this may be another such example. We would recommend that teacher education programs focus on explicitly linking instructional practices considered empirically as “best practice” to student motivation because this is a complicated responsibility and one that when met can have far reaching positive effects on relationships and achievement.

A less optimistic picture is painted for pre-service teachers' responsibility for student achievement, which appears to be dominated by preferences or beliefs that run counter to empirical evidence. Responsibility for achievement negatively predicted both mastery goal-oriented practices and the use of rationales. This series of relationships suggests that pre-service teachers chose their practices (or at least chose which practices to avoid) based on their student experiences and preferences rather than empirical evidence (Deci et al., 1982; Jang, 2008; Rolland, 2012). One explanation for this preference is that the research often focuses on instructional practices as distal predictors of achievement with effects through various mediators like engagement (Jang, Kim, & Reeve, 2012) or cognitions (Urduan, 2004). Thus, the negative predictive relationships between responsibility for achievement and appropriate instructional practices may reflect pre-service teachers' misunderstanding of the existing literature – a misunderstanding that teacher education can strive to remedy. Alternatively, the results may suggest that pre-service teachers cannot yet appreciate the long-term gains associated with these two instructional practices, which at the outset may be very labor intensive to implement. Future research needs to pay close attention to what mechanisms help pre-service teachers make connections, be they beneficial or misinformed. Overall our current results shed little light on what pre-service teachers actually intend to do to positively impact student achievement even in an era of high accountability making this an important area for future instruction and future research.

Levels of Responsibility

Examining the means revealed that these pre-service teachers felt a relatively low level of personal responsibility for student achievement compared to relationships and their own teaching. One possible explanation for the low level of responsibility for achievement is that although

teachers currently exist in a system that renders them accountable for student achievement, accountability may not translate into a strong personal responsibility (Lauermann & Karabenick, 2011a). A second explanation for the different levels of endorsement is that pre-service teachers feel most responsible for outcomes that seem most controllable and immediate. Research shows people pursue teaching to help students (i.e., relationships; Beck & Kosnik, 2002). Moreover, as pre-service teachers, they are currently learning to be “good” teachers (i.e., becoming responsible for their teaching). Because these two responsibilities may be most salient to pre-service teachers it may make sense that they are also associated with relatively concordant instructional practices.

Finally, it is also noteworthy that pre-service teachers felt least responsible for motivation, a finding that has emerged consistently in the brief history of this construct (Berger et al., 2013; Lauermann & Karabenick, 2013; 2011b). Several possible explanations come to mind to explain this, including a belief that motivation is an innate quality that cannot be influenced (Dweck, 1999) or that pre-service teachers’ expect that their students will be motivated (Shalter-Bruening, 2010). Pre-service teachers may be interested to know that sustaining student motivation may be one way to enhance relationships with students and be a “good” teacher (Niemic & Ryan, 2009) because students’ motivation to learn “represent[s] perhaps the greatest resource educators can tap” (Niemic & Ryan, 2009, p. 134). We would encourage teacher education to focus on helping pre-service teachers’ understand the nuances of student motivation and how cultivating adaptive motivation can help bring about good relationships and high achievement. To do this, pre-service teachers need to understand that motivation can be impacted by the instructional practices that they choose.

Limitations and Directions for Future Research

Our results need to be interpreted in light of the following three limitations. First, this was a sample of pre-service teachers who may differ than practicing teachers in terms of their beliefs (e.g. Buehl & Fives, 2009; Hebert, Lee & Williamson, 1998). Although slightly more than half of the sample had some practicum experience, it is possible that they have a relatively naive understanding of their responsibilities and instructional practices. Because responsibilities were only assessed at Time 1, we were unable to determine if they changed over the course of the semester and if such a change would influence the change in relationships with instructional practices we found. To bring some empirical evidence to bear on this point, we conducted independent samples *t*-tests between participants who had no practicum experience (i.e., less “time” as a pre-service teacher) and those who had practicum experience (i.e., more “time” as a pre-service teacher) on the responsibilities. We found no differences on any of the Time 1 responsibility measures even though these pre-service teachers brought different experiences and amount of “time” to bear on their responses. Paired with the fact that Lauermann and Karabenick (2011b; 2013) found no differences between their samples of pre-service and practicing teachers in regards to responsibilities, we feel that changes in personal responsibility were unlikely to influence our current results. Regardless, more research is needed to directly compare pre-service and practicing teachers and the development of their personal responsibility.

Second, our sample was relatively small and we could not use structural equation modeling to examine the effect of responsibilities on all four dependent variables simultaneously as would have been ideal. Increasing our confidence in the results from the regression analyses, a path model fit the data well and revealed no differences from the results generated by the separate regressions. It is also possible that the small sample size may have contributed to other

inconsistent results such as when comparing the correlations to the regressions or within correlations between the two time administrations.

Third, many of the predictive relationships we found in this short-term longitudinal data set were negative and thus an indication of what pre-service teachers believe they should *not* do. Future research needs to examine what pre-service teachers intend to do, particularly to sustain student achievement and motivation. We would recommend qualitative studies to work through their decision-making processes as well as collecting information from pre-service teachers at a variety of places in their training and from practicing teachers as well. In addition, self-report data on practices should be further augmented with observational data noting what pre-service teachers actually do during a practicum placement and how those activities relate to fulfilling their responsibilities. In a related vein, future research may want to explore why pre-service teachers have particularly low levels of responsibility for motivation when cultivating adaptive motivation can bring about positive outcomes for all other areas of responsibility. Indeed, our results reinforce the need to highlight links between motivation and instructional practices during the education of pre-service teachers because student motivation can be impacted by instruction.

Our evidence highlights that assuming personal responsibility for a desired outcome does not always lead to endorsing the evidence-based instructional practices that have been shown to accomplish the outcome. In fact, it seems these pre-service teachers were better able to articulate what they should not do than what they should do to be successful in meeting some responsibilities. Thus, although there was some evidence that pre-service teachers begin to link their responsibilities with evidence-based instructional practices over the course of the semester, we suggest that teacher education should focus on helping pre-service teachers assume responsibility for a given outcome and then on helping them understand the most efficient ways

to fulfill that particular responsibility. Future research needs to examine the best way for researchers and teacher educators to assist pre-service teachers in making these links and early in their training so that responsibilities and practices can be refined together.

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Appendix

	Time 1			Time 2		
	M	SD	Range	M	SD	Range
Items measuring rationales						
Focusing on meaningful aspects of learning activities	3.60	.51	2-4	3.66	.47	3-4
Offering rationales that provide information about the importance and utility of the work	3.41	.54	2-4	3.54	.59	2-4
Items measuring extrinsic rewards						
Providing incentives (e.g., tangible rewards, free time, etc.)	2.86	.85	1-4	2.88	.83	1-4
Using competitive games (e.g., “Jeopardy”)	2.92	.72	1-4	2.72	.75	1-4
Praising students for following directions	3.09	.82	1-4	3.08	.79	1-4
Sharing individual performance with the whole class	2.03	1.00	1-4	1.76	.84	1-4

Footnote

¹ For interested readers, when added to the regression models, practicum was a non-significant predictor and had no effect on any of the regression results.

² We conducted regression analyses because our sample was relatively small and we did not have sufficient power to conduct a structural equation model with latent variables in order to model both the influence of individual items and the effect of responsibilities on all four dependent variables simultaneously. However, for interested readers, we conducted a path analysis including all four Time 1 measures of responsibility, predicting all four Time 2 measures of intended practices, with each Time 1 measure of intended practices predicting its Time 2 counterpart. The path analysis did not account for age, stream, or section in order to keep the model simple and because their effects were minimal in the regression analyses. The model fit the data well $\chi^2 = 17.88 (12), p = .12, CFI = .975, RMSEA = .071$.

Table 1

Descriptive Statistics for All Study Variables

	Time 1					Time 2					
	# items	Range	Scale <i>M</i>	<i>SD</i>	Alpha	Scale <i>M</i> / N items	Range	Scale <i>M</i>	<i>SD</i>	Alpha	Scale <i>M</i> / N items
Resp for achievement	4	8-28	19.33	3.46	$\alpha = .79$	4.83	--	--	--	--	--
Resp for motivation	4	4-28	15.36	4.78	$\alpha = .85$	3.84	--	--	--	--	--
Resp for relationships	3	8-21	18.23	2.61	$\alpha = .72$	6.08	--	--	--	--	--
Resp for teaching	3	10-21	18.28	2.53	$\alpha = .75$	6.09	--	--	--	--	--
Mastery practices	4	11-20	16.23	2.38	$\alpha = .61$	4.06	9-20	16.34	2.59	$\alpha = .72$	4.09
Performance practices	5	5-20	10.43	3.19	$\alpha = .75$	2.09	5-21	10.23	2.38	$\alpha = .75$	2.05
Rationales	2	5-8	7.01	.91	$\alpha = .65$	3.51	5-8	7.20	.95	$\alpha = .72$	3.60
Extrinsic rewards	4	6-16	10.88	2.16	$\alpha = .51$	2.72	6-15	10.44	1.99	$\alpha = .47$	2.61

Table 2

Zero-Order Correlations for all Study Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Age														
2. Stream ^a	-.20													
3. Section	.10	.02												
4. Mastery practices T1	.17	.15	.11											
5. Performance practices T1	.04	-.06	.11	-.01										
6. Rationale T1	.08	-.12	.04	.26*	.03									
7. Extrinsic T1	-.05	-.01	.11	.10	.29**	.15								
8. Resp for achievement T1	-.20	.10	.33**	.25*	-.05	.21	.02							
9. Resp for motivation T1	.15	.18	.16	.25*	.07	.28**	-.03	.60**						
10. Resp for relationships T1	.06	.02	.24*	.07	-.09	.20	.21*	.46**	.41**					
11. Resp for teaching T1	.11	.09	.23*	.23*	-.14	.23*	-.05	.55**	.49**	.50**				
12. Mastery practices T2	.09	.24*	.11	.56**	-.03	.12	.24*	.09	.23*	.24*	.22			
13. Performance practices T2	.14	-.08	-.06	.07	.40**	-.01	.36**	-.14	-.24*	-.09	-.22	.15		
14. Rationale T2	.00	-.06	.08	.23*	-.17	.36**	-.05	-.00	.14	.05	.34**	.25*	-.20	
15. Extrinsic T2	.05	.11	.04	.12	.01	.05	.42**	.02	.02	-.07	-.27*	.26*	.42**	-.03

* $p < .05$, ** $p < .01$ Note ^a 1=elementary, 2=secondary

Table 3

Standardized Beta Weights from Regression Analyses Predicting Instructional Strategies at Time 1

Predictor Variables	Mastery T1		Performance T1		Rationales T1		Extrinsic T1	
	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2
Age	.21	.19	.03	.002	.05	-.01	-.06	-.05
Stream ^a	.20	.15	-.05	-.07	-.11	-.18	-.02	.01
Section	.09	.03	.10	.17	.03	-.05	.11	.10
Resp for achievement T1		.17		-.10		.01		-.01
Resp for motivation T1		.08		.25		.24		-.07
Resp for relationships T1		-.12		-.09		.07		.32*
Resp for teaching T1		.12		-.20		.10		-.19
Adjusted R^2	.04	.07	.02	.08	-.01	.05	-.01	.01

* $p < .05$, ** $p < .01$ Note ^a 1=elementary, 2=secondary

Table 4

Standardized Beta Weights from Regression Analyses Predicting Instructional Strategies at Time 2

Predictor Variable	Mastery Goal Structure T2			Performance Goal Structure T2			Rationale T2			Extrinsic Rewards T2		
	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
Age	.19	.09	.04	.20	.16	.25*	-.02	-.04	-.10	.12	.127	.14
Stream ^a	.35**	.21**	.19	-.06	-.04	.05	-.01	.00	-.04	.15	.116	.11
Section	.11	.06	.05	-.09	-.14	-.14	.06	.05	.08	.01	-.05	-.01
Instructional Strategy T1		.49***	.54***		.40***	.44***		.36**	.31**		.42***	.43***
Resp for achievement T1			-.29*			.16			-.33*			.19
Resp for motivation T1			.05			-.41**			.07			.15
Resp for relationships T1			.26*			.14			-.13			-.14
Resp for teaching T1			.05			-.13			.48**			-.39**
Adjusted R^2	.10	.32	.36	.01	.16	.24	-.04	.08	.20	-.01	.16	.25

* $p < .05$, ** $p < .01$, *** $p < .001$ Note ^a 1=elementary, 2=secondary