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Relations among Teachers' Implicit Theories of Intelligence, Standardized Achievement Testing, and Classroom Goals

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RELATIONS AMONG TEACHERS' IMPLICIT THEORIES OF INTELLIGENCE, STANDARDIZED ACHIEVEMENT TESTING, AND CLASSROOM GOALS

by

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ABSTRACT

Relations Among Teachers' Implicit Theories Of Intelligence, Standardized Achievement Testing, and Classroom Goals

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An achievement gap between ethnic minorities and White Americans continues to exist within the U.S., as well as between the U.S. and varying countries. Research has identified several factors that contribute to this gap, such as differences in curricula across countries, teacher quality, and school funding. In addition to these factors, teachers' implicit theories of intelligence may also contribute to the achievement gap. Whether teachers view intelligence as fixed (entity theory) or malleable (incremental theory) can impact instructional practices, specifically the use of performance and learning goals. Performance goals focus on evaluation, ability, and performance rather than mastery of material, growth, and overall learning as seen in learning goals. Research is limited regarding the development of implicit theories of intelligence; however, there is evidence culture may be involved. Identifying specific cultural practices that influence the development of implicit theories of intelligence may provide a unique perspective on

pedagogy and how teachers interact with students. One cultural practice that may be related to the development of implicit theories of intelligence is standardized achievement testing. The current study used survey methodology to evaluate the relation between implicit theories of intelligence, perceived pressure from standardized achievement testing, and classroom goal structures and the differences between these variables amongst full-time teachers ($N = 45$). Results indicated significant differences in perceived pressure from standardized achievement testing amongst teachers with classrooms containing lower percentages of reading and math proficient students as well as significant differences in classroom goal structures amongst teachers with classrooms containing fewer ethnic minority and ELL students. Implications of these findings and areas of future research are discussed.

(60 Pages)

PUBLIC ABSTRACT

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Sydnie W. Ringle

An achievement gap between ethnic minorities and White Americans continues to exist within the U.S., as well as between the U.S. and varying countries. Research has identified several factors that contribute to this gap, such as differences in curriculum, teacher quality, and school funding. In addition to these factors, how teachers view intelligence may also contribute to the achievement gap. Whether teachers view intelligence as fixed (limited by inherit ability; entity theory) or malleable (changing over time; incremental theory) can impact teaching strategies in the classroom, specifically the use of performance and learning goals. Performance goals focus on evaluating students based on their current ability level, whereas learning goals focus on the learning process of new material and the growth that students experience. Research is limited in how teachers develop beliefs about intelligence; however, there is evidence culture may be involved. Identifying specific cultural practices that influence the development of teacher beliefs about intelligence may provide a unique perspective on teaching and the student/teacher relationship. One cultural practice that may be related to the development of teacher beliefs about intelligence is standardized achievement testing. The current study used survey methodology to evaluate the relation between teachers' beliefs about

intelligence, their perceived pressure from standardized achievement testing, and classroom goal structures and the differences between these variables amongst full-time teachers ($N = 45$). Results indicated significant differences in perceived pressure from standardized achievement testing amongst teachers with classrooms containing limited students who were reading on grade level and performing math on grade level. Results also showed significant differences in classroom goal structures amongst teachers with classrooms containing fewer ethnic minority and ELL students. Implications of these findings and areas of future research are discussed.

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CONTENTS

Page

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION

In the U.S., an achievement gap exists between students in the same classroom, receiving the same curricula, and taught by the same teachers (Hall Mark 2013). This gap persists due to the socioeconomic status of the school, teacher effectiveness, and the demographics of the classroom (e.g., racially diverse students, students with disabilities; Hall Mark, 2013). In addition to variations in curricula, school resources, and teacher quality, implicit theories of intelligence may contribute to the achievement gap. Theories of intelligence impact a person's reactions and judgments in different contexts and affects whether helplessness or mastery skills are learned (Dweck, Chiu, & Hong, 1995). Implicit theories of intelligence include entity theory and incremental theory (Dweck et al., 1995).

Entity theory states that intelligence is fixed, uncontrollable, and unable to grow over time. According to this theory, an individual eventually reaches his/her maximum threshold of inherent intelligence and shows no further progress (Blackwell, Trzesniewski, & Dweck, 2007; Rattan, Naidu, Savani, & Dweck, 2012b). Students adhering to an entity theory of intelligence experience deterioration in academic performance and disengagement, while students with an incremental theory of intelligence experience increased academic success (Blackwell et al., 2007; Mangels, Butterfield, Lamb, Good, & Dweck, 2006; Spinath & Steinmeier-Pelster, 2001). For example, a student holding an entity theory is more likely to develop helpless attributes in the face of task difficulty, leading to an increase in negative self-concept, resulting in

performance decline (Spinath & Steinmeier-Pelster, 2001). On the other hand, incremental theory states that intelligence is malleable and, through effort, can increase over time despite the inherent ability of the individual (Blackwell et al., 2007; Rattan et al., 2012b).

Similarly, how teachers praise intelligence (entity theory) or effort (incremental theory) and how these behaviors align with their pedagogical practices (e.g., performance vs. learning goals) can have negative effects on students (Dweck, 1999; Dweck et al., 1995; Mueller & Dweck, 1998; Rattan et al., 2012b). Teacher expectations of students can impact student achievement and test scores (Becker & Luthar, 2002; Rosenthal & Jacobson, 1968; Sorhagen, 2013). Rosenthal and Jacobson found that students from whom teachers expected greater academic achievement displayed greater increases in achievement than children who were not expected to show academic growth (i.e., self-fulfilling prophecy).

Research suggests teachers' implicit theories of intelligence impact instructional practices, but it is still unclear which factors contribute to the *development* of implicit theories of intelligence. Rattan et al. (2012b) found that culture is a driving force in the development of implicit theories of intelligence. Culture, as defined by Ingraham (2000, p. 325) is ''an organized set of thoughts, beliefs, and norms for interaction and communication, all of which may influence cognitions, behaviors, and perceptions.'' Rattan et al. found evidence for contrasting theories of intelligence among western (i.e., the U.S.) and nonwestern countries (i.e., India). Individuals in both countries held both entity and incremental beliefs of intelligence; however, U.S. participants primarily

adhered to entity theory, while the majority of participants from India adhered to incremental theory. Even within western cultures (i.e., Germany) differences exist in implicit theories of intelligence among high school students (Spinath & Stienmeier-Pelster, 2001).

Though specific components of culture have not been identified as contributors to implicit theories of intelligence, one possible cultural practice of the U.S. that may be related to theories of intelligence is standardized achievement testing in schools. In recent years, the federal government has placed a strong focus on education reform, which includes an expectation for elementary and secondary schools to meet high, nationally competitive standards in core academic subjects (Becker & Luthar, 2002). Because of this, there is pressure on administrators and teachers to teach in a way that will help meet state and national norms (Sternberg, 1999). This cultural practice may contribute to how teachers view intelligence and teaching behaviors.

As norm-referenced standardized achievement testing becomes more prevalent across countries, it continues to influence school systems, educational funding, and job security. In the U.S., standardized achievement testing affects school and district funding, school closures, and teacher and administrator positions. The expectation for students to perform may impact teacher implicit theories of intelligence and teaching practices in the classroom. The cultural aspect of standardized achievement testing across the US may provide insight into how teachers' view intelligence and how such beliefs influence their pedagogical practices. An underlying hypothesis exists in the literature in that there is a relationship between theories of intelligence, classroom practices, and standardized

achievement testing (see Figure 1).

Few, if any, studies to date, investigate cultural and other demographic differences in teachers' implicit theories of intelligence and how they impact teacher practices. In addition, there is limited research about which cultural variables are related to implicit theories of intelligence. This study aimed to answer the following research questions.

1. Are there significant differences in (a) theories of intelligence, (b) pressure from standardized testing, and (c) classroom goals between teachers with different characteristics (i.e., class size, classroom percentages of students receiving free or reduced lunch, classroom percentages of students who are reading proficient, classroom percentages of students who are math proficient, geographic region of the school, grade level teachers currently teach, classroom percentages of ethnic minority students, and classroom percentages of English language learners (ELL) students)?

2. Do teachers' implicit theories of intelligence and perceived pressure from standardized testing have unique contributions to classroom goal structures?

3. Does the pressure from standardized testing relate to teachers' implicit theories of intelligence?

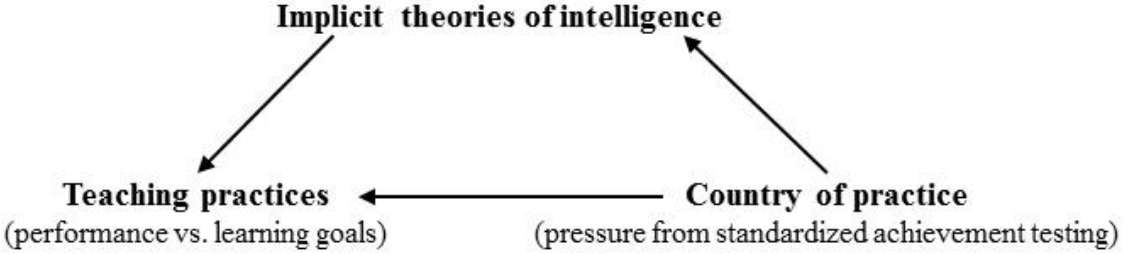

Figure 1. Relationship between intelligence, pressure, and goals. This figure illustrates the proposed relationship between implicit theories of intelligence, standardized achievement testing, and performance vs. learning goals.

CHAPTER II

REVIEW OF LITERATURE

In the following section, literature will be discussed regarding Dweck's (1999) implicit theories of intelligence as a construct that differs across cultures. The reviewed literature will also look at classroom goal orientations (i.e., performance vs. learning) and the relation between implicit theories of intelligence and goals. Defining implicit theories as a culturally diverse construct (Rattan et al., 2012b), this study identified the perceived pressure from standardized achievement testing as an independent cultural practice that may influence implicit theories of intelligence and classroom goal orientations.

Implicit Theories of Intelligence as a Cultural Construct

Rattan et al. (2012b) found evidence of significant cultural variation in implicit theories of intelligence. Out of 50 American college students in Northern California, 58% adhered to an entity theory of intelligence, whereas out of 50 Indian college students in Bangalore, India, 70% favored an incremental theory of intelligence (Rattan et al., 2012b). Similar evidence for cultural differences in implicit theories of intelligence was found amongst North American and Japanese university students (Heine et al., 2001). Heine et al. found that North American students focused on the futility of effort, demonstrating a reluctance to persist on failed tasks, whereas Japanese students were more likely to persist after failed tasks, indicating a focus on the utility of effort. These behavior patterns were consistent with the definition of implicit theories of intelligence, with entity theorists focusing on the futility of effort and fixed ability (i.e., the North

American students) and incremental theorists embracing the utility of effort and the possibility for development and improvement (i.e., Japanese students; Blackwell et al., 2007). Stevenson and Stigler (1994) found that American teachers and parents focus more on inherent ability (entity theory) as the primary determinant of academic outcomes more often than East Asian educators and parents. The previous studies show support for cultural differences in implicit theories of intelligence.

Teachers' implicit theories of intelligence influence how teachers praise students, console ability levels (e.g., comfort students on low scores or lack of ability), and engage in subtle communications that reflect teacher expectations (Dweck, 1999; Mueller & Dweck, 1998; Rattan et al., 2012b). Teachers who adhere to an entity theory tend to determine student ability based on a single test score and attribute that score to inherent ability (Rattan, Good, & Dweck, 2012a). They are more likely to engage in comfort-oriented pedagogical tactics and strategies (e.g., comforting failure or low ability) that reduce the achievement and academic engagement of the student. Entity teachers also communicate significantly lowered expectations for the students' future performance based on one low test score (Butler, 2000; Rattan et al., 2012a). Students who receive comfort-oriented teaching practices such as consoling for poor scores feel less encouraged and motivated because of the teachers perceived lowered expectations (Rattan et al., 2012a).

Teachers with an incremental theory of intelligence evaluate students based on progress and learning goals rather than concrete scores, attributing successes and accomplishments to effort and hard work (Dweck, 1999). These teachers are more likely

to establish motivational climates in the classroom, encourage student autonomy, and believe they are a crucial contribution to the academic success of their students (Leroy, Bressoux, Sarazin, & Trouilloud, 2007).

Theories of intelligence may also be related to classroom goals, specifically performance and learning goals. Performance and learning goals are developed based on individual beliefs and behaviors (Shim, Cho, & Cassady, 2013). Dweck et al. (Bandura & Dweck, 1985; Dweck & Leggett, 1988) operationalize performance goals as providing "opportunities to gain positive judgments of intellectual ability and avoid negative judgments" (Dweck et al., 1995, p. 274). In other words, these opportunities foster performance over growth and focus on evaluation and ability. This focus is primarily in the context of peer comparison. Performance goals center on ability during failed tasks rather than potential growth when faced with failure (Dweck, 1999; Shim et al., 2013). In essence, students with performance goals measure themselves based on performance and ability which negatively impact self-esteem and self-concept as they develop helpless attributes and coping strategies when faced with setbacks and failure (Dweck, 1999; Dweck et al., 1995). Teachers who foster performance goals promote a learning environment void of intrinsic motivation and self-determination (Dweck, 1999; Leroy et al., 2007). Students who develop performance goals are more likely to develop helpless attributes, blame failures on low ability, and display negative affect (Dweck, 1999; Elliot, 1988).

In comparison, incremental theorists foster learning goals in a classroom and emphasize progress, mastery on tasks, and stimulate a motivational centered climate in

the classroom (Dweck, 1999; Leroy et al., 2007). Learning goals in a classroom can instill such goals in students who are then more likely to focus on increasing their learning and mastery of new concepts despite possible failure (Elliot, 1988). Learning goals provide "opportunities to increase ability, but at the risk of exposing ignorance and drawing negative judgments from intellectual competence" (Dweck et al., 1995, p. 274). In simpler terms, learning goals focus on progress and eventual mastery even when failure may be experienced (Dweck, 1999). Progress and mastery are evaluated at an individual level with no cross peer comparison (Shim et al., 2013). Research has shown that students with learning goals seek mastery and growth opportunities with new tasks and exert more effort in achievement when faced with failure (Dweck, 1999). When students are more engaged in the learning process of tasks, failure is more likely to motivate continued effort (Dweck, 1999). This emphasis of continued effort and emphasis on progress and mastery aligns itself with the incremental theory of intelligence.

The research on implicit theories of intelligence as a mediating factor for performance vs. learning goals is inconsistent. Dweck (1999) proposed that an individual's implicit theory of intelligence (i.e., entity vs. incremental) acts as a precursor of achievement goals. In other words, an individual endorsing an entity theory of intelligence is more likely to adopt a performance goal orientation, whereas one who holds an incremental theory of intelligence is more likely to pursue a learning goal orientation (Blackwell et al., 2007). According to Dweck and Leggett's (1988) theoretical model of entailment, an individual's implicit theory of intelligence has a casual

entailment with an individual's goal orientation (see Figure 2).

Empirical support for this model is limited and contradictory at times. Braten and Stromso (2004) did not find support for this relationship among Norwegian college students. Eighty first-year students participated in the study and were asked to complete a questionnaire comprised of the Schommer Epistemological Questionnaire (SEQ), a Norwegian version of Dweck's (1999) Theories of Intelligence Scale, and an adaptation of Midgley et al.' (1998) personal goal orientation scales (Braten & Stromso, 2004). All measures were given during the fall term of the students' first year and the goal orientation measure was given again during the fall term of second year (Braten & Stromso, 2004).

However, Roedel and Schraw (1995) found support for implicit theories of intelligence as a mediating factor for performance goals in a sample of college students. Roedel and Schraw (1995) had 157 undergraduate participants complete five booklets. The first booklet measured beliefs about the transfer of knowledge or controllability of knowledge, the second booklet measured learning and performance goal orientations, the third booklet included probability math problems, and the final two booklets were easier and more difficult versions of the booklet of math problems. Participants were asked to complete the first three booklets and given the choice between the final two booklets (the

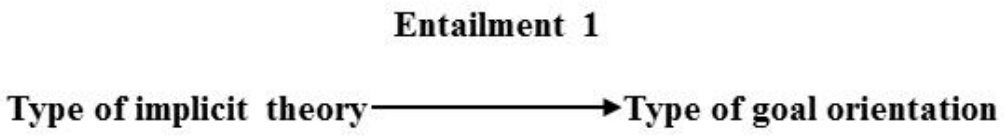

Figure 2. Model of entailment. Causal entailments implied by Dweck and Leggett (1988). This figure illustrates the proposed relation between implicit theories of intelligence and goal orientation

easier or more difficult booklet). Roedel and Schraw reported that scores on the controllability of knowledge measure correlated with the performance scale (r = .21, p =.01 and r =.17, p =.03). The correlation between these items is in agreement with Dweck and Legett's (1988) model of entailment and that beliefs in a fixed ability are correlated with performance goal orientation (Roedell & Schraw, 1995).

Dupeyrat and Marine (2005) also found support for this model but only among implicit theories of intelligence and learning goals in a sample of French adults who had returned to school (N = 76). Participants were given a 121-item questionnaire measuring student motivation and academic engagement (Dupeyrat & Marine, 2005). The measure was adapted and translated from existing measures including Dweck et al.' (1995) implicit theories of intelligence scale and adaptations of various goal orientation scales (Dupeyrat & Marine, 2005). Additional items were added to the implicit theory of intelligence scale that specifically measured incremental beliefs, measuring beliefs on two distinct factors (i.e., entity and incremental) rather than on a continuum (Dupeyrat & Marine, 2005). Results from the study reported there was a positive correlation between learning goals and the incremental theory of intelligence (r = .27, p < .05) and negatively correlated with learning goals and the entity theory of intelligence (r = -.31, p < .01; Dupeyrat & Marine, 2005). Though these findings are incompatible, the inconsistency of the results may in part be due to small sample sizes.

The previous studies looked at the relationships between implicit theories of intelligence and goal orientation among college students. Only one study was found examining the theoretical model of entailment with teachers and found nonsignificant

relationships between implicit theories of intelligence and learning goal orientation (r = .13, p < .07) and between implicit theories of intelligence and performance goal orientation (r = .05, *ns*) in a classroom setting (Shim et al., 2013). Two hundred nine primary and secondary school teachers participated in this study and were asked to complete an online questionnaire lasting approximately 20 minutes. All measures were on a 7-point Likert-type scale measuring implicit theories of intelligence, classroom goal structures, and achievement goals for teaching (Shim et al., 2013).

Standardized Achievement Testing Across the U.S.

Standardized achievement testing in the U.S. has existed for approximately one century. The original purpose of standardized achievement testing was to inform decisions regarding instruction by assessing student achievement and aptitudes as well as making predictions about the future success of students (Nichols & Berliner, 2007). Standardized achievement testing began as a low-stakes testing strategy to inform instruction and provide additional information about student learning. Beginning in 1965, standardized achievement testing began to expand as policies were implemented to aid the American educational system and close the international achievement gap (Nichols & Berliner, 2007). As an increase in educational policies continued throughout US history, standardized achievement testing became increasingly tied to consequences that impacted schools, teachers, and students (Nichols & Berliner, 2007). These unforeseen consequences of standardized achievement testing continued as testing became concentrated on closing the achievement gap existing within the U.S.

In 2001, the No Child Left Behind Act was implemented in hopes of closing the achievement gap and requiring teachers and schools to take accountability for classroom learning. As a result of this act, a stronger emphasis on standardized achievement testing was embedded in the American culture. Now schools, teachers, and administrators are being held accountable for student scores and ensuring that students reach competitive national standards.

Standardized achievement testing began as a means of measuring productivity (Nichols & Berliner, 2008). It was believed that in order to improve student scores, teachers and administrators needed to be held accountable for student learning and testing became a means of accomplishing this (Nichols & Berliner, 2008). However, student learning may not be accurately or comprehensively measured through standardized tests. Tests are not able to account for unique classroom demographics (ELL students, specific learning disability [SLD] students, and students with behavioral problems) that impact student productivity and standardized achievement testing scores (Nichols & Berliner, 2008). These unique classroom characteristics influence how classrooms score on testing, how teachers teach, and how schools perform on state testing. Based on empirical studies as well as collections of teacher interviews, the use of standardized achievement testing in our culture has resulted in deskilling teachers, dumbing down the curriculum, pushing students out of school, and instilling fear and anxiety in students, teachers, and administrators (Darling-Hammond & Wise, 1985; Gilman & Reynolds, 1991; Jones & Whitford, 1997; Madaus, 1988a 1988b; Shepard, 1989). Not only is the use of standardized achievement tests not accurately measuring classroom instruction, but it

may also be having detrimental effects on teaching. Research has suggested that teachers are now more likely to teach for the test (Sternberg, 1999).

According to Jones and Johnston (2004), teachers at a North Carolina elementary school reported that since the implementation of standardized achievement testing, teaching has increased in subject areas such as reading, writing, and math but has decreased in social studies and science. Likewise, teachers reported their teaching quality has improved in the same subject areas that are being taught more (reading, writing, and math; Jones & Johnston, 2004), which are the same subject areas assessed on standardized achievement tests. Teachers are now teaching for the test, resulting in curriculum narrowing and the loss of creative skills in the classroom (Berliner, 2011). As curriculum narrowing continues, classroom environments can easily impede achievement development in later grades as a function of the learning restrictions in earlier grades (Berliner, 2011). As areas of learning that are thought to be on standardized achievement tests are being taught more frequently, students' critical thinking skills are being limited and impeded (Berliner, 2011).

As teachers focus on teaching to the test in order for students to meet national standards, a pressure to perform emerges in order to maintain full-time teaching positions and school funding (Sternberg, 1999). This pressure can be seen in recent news events as eleven Atlanta, GA teachers were convicted for racketeering in a standardized achievement test scandal, where they were found guilty of inflating student test scores in order to receive bonuses and maintain teaching positions (Strauss, 2015).

The cultural practice of standardized achievement testing in the US and the

pressure teachers feel from it may be contributing to how teachers view intelligence and how they organize their classrooms. This practice may be related to how teaching has transformed over the past 20 years and provide insight into how to close the achievement gap on a national level.

In summary, this study aimed to analyze the relation between implicit theories of intelligence among teachers, pressure from standardized achievement testing, and performance versus learning goals in the classroom. These interactions will provide insight into the cultural influence of standardized achievement testing towards implicit theories of intelligence, whether a teacher's cultural practice of standardized achievement testing influences implicit theories of intelligence, and whether the teacher's cultural practice of standardized achievement testing and implicit theory of intelligence influence performance versus learning goal orientations in the classroom.

CHAPTER III

METHODS

Participants

Eighty-one respondents accessed the survey with 45 meeting inclusionary criteria and completing the survey in its totality. The majority of respondents in the sample were female (86.4%, *n* = 38), White (91.1%, *n* = 41), lived in California (31.1%, *n* = 14), taught fourth grade (28.9%, *n* = 13), and held Masters degrees (e.g., M.A., M.S., M.Ed.; 71.1%, *n* = 32). Respondents were between the ages of 22 and 62 (*M* = 42.41*, SD* = 11.96*)* and had been teaching between 3 and 36 years (*M* = 18.68*, SD* = 10.17*).* Table 1 shows additional sample characteristics.

In order to participate in the study, respondents needed to meet the following criteria: (a) work in an elementary school (K-6), (b) work in a public school (not a charter school or private school), (c) be a general education teacher or special education teacher (teaching the core curriculum), and (d) be a full-time teacher at the time of survey (e.g. not part-time or retired). Respondents who did not meet these criteria were thanked for their time and exited from the survey.

A majority of respondents reported having class sizes between 26-30 students (37.8%, *n* = 17), with 0-20% of students being ethnic/racial minorities (53.3%, *n* = 24). Of the respondent's classes, the majority reported having between 0-20% of students who were ELL (73.3%, *n* = 33) and between 0-20% of students receiving free or reduced lunch (35.6%, *n* = 16). Referring to academic achievement, the majority of respondents

Table 1

Analysis Sample Characteristics

Sample characteristics	Analysis sample	
	n	%
Individual characteristics		
Participant sex (1 respondent missing)		
Men	6	13.6
Women	38	86.4
Ethnicity		
Latino or Hispanic	3	6.7
White or Caucasian	41	91.1
Other	1	2.2
Highest degree earned		
Masters (e.g., M.A., M.S., or M.Ed.)	32	71.1
Bachelors (e.g., B.S or B.A)	13	28.9
State		
California	14	31.1
Illinois	8	17.8
Kansas	1	2.2
Mississippi	1	2.2
Missouri	1	2.2
North Dakota	2	4.4
Texas	2	4.4
Utah	12	26.7
Virginia	1	2.2
Wyoming	3	6.7
Grade currently teaching		
Kindergarten	6	13.3
1st Grade	6	13.3
2nd Grade	4	8.9
3rd Grade	7	15.6
4th Grade	13	28.9
5th Grade	6	13.3
6th Grade	3	6.7
Class characteristics		
Class size		
Less than 15 students	5	11.1
16-20 students	4	8.9
21-25 students	11	24.4
26-30 students	17	37.8
31-35 students	7	15.6
Over 36 students	1	2.2

(*table continues*)

Sample characteristics	Analysis sample	
	n	%
Percentage of ethnic/racial minority students		
0-20%	24	53.3
21-40%	5	11.1
41-60%	4	8.9
61-80%	7	15.6
81-100%	5	11.1
Percentage of English Language Learners (ELL)		
0-20%	33	73.3
21-40%	9	20.0
61-80%	1	2.2
81-100%	2	4.4
Percentage of students receiving free or reduced lunch		
0-20%	16	35.6
21-40%	7	15.6
41-60%	8	17.8
61-80%	9	20.0
81-100%	5	11.1
Percentage of students proficient in reading		
0-20%	8	17.8
21-40%	4	8.9
41-60%	9	20.0
61-80%	13	28.9
81-100%	11	24.4
Percentage of students proficient in math		
0-20%	6	13.3
21-40%	4	8.9
41-60%	10	22.2
61-80%	15	33.3
81-100%	10	22.2
School characteristics		
Geographic region		
City	7	15.6
Suburban	11	24.4
Town	16	35.6
Rural	11	24.4

Note. Percentages are valid percentages and may not add up to 100% due to rounding.
$N = 45$.

reported 61-80% of students in their classroom being proficient in reading (28.9%, *n* = 13) and 61-80% of their students being proficient in math (33.3%, *n* = 15). The majority of the schools were characterized as being located in a town (35.6%, *n* = 16); with 24.4% (*n* = 11) being described as suburban, 24.4% (*n* = 11) being described as rural, and 15.6% (*n* = 7) being characterized as city. According to the National Center of Education Statistics (n.d.b) town is defined as a "territory inside an urban cluster that is more than 10 miles and less than or equal to 35 miles from an urbanized area," suburban as "territory outside a principal city and inside an urbanized area with population less than 250,000 and greater than or equal to 100,000," rural as "census-defined rural territory that is more than 5 miles but less than or equal to 25 miles from an urbanized area, as well as rural territory that is more than 2.5 miles but less than or equal to 10 miles from an urban cluster," and city defined as "territory inside an urbanized area and inside a principal city with population less than 250,000 and greater than or equal to 100,000." Refer to Table 1 for additional sample characteristics.

Instrumentation

The survey consisted of 39 items. Items were taken from three different scales in the literature and adapted to more accurately measure the desired constructs. Three items testing implicit theories of intelligence were taken from the *Implicit Theory of Intelligence Scale*, nine items measuring classroom goal structures were adapted from the *Approaches to Instruction Scale* from the classroom goal structure survey, and six items measuring pressures at work were adapted from the *Constraints at Work Scale* (Dweck et

al., 1995; Midgley et al., 2000; Pelletier, Legault, & Seguin-Levesque, 2002). Additional items were added to the pressures at work scale to more explicitly measure the desired construct.

First, the questionnaire included an informed consent where confidentiality was addressed in order to prevent bias or reduce social desirability. Next were questions on inclusionary criteria and demographics of the respondents (11 items) as well as classroom and school characteristics (7 items). Finally, the questionnaire assessed respondents' implicit theories of intelligence, classroom goal structures, and perceived pressures from standardized testing. Respondents were required to respond (forced choice) to the informed consent and four inclusionary items; the remainder of the questions were optional.

Measures

The proposed study consists of three measures: (a) implicit theories of intelligence, (b) classroom goal structure (two scales), and (c) pressures from standardized testing (for full questionnaire see the Appendix). Items from all four scales were randomly distributed throughout the survey; however, in the questionnaire shown in the Appendix,items are grouped by scale for ease of interpretation.

Demographics

Respondents answered items about their class and school characteristics (e.g., the percentage of students in their class receiving free or reduced meals) according to five percentage intervals (0-20%, 21-40%, 41-60%, 61-80%, and 81-100%). Then, responses

were collapsed into two or three equally sized groups for some analyses. Groups were collapsed because some groups had few or no participants. For percentage of students who received free or reduced lunches the aggregated groups were: 0-20%, 21-60%, and 61-100%). For the percentages of students who were reading proficient and math proficient the aggregated groups were: 0-40%, 41-80%, and 81-100%. Both the percentage of ethnic minority students in the class and the percentage of ELL students in the class were aggregated into two groups: 0-20% and above 20%.

The grade the teacher taught was collapsed into two groups for analyses (K through third grade and fourth through sixth grade). The respondents described the geographic region of their school as town, suburban, rural, and city). Respondents indicated their class size was less than 15 students, 16-20 students, 21-25 students, 26-30 students, 31-35 students, and over 36 students. For analyses, class size was collapsed into three groups based on the average public elementary school class size in the U.S. (M = 20.0), below average (15 and fewer students), average (16-20 students), and above average (21 students and above; National Center for Education Statistics, n.d.a).

Implicit Theories of Intelligence

Theories of intelligence were assessed through three items: “You have a certain amount of intelligence and you really can’t do much to change it,” “Your intelligence is something about you that you can’t change very much,” and “You can learn new things, but you can’t really change your basic intelligence” (Dweck et al., 1995). Only three items were used on this scale because “implicit theory is a construct with a simple unitary theme and repeatedly rephrasing the same idea may lead to confusion and boredom on

the part of the respondents" (Dweck et al., 1995, p. 269). Responses were on a Likert scale (1 = *strongly agree* and 6 = *strongly disagree*). Composite scores were calculated as the average of the 3 items (M = 4.07, SD = 1.26, α= 0.941). Participants with composite scores of 3.0 or below were classified as entity theorists (n = 15); participants with composite scores of 4.0 or more were classified as incremental theorists (n = 27), consistent with previous research (Dweck et al., 1995). Using the above criteria, 6.6% of the sample (n = 3) was excluded from the scale, which was less than 15% of participants who are typically excluded from similar research theories (Dweck et al., 1995).

Goal Structures

Two types of classroom goal structures were assessed through nine items: learning-goal orientation (four items) and performance-goal orientation (five items). Items 4, 5, 6, and 7 measured the learning-goal orientation and items 8, 9, 10, 11, and 12 measured the performance-goal orientation (refer to the Appendix for full scales). Responses were measured on a Likert scale (1 = *strongly disagree* and 5 = *strongly agree*; Midgley et al., 2000). Composite scores were calculated for each goal orientation (e.g., learning and performance) as the average of the item scores, with high scores showing a strong adherence to the orientation and low scores showing a lack of adherence to the orientation (performance scale: M = 3.88, SD = 0.986, α = 0.679; learning scale: M = 2.22, SD = 0.78, α = 0.53). One participant failed to respond to one item on the *performance goal scale*, thus their composite score was based on the average of four items instead of five items.

Pressure from Standardized Testing

Two types of work pressure were assessed through six items: pressure from the school administration (three items) and pressure from the school curriculum (three items). Items 16, 18, and 20 measure perceived pressures from the school administration items 13, 17, and 19 measure perceived pressures from the school curriculum (refer to the Appendix for full scale). All six items were further adapted to measure perceived pressures from the school administration and school curriculum as it relates to standardized achievement testing. Responses were on a Likert scale (1 = *Does not correspond at all* and 7 = *Corresponds completely*; Pelletier et al., 2002). Additional items were added to this measure including "You feel pressure from state testing" and "You feel supported by your school's administrators in state testing." Composite scores were calculated as the average of the nine items with high scores indicating high amounts of perceived pressure (M = 2.89, SD = 0.618, α = 0.634). One item "Your school administrators support you in reaching state testing standards" was deleted from the scale because its inclusion lowered the reliability of the scale. One person failed to respond to one item on the *pressure scale*, thus their composite score was based on the average of seven items instead of eight items.

Procedures

The current study was approved by the Utah State University Institutional Review Board (IRB) during spring 2014. The questionnaire was distributed to respondents through the Association of American Educators (AAE) Facebook page at the beginning

of November 2014 and remained available for approximately 3 months. The researcher contacted the AAE (a national teacher organization) to release the questionnaire to its members. AAE agreed to post a link to the questionnaire on their Facebook page, which consisted of approximately 4,700 followers. In addition to the social media post, the researcher along with colleagues shared the post on their personal Facebook walls in order to generate more sightings. A written description of the survey was used to advertise the link on all posts. Two other national teacher organizations were contacted to distribute the questionnaire, however neither responded to the proposal.

Data Analysis

Research Question One

In order to answer research question one, measuring differences amongst (a) theories of intelligence, (b) perceived pressure from standardized testing, and (c) classroom goals, one-way analysis of variance (ANOVA) and independent samples *t* tests were used to evaluate significant differences between teachers (i.e., teacher characteristics, class characteristics, and school characteristics), perceived pressure from standardized testing, and classroom goal structures (e.g., performance vs. learning). One-way analysis of variance was used for class size, percentage of students receiving free or reduced lunch, reading proficiency, math proficiency, and geographic region. Independent samples *t* tests were used to determine significant differences in grade taught, percentage of ethnic minority students, and percentage of ELL students. Because so many ANOVAS were run on Research Question One, a Bonferroni adjustment (α =

.00625) was made by dividing the alpha (.05) by the number of tests (8). This reduced the error rate per test so that the aggregated error rate remained at 0.05 (Cohen, 2013).

Research Questions Two and Three

One-way ANOVA and Pearson and point biserial correlations were used to answer the second and third research questions, measuring the contributions of teachers' theories of intelligence and perceived pressure from standardized testing on classroom goals and the extent to which pressure from standardized testing influences teachers' implicit theories of intelligence. Both the intelligence and pressure variables were recoded as dichotomous variables for this analysis.

CHAPTER IV

RESULTS

First, a post-hoc power analysis was run with the following parameters: α =.05, power = 0.80, N = 45, and k = 3 groups. The sensitivity analysis indicated there was enough power to detect a medium effect size of 0.48 (Cohen, 2013).

Research Question One

Results indicated no significant differences between teacher, class, and school characteristics on implicit theories of intelligence. Table 2 shows the means, standard deviations, calculated *F*-statistic, and *p* value for the ANOVA.

For perceived pressure from standardized testing, no significant differences were found between class size, percentage of students receiving free or reduced lunch, geographic region of the school, teacher grade level, and percentage of ethnic minority students (see Table 3). A one-way ANOVA showed significant differences in class percentages of reading proficient students. Post-hoc analysis using Tukey's test showed the significant mean difference was between teachers with classrooms of 0-40% reading proficient students and teachers with classrooms of 41-80% reading proficient students (p =.006). Teachers with classrooms of 0-40% reading proficient students reported significantly more pressure than teachers with 41-80% reading proficient students, with a large effect size (Cohen's d = 1.25; Cohen, 2013). A significant mean difference was also found between teachers with classrooms of 0-40% reading proficient students and teachers with classrooms of 81-100% reading proficient students; p = .020). Teachers

Table 2

One-Way ANOVAs and Independent Samples t *Test in Implicit Theories of Intelligence by Grade, Class Size, Ethnic/Minority Subgroups, English Language Learners, Free or Reduced Lunch, Reading Proficiency, Math Proficiency, and Geographic Region*

Demographics	*N*	*M*	*SD*	*Df*	*F*	*t*	*p*
Class size				(2, 42)	.134		.875
0-15 students	9	3.92	1.26				
16-20 students	11	4.00	1.11				
Over 21 students	25	4.16	1.35				
% Of free/reduced lunch				(2,42)	1.064		.354
0-20%	16	4.25	1.29				
21-60%	15	4.26	1.01				
61-100%	14	3.66	1.44				
Reading proficiency				(2,42)	1.959		.154
0-40%	12	3.47	1.33				
41-80%	22	4.31	1.14				
81-100%	11	4.24	1.30				
Math proficiency				(2,42)	1.342		.272
0-40%	10	3.80	1.20				
41-80%	25	3.96	1.28				
81-100%	10	4.63	1.20				
Geographic region				(3,41)	0.332		.802
City	7	4.04	1.54				
Suburban	11	4.33	1.26				
Town	16	4.10	1.19				
Rural	11	3.78	1.28				
Grade teaching				(43)		-.556	.581
K-3rd grade	23	3.97	1.25				
4th-6th grade	22	4.18	1.29				
% Of ethnic minority students				(43)		1.163	.251
0-20%	24	4.27	1.20				
Above 20%	21	3.84	1.31				
% of ELL students				(43)		.949	.348
0-20%	33	4.18	1.20				
Above 20%	12	3.77	1.42				

Table 3

One-Way ANOVAs and Independent Samples t *Test in Perceived Pressure from Standardized Testing by Grade, Class Size, Ethnic/Minority Subgroups, English Language Learners, Free or Reduced Lunch, Reading Proficiency, Math Proficiency, and Geographic Region*

Demographics	*N*	*M*	*SD*	*df*	*F*	*t*	*p*
Class size				(2, 42)	1.568		.220
0-15 Students	9	3.19	.504				
16-20 Students	11	2.91	.452				
Over 21 Students	25	2.77	.695				
% of free/reduced lunch				(2,42)	1.042		.362
0-20%	16	2.71	.563				
21-60%	15	2.95	.626				
61-100%	14	3.02	.667				
Reading proficiency				(2,42)	6.136		.005**
0-40%	12	3.37	.464				
41-80%	22	2.71	.587				
81-100%	11	2.71	.583				
Math proficiency				(2,42)	6.324		.004**
0-40%	10	3.42	.400				
41-80%	25	2.68	.614				
81-100%	10	2.87	.520				
Geographic region				(3,41)	2.184		.105
City	7	3.33	.593				
Suburban	11	3.01	.565				
Town	16	2.76	.632				
Rural	11	2.68	.565				
Grade teaching				(43)		1.45	.154
K-3rd Grade	23	3.02	.644				
4th-6th Grade	22	2.75	.573				
% of ethnic minority students				(43)		-.381	.705
0-20%	24	2.85	.558				
Above 20%	21	2.93	.693				
% of ELL students				(43)		1.793	.080*
0-20%	33	2.98	.580				
Above 20%	12	2.62	.667				

* Marginally significant $p < .10$.
** $p < .00625$ Bonferroni adjustment.

with classrooms of 0-40% reading proficient students reported significantly more pressure than teachers with 81-100% reading proficient students, with a large effect size (Cohen's $d = 1.25$). Table 4 shows the post hoc analysis of reading proficient students.

An independent samples *t* test showed a marginally significant mean difference between percentage of ELL students, when alpha was not adjusted using the Bonferroni adjustment ($p = .080$). Teachers with classrooms of 0-20% of ELL students reported more pressure than teachers with classrooms containing more than 20% of ELL students, with a medium effect size (Cohen's $d = 0.58$).

A one-way ANOVA showed a significant mean difference in students who were proficient in math. Post-hoc analysis using Tukey's test showed a significant mean difference between teachers with classrooms of 0-40% math proficient students and teachers with classrooms of 41-80% of students; $p = 0.003$). Teachers with classrooms of 0-40% math proficient students reported significantly more pressure than teachers with classrooms of 41-80% math proficient students, with a large effect size (Cohen's $d = 1.43$). Table 5 shows the post hoc analysis of percentage of math proficient students.

Table 4

Pairwise Comparisons Across Marginal Means for Perceived Pressure of Standardized Testing and Percentage of Students who are Proficient in Reading

Comparison	Mean difference	Standard error	*p*	[95% C.I]
Reinforcement type				
(0 – 40%) – (41– 80%)	.6591	.1990	.006	.1734, 1.144
(0 – 40% - (81 – 100%)	.6555	.2325	.020	.0905, 1.220

Table 5

Pairwise Comparisons Across Marginal Means for Perceived Pressure of Standardized Testing and Percentage of Students who are Proficient in Math

Comparison	Mean difference	Standard error	*p*	[95% C.I]
Reinforcement type				
(0 – 40%) – (41– 80%)	.7384	.2077	.003	.2337, 1.243

Tables 6 and 7 present the results from one-way ANOVAs and independent samples *t* tests in performance goal and learning goal structures, respectively. No significant differences were found between class size, percentage of students receiving free or reduced lunch, reading proficiency, math proficiency, geographic region of the school, and grade level for either outcome. Independent samples *t* tests showed a significant mean difference between percentages of ethnic minority students for performance goal structures. Analysis showed that the mean difference was between teachers with classrooms of 0-20% ethnic minority students and teachers with classrooms above 20% ethnic minority students ($p = .038$). Teachers with classrooms of 0-20% ethnic minority students were more likely to use performance goals than teachers with classrooms above 20% ethnic minority students, with a medium effect size (Cohen's $d = 0.63$). Independent samples *t* tests also showed a significant mean difference between percentages of ELL students for performance goals. The analysis showed a difference between teachers with classrooms of 0-20% ELL students and teachers with classrooms above 20% ELL students ($p = .003$). Teachers with classrooms of 0-20% ELL students were more likely to use performance goals than teachers with classrooms above 20% ELL students, with a large effect size (Cohen's $d = 0.96$).

Table 6

One-Way ANOVAs and Independent Samples t *tests in Performance Goal Structures by Grade, Class Size, Ethnic/Minority Subgroups, English Language Learners, Free or Reduced Lunch, Reading Proficiency, Math Proficiency, and Geographic Region*

Demographics	*n*	*M*	*SD*	*df*	*F*	*t*	*p*
Class size				(2, 42)	.107		.899
0-15 Students	9	3.97	.961				
16-20 Students	11	3.94	.710				
Over 21 Students	25	3.82	1.12				
% of free/reduced lunch				(2,42)	1.16		.323
0-20%	16	4.06	.809				
21-60%	15	4.00	.861				
61-100%	14	3.55	1.25				
Reading proficiency				(2,42)	.660		.522
0-40%	12	3.76	.997				
41-80%	22	3.79	1.01				
81-100%	11	4.18	.944				
Math proficiency				(2,42)	.425		.657
0-40%	10	3.72	1.09				
41-80%	25	3.85	1.02				
81-100%	10	4.12	.828				
Geographic region				(3,41)	.951		.425
City	7	3.88	1.16				
Suburban	11	3.50	.826				
Town	16	3.90	1.21				
Rural	11	4.21	.532				
Grade teaching				(43)		-.050	.961
K-3rd Grade	23	3.87	1.15				
4th-6th Grade	22	3.89	.799				
% of ethnic minority students				(43)		2.142	.038*
0-20%	24	4.16	.740				
Above 20%	21	3.55	1.14				
% of ELL students				(43)		3.171	.003**
0-20%	33	4.139	.767				
Above 20%	12	3.17	1.20				

* $p < .05$.
** $p < .00625$ Bonferroni adjustment.

Table 7

One-Way ANOVAs and Independent Samples t *Tests in Learning Goal Structures by Grade, Class Size, Ethnic/Minority Subgroups, English Language Learners, Free or Reduced Lunch, Reading Proficiency, Math Proficiency, and Geographic Region*

Demographics	*n*	*M*	*SD*	*df*	*F*	*t*	*P*
Class size				(2, 42)	.738		.484
0-15 students	9	2.16	.750				
16-20 students	11	2.00	.661				
over 21 students	25	2.34	.847				
% of free/reduced lunch				(2,42)	1.462		.243
0-20%	16	2.10	.712				
21-60%	15	2.50	1.04				
61-100%	14	2.05	.429				
Reading proficiency				(2,42)	1.50		.235
0-40%	12	2.16	.567				
41-80%	22	2.07	.599				
81-100%	11	2.56	1.18				
Math proficiency				(2,42)	1.357		.269
0-40%	10	2.17	.601				
41-80%	25	2.10	.568				
81-100%	10	2.57	1.26				
Geographic region				(3,41)	.81		.970
City	7	2.32	1.38				
Suburban	11	2.27	.656				
Town	16	2.18	.588				
rural	11	2.15	.768				
Grade teaching				(43)		.335	.739
k-3rd grade	23	2.26	.823				
4th-6th grade	22	2.18	.756				
% of ethnic minority students				(43)		.441	.662
0-20%	24	2.27	.902				
Above 20%	21	2.16	.639				
% of ELL students				(43)		-.035	.972
0-20%	33	2.21	.878				
Above 20%	12	2.22	.457				

Research Questions Two and Three

Table 8 shows the Pearson and point biserial correlations between implicit theories of intelligence, perceived pressure from standardized testing, and classroom goals. No significant correlations were found.

Table 9 presents the results from a two-way ANOVA of performance goals where an interaction was found between implicit theories of intelligence and perceived pressure of standardized testing ($p = .025$). Simple main effect analyses were then run, $F(1, 38) = 3.83$, $p = .057$, $d = .98$; pressure on entity theory of intelligence, $F(1, 38) = 1.65$, $p = .207$,

Table 8

Bivariate Correlations Among Implicit Theories of Intelligence, Perceived Pressure from Standardized Testing, Performance Goals, and Learning

Variables	1	2	3	4
1. Intelligence	-			
2. Pressure	.277	-		
3. Performance	.215	.175	-	
4. Learning	-.017	.147	-.133	-

$N = 45$.

Table 9

2 X 2 ANOVA Source Table: Performance Goals

Source	*SS*	*df*	*MS*	*F*	*p*
Within conditions	34.140	38	.898		
Between conditions					
Pressure	.584	1	.584	.650	.425
Intelligence	.097	1	.097	.108	.744
Intel*pressure interaction	4.902	1	4.902	5.457	.025*
Total	694.782	42			

* $p < .05$

d = .48; pressure on incremental theory of intelligence. The level of perceived pressure for entity theorists and incremental theorists, does not affect whether teachers' who adhere to either theory will use performance goals. Because the simple main effects were both nonsignificant, it resulted in the original interaction now being not significant. The interaction is illustrated in Figure 3.

Please see Table 10 for the results of the two-way ANOVA on learning goals. No significant main effects or interaction effects were found for teacher's implicit theories of intelligence and perceived pressure from standardized testing on learning goals.

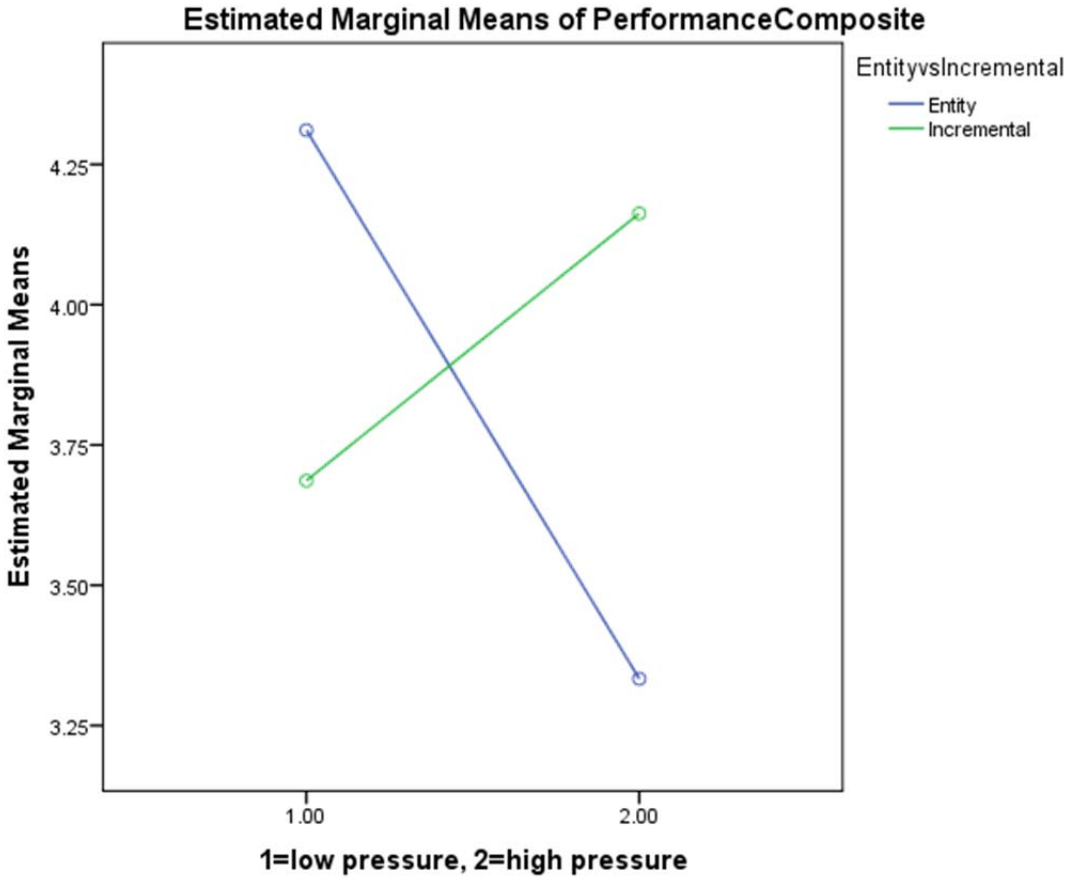

Figure 3. Graph of the interaction between intelligence and pressure on performance goals.

Table 10

2 X 2 ANOVA Source Table: Learning Goals

Source	*SS*	*df*	*MS*	*F*	*p*
Within conditions	25.046	38	.659		
Between conditions					
Pressure	1.137	1	1.137	1.725	.197
Intelligence	.025	1	.025	.037	.848
Intel*pressure interaction	.225	1	.225	.341	.563
Total	235.00	42			

CHAPTER V

DISCUSSION

This study evaluated the relation between teachers' implicit theories of intelligence, perceived pressure from standardized achievement testing, and classroom goal structures and differences between these three constructs on teacher, class, and school characteristics. Mean difference testing and correlational analyses were run to examine the research questions. In this sample, 15 participants adhered to an entity theory of intelligence, 27 adhered to an incremental theory of intelligence, 22 participants reported low amounts of pressure from standardized testing, and 23 participants reported high amounts of pressure from standardized testing. This study contributed to the literature by (a) finding differences between pressure and classrooms with low percentages of reading proficient students, (b) finding differences between pressure and classrooms with low percentages of math proficient students, (c) finding that teachers with a lower percentage of ethnic minority students foster more performance goals, and (d) finding that teachers with a lower percentage of ELL students foster more performance goals.

Perceived Pressure from Standardized Testing

With classrooms where fewer students were reading or math proficient, teachers reported feeling significantly more pressure from standardized achievement testing. It is possible that it is more challenging for teachers to succeed in helping their students reach national standards on testing when the majority of students are struggling to master the

current curriculum. Teachers feel pressure for their students to perform on standardized achievement tests in order to maintain their full-time teaching positions (Sternberg, 1999). In summary, teachers may experience more pressure for their students to reach national testing standards in a classroom where students are struggling particularly if the teachers' jobs are being threatened.

In the literature, Berliner (2011) and Sternberg (1999) discussed how teachers were teaching for the test and narrowing curriculum in order to focus on subject areas that are found on standardized assessments. If a teacher is in a classroom where the majority of students are not proficient in reading or math, the curriculum may be narrowed even further in order to master some amount of the curriculum that will be on the year-end standardized achievement test. Narrowing the curriculum may not provide students with an opportunity be creative (Berliner, 2011), placing a ceiling on students' academic growth. Such a classroom environment may potentially become stifling to students and perhaps contribute to a further decline in academic performance.

Performance Goals

Teachers with classrooms which contained lower percentages of ethnic minority students and ELL students were found to foster more performance goal classrooms. This finding may offer additional insight on how teachers instruct ethnic minority and ELL students and the academic expectations of such students. Rosenthal and Jacobson (1968) examined teacher expectations for the disadvantaged student (i.e., low socioeconomic status students or minority students) and found that when teachers expected students to

perform worse than their peers, students fulfilled those expectations and *did* perform worse. In addition, preferential treatment exists within classrooms and is given to high social class students in the form of seating assignments and close proximity to the teacher, resulting in more teacher attention (Sorhagen, 2013). Not only do disadvantaged students face expectations from teachers that they will perform worse than their peers but they also are potentially in classrooms where higher social class peers are receiving preferential treatment. The combination of these two situations may make it difficult for disadvantaged students to excel academically in the classrooms.

In classrooms with ethnic minority and ELL students, teachers may instruct in a way that stifles student growth and places more attention on the growth of other students. By anticipating that ethnic minority and ELL students will perform poorly in academics, teachers may disregard focusing on personal improvement and growth and only focus on current ability level, creating classrooms fostering performance goals. Because performance goals focus so heavily on individual ability level compared to peers, there is a competitive nature that embodies this goal structure (Dweck, 1999; Dweck et al., 1995). This competitive, peer comparison model, isolates students and creates competition between students. This competition tends to align with the values set forth in an individualistic society. Perhaps teachers of the White majority focus on this individual need for success compared to peers regardless if there are students from different cultures present in the classroom who may foster different learning styles. However, according to Starnes (2006), when "students' culture is tapped in the classroom; it builds a bridge to school success" (p. 386). It is suggested that teachers with classrooms with higher

percentages of ethnic minority and ELL students focus on finding different instructional strategies and goal structures that foster growth, mastery of material, and focus on the learning process instead of the end performance.

Implicit Theories of Intelligence

According to Dweck and Leggett's (1988) theoretical model of entailment, I hypothesized that though the research is mixed, the present study would support that an individual's implicit theory of intelligence has a causal entailment with an individuals' goal orientation. However, results showed that scores on the implicit theory of intelligence measure did not significantly correlate with performance or learning goals, which is contradictory to previous findings (e.g., Roedel & Schraw, 1995). Previous research also found a positive correlation between learning goals and the incremental theory of intelligence and a negative correlation between learning goals and the entity theory of intelligence (Dupeyrat & Marine, 2005). The findings of the present study tend to contradict the findings of Dupeyrat and Marine with correlations trending in the opposite direction ($r = .215$, $p < .05$; between implicit theories of intelligence and performance goals; $r = -.017$, $p < .05$; between implicit theories of intelligence and learning goals). One potential reason for the differences in the present study's findings and the findings of Dupeyrat and Marine is that the latter study adapted the Implicit Theory of Intelligence Scale and added items that may have more precisely measured both the entity and incremental theories of intelligence (e.g., "My intelligence is something about me I cannot change very much" and "My intelligence is mainly the

result of my experience"; Dupeyrat & Marine, 2005). Items were added creating an entity measure of five items and an incremental measure of four items (Dupeyrat & Marine, 2005). Furthermore, Dupeyrat and Marine dichotomized the two constructs, rather than keeping them on a continuum as the present study did. This contradiction may also be influenced by differences in sample. The discrepant results may also be due to the low internal consistency of the learning goal scale ($\alpha = 0.53$).

Consistent with prior research the results of the present study found no significant interactions between implicit theories of intelligence and performance goals ($r = .215$, $p < .05$) and between implicit theories of intelligence and learning goals ($r = -.017$, $p < .05$; Shim et al., 2013).

Perceived Pressure and Implicit Theories of Intelligence on Performance Goals

Based on the present study's hypothesis regarding the influence of pressure from standardized testing on theories of intelligence and goal structures, it was hypothesized that pressure from standardized testing would be a cultural factor that influenced the development of teacher's implicit theories of intelligence and by an extension classroom goals. However, findings from the present study showed no correlations or differences in groups among pressure from standardized testing and learning goals. A significant interaction was found between pressure from standardized testing and theories of intelligence on performance goals. This interaction was thus examined further through simple main effects and resulted in a nonsignificant interaction upon closer review. In

other words, results showed that the amount of pressure experienced by entity theorists and incremental theorists does not influence whether teachers use performance goals. Rattan et al. (2012b) found cultural differences between western and nonwestern countries in their implicit theories of intelligence. However, no specific cultural factor has been identified. Based on the findings of this study the pressure teachers feel from standardized testing may not be a specific factor that influences implicit theories of intelligence and classroom goals. However, this non-significant interaction and lack of correlations may be due to a small sample size and lack of power.

Implications of the Present Study

The finding from the present study that demonstrated teachers with classrooms containing few reading and math proficient students experience significantly more pressure than teachers with classrooms containing more proficient students allows schools to focus on providing support to such teachers. With the increased pressure to have students perform, these teachers may need additional support and consultation services from the administration, faculty, and school psychologists in brainstorming class-wide academic interventions and effective instructional strategies. By supporting the teacher and relieving some of the pressure, a more positive and motivating climate can exist within the classroom.

In addition to supporting teachers with academic interventions and instructional strategies, more support may be needed for teachers in implementing learning goal structures in the classroom. This may be especially beneficial for teachers in classrooms

with fewer ethnic minority and ELL students. This training may encourage teachers to adapt instructional strategies and develop new goal orientations in order to best encourage the growth and learning of all students.

With an initial significant interaction between implicit theories of intelligence and pressure from standardized testing on performance goals, it may be beneficial to further explore this finding. If a significant interaction exists it can provide further information on how teachers respond to pressure from standardized testing and how that influences how they view their students' intelligence and organize their classrooms. Obtaining a better understanding of how teacher's view their students, create expectations for their students, and foster those expectations in the classroom can provide meaningful information on how to train teachers for student success.

Limitations

Though this study provided implications that may benefit elementary teachers, limitations of the present study must also be addressed. One specific limitation of the present study was the sample size. A larger sample would provide more power and allow the analyses to recognize smaller effects. In addition to a small sample size, the sample was not representative of the population. Among 45 participants, 14 participants lived in California and 12 participants lived in Utah. With a sample that is not representative of the population, generalization of the findings is difficult. Because participants were recruited through social media, specifically Facebook, it was impossible to calculate a response rate. There was no way of reporting how many individuals saw the recruitment

post, shared the post with other teachers, and responded to it. An additional limitation to the present study was a low internal consistency on the learning goal scale (α = 0.53). The reliability found for this study was lower than what was reported in previous research (Midgley et al., 2000; α = .69).

Future Research

The present study provides a foundation for future research that may include a focus on the similarities and values between individualistic and collectivist cultures with performance and learning goals. This may lead to further research about how teachers in diverse vs. majority schools and classrooms teach and the advantages and disadvantages students experience because of this. Research on this topic can help the education community implement more effective achievement strategies for students. Future research may also wish to further explore specific cultural factors that influence implicit theories of intelligence and classroom goal structures. More research is also needed in developing and validating scales that measure pressure from standardized achievement tests, in order to further explore how this practice influences teachers in a classroom and their instructional practices.

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APPENDIX

Teacher Survey

Implicit Theories of Intelligence Scale

	Strongly Agree					Strongly Disagree
1. You have a certain amount of intelligence and you really can't do much to change it.	1	2	3	4	5	6
2. Your intelligence is something about you that you can't change very much.	1	2	3	4	5	6
3. You can learn new things, but you can't really change your basic intelligence.	1	2	3	4	5	6

Learning Goal-Orientation Scale

	Strongly Disagree					Strongly Agree
4. You make a special effort to recognize students' individual progress, even if they are below grade level.	1	2	3	4	5	6
5. You consider how much students have improved when you give them report card grades.	1	2	3	4	5	6
6. You give a wide range of assignments, matched to students' needs and skill level.	1	2	3	4	5	6
7. During class, you often provide several different activities so that students can choose among them.	1	2	3	4	5	6

Performance Goal-Orientation Scale

	Strongly Disagree					Strongly Agree
8. You give special privileges to students who do the best work.	1	2	3	4	5	6
9. You help students understand how their performance compares to others.	1	2	3	4	5	6
10. You point out those students who do well as a model for the other students.	1	2	3	4	5	6
11. You display the work of the highest achieving students as an example.	1	2	3	4	5	6
12. You encourage students to compete with each other.	1	2	3	4	5	6

Constraints at Work Scale

	Not At All True					Completely True
13. It is important to complete the entire school curriculum to meet standards on state testing.	1	2	3	4	5	6
14. You have to limit the number of failures in your class to ensure your students meet state testing standards.	1	2	3	4	5	6
15. You feel pressure from the administration to have your class perform well on state testing.	1	2	3	4	5	6
16. Your school administrators support you in reaching state testing standards.	1	2	3	4	5	6
17. Because of state testing specifically, you do not have the freedom to define the contents of your curriculum.	1	2	3	4	5	6
18. You have to push your students to complete their school work so they meet standards on state testing.	1	2	3	4	5	6
19. It is important to you that your students enjoy learning even though there may be pressure from state testing.	1	2	3	4	5	6
20. All of your students should follow the same pace of learning to meet state testing standards.	1	2	3	4	5	6
21. You feel pressure from state testing.	1	2	3	4	5	6