

The Relationship between Perceived Academic Control,
Implicit Theory of Intelligence, and Student Responsibility

by

Evan Fishman

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Graduate Supervisory Committee:

Kathryn Nakagawa, Chair
Jenefer Husman
Elsie Moore

ARIZONA STATE UNIVERSITY

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ABSTRACT

Responsibility for academic outcomes is an important factor to consider within the study of student motivation, yet measures for the construct remain elusive and inconsistent. The present study uses a new measure developed by Lauermaun and Karabenick to assess students' sense of responsibility for their academic outcomes. This study examined the relationship between perceived academic control, implicit theory of intelligence, and student responsibility. Results were based on a sample of 152 undergraduate students. A significant relationship between perceived academic control and student responsibility was established. Results also indicated a significant association between implicit theory of intelligence and student responsibility; however, contrary to hypotheses, implicit theory did not mediate the relationship between perceived academic control and student responsibility.

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Introduction

Some college students appear to have a stronger sense of responsibility for the schoolwork they are assigned and for the outcomes that schoolwork produces. The term responsibility is mentioned in many motivation theories, yet studies that focus primarily on students' perceived responsibility are noticeably sparse within the literature. In 2002 an American Psychological Association (APA) task force identified students' display of academic responsibility a primary educational goal for the 21st century (Sternberg, 2002) and still, few studies have featured student responsibility as a primary component.

The term responsibility is used frequently in casual discourse and the concept of responsibility is widely understood; however, as a psychological construct it is difficult to define. Lauermann and Karabenick (2011) proposed that responsibility is a multifaceted entity which requires a multidimensional approach to fully and accurately capture its complexity. The dynamic nature of responsibility requires an equally dynamic conceptual framework as there are many aspects to consider: Who is responsible? For what? In view of whom? Under the supervision of whom? In relation to what criteria? Within the realm of what overarching structure? (Lenk, 1992).

Additionally, responsibility has been indicated as a fundamental component in several motivation theories, yet definitions of the term have been inconsistent and over-generalized. As a result, the term responsibility has been considered synonymous with existing constructs such as autonomy (Chanock, 2004), perceived control (Anderson and Prawat, 1983), self-monitoring (Garrison,

1997) and accountability (Lauermann & Karabenick, 2011; Schalock, 1998). Similarly, other motivational theories such as goal commitment, self-efficacy, achievement motivation (Beirhoff et. al, 2005; Guskey, 1988) have been associated with the sense of responsibility. The concept of responsibility has been explored from a number of perspectives which perpetuates its vague definition within the field of educational psychology. Responsibility has been viewed as a normative/moral expectation (Bovens, 1998; Lenk, 1992), a situation-dependent construct (Weiner, 1995) a personality trait (Bierhoff et al., 2005; Winter, 1992).

In a comprehensive analysis of responsibility, Lauermann and Karabenick (2011) identified two common themes within the literature. First, they recognized the distinction between internally accepted responsibility and externally imposed responsibility (e.g., defined by an accountability system). The authors referred to these two perceived constructs as “feeling responsible” and “being held responsible,” respectively. The fundamental characteristic that divided the constructs was that “feeling responsible” implied that the individual is intrinsically motivated to take responsibility (Bacon, 1991). Secondly, the authors suggested that two complementary levels are at play and should be considered in the analysis of responsibility; (a) an individual’s relatively stable dispositions, and (b) situation-dependent factors. Ultimately, the authors defined 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” (Lauermann & Karabenick, 2011, p. 135) and presented

responsibility as an independent and unique construct worthy of further exploration and examination by researchers.

Several theories that feature perceived control as a key component have mentioned responsibility as a related factor. This association is not surprising, given that individuals who feel in control are more likely to take responsibility for their own learning (Anderson and Prawat, 1983). Perceived control has been declared as both a personality trait and a temporary product of an individual's environment (Perry, 2001). Rotter (1966) introduced the idea of perceived control (locus of control) as an individual characteristic; subsequently, Glass and Singer (1971) presented it as an environmental stressor.

Since its inception, perceived control has been featured prominently in many studies throughout the social sciences. Because of its widespread use, Perry, Hladkyj and Pekrun (1998) developed a domain-specific measure for perceived control in an academic setting; which they labeled *academic control*. This construct is described as a student's belief in his or her capacity to influence and predict achievement outcomes (Perry, Hall & Ruthig, 2005). A consistent finding from several studies focused on student motivation, including those by Perry, has been that students who perceive themselves as in control (those who believe they have the capability to influence outcomes) employ more adaptive self-regulative behaviors and achieve more academic success than those who perceive little control over academic outcomes (Perry, Hall & Ruthig, 2005). In other words, students who believe they have the power to manipulate their environments in order to reach desired outcomes apply more effort and display

more commitment toward these outcomes and the prevention of undesirable outcomes.

A key element within academic control is *secondary control*, which is the perceived ability to influence internal states (Perry, 2003; Rothbaum et al., 1982). Secondary control has been regarded as complimentary to primary control (academic control) especially for sustaining long-term motivation and performance when students are faced with failure (Hall, et al. 2006). Belief in the ability to influence internal states is an important quality when viewing academic control in relation to student responsibility. Responsibility is described as an internal sense of obligation and commitment; thus, if students feel as if they have the power to retain or change their internal states, they may be more likely to feel internally committed to producing or preventing outcomes.

A number of researchers have viewed perceived control from the perspective of attribution theory. Studies of this nature have found that students who attribute lack of academic success to internal and controllable causes have more positive implications for future achievement behaviors (Dweck et al, 1999). Weiner (1992) postulated that persistence and effort are greater for students who attribute their performance to internal and controllable factors than those who attribute their performance to external or uncontrollable factors (Perry et al., 2005; Soric, 2009).

Dweck and colleagues (1999) contended that differences in an individual's implicit theory of intelligence influence the meaning system in which attributions occur and guide an individual's goal types and motivation to achieve goals.

Those who hold an entity theory of intelligence (intelligence as a fixed trait) would be inclined to attribute failure to stable factors (e.g., lack of ability) as opposed to an incremental theorist (intelligence as a malleable trait) who would attribute failure to adaptable factors (e.g., lack of effort).

Responsibility has been mentioned in studies involving both academic control and implicit theories of intelligence, yet an empirical relationship has yet to be determined. The present study used Lauermann and Karabenick's (2011) conceptualization as an analytical framework from which to view the concept of student responsibility. Also, to further illuminate the nature of student responsibility as a psychological construct, the present explored the role of responsibility within a number of theoretical frameworks such as self-determination, self-regulation, and self-directed learning.

Purpose of Study

This study was designed to investigate the relationship between perceived academic control, implicit theories of intelligence and student responsibility. Firstly, it was proposed that academic control will be positively and strongly related to student responsibility. Secondly, it was anticipated that implicit theory of intelligence will be positively related to student responsibility, with entity theory representing the low end of the continuum and incremental the high end. Thirdly, it was expected that academic control will be positively and strongly related to incremental theory of intelligence. Lastly, it was proposed that more variance in student responsibility would be explained by both academic control and implicit theory of intelligence than by either of them individually. It was

proposed that incremental theory of intelligence would have a partial mediating effect on the relationship between perceived academic control and student responsibility.

Literature Review

The concept of responsibility is mentioned within the motivational psychology literature, yet consensus on a definitive meaning of the construct has not yet been reached. Therefore, it is worthwhile to explore the various ways the term “responsibility” has been used to better understand its implications on student motivation. Throughout this exploration, the present study considered Lauermaann and Karabenick’s (2011) definition of responsibility as a guide to better understand the construct within an academic context. These authors described 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” (p. 135). It should be noted that Lauermaann and Karabenick’s analysis was conceptualized with respect to teachers; however, with roots in academic, social, and job related domains this model is presented as domain general. Fortunately, among the inconsistent interpretations of responsibility, this framework provides a cohesive and structured approach to further understand the nature of student responsibility and its implications on motivation and achievement. Further, this perspective distinguishes responsibility as an independent and unique construct among the many similar theories within the literature. A measure for the construct developed by Lauermaann and Karabenick (currently being validated) was used in the present study to measure student responsibility (personal communication, October 14, 2011). This measure includes five statements such as, “...I am interested in the subject area taught by

the instructor.” The students report, on a ten point scale, how much responsibility they feel to make sure that each statement occurs or occurred.

As a result of their conceptualization of the construct, the authors described responsibility as a highly dynamic construct. Despite its elusive nature, they found two central and consistent themes. First, they recognized a distinction between internal (self-generated) and imposed responsibility (externally controlled). In other words, formal responsibility (accountability) does not guarantee personal commitment and an internal sense of obligation (Lauermann & Karabenick, 2011). For example, when a teacher assigns a student a project, the student may consider him or herself accountable for the completion of the project. However, this type of accountability implies only that the student is accountable and not necessarily internally motivated to complete the project as a function of learning.

Bacon (1991) addressed this issue with regard to student responsibility and clarified the difference between “being responsible” and “being held responsible.” The author contended that these two dispositions are not mutually exclusive and that individuals can potentially claim membership to either of these categories depending on his or her context; although, some individuals may ascribe to one more often than the other by virtue of personal tendencies.

The characterizing distinction was that those who *feel* responsible are intrinsically motivated and self-regulated, and those who are *held* responsible are more likely to apply effort only in proportion of external control (Lauermann & Karabenick, 2011). The present study hypothesized that this type of intrinsically

motivated “felt” responsibility is more likely to occur when the student perceives control internally rather than externally. When internal control is perceived, students can more easily view themselves as agents of change within their academic environment. A similar notion was made by DeCharms (1968) who described the feeling of being externally pushed around as the *pawn experience*. Conversely, he labeled the strong sense of originating one’s own actions as the *origin experience*. From this perspective, students who are able to perceive their actions as originating internally are more likely to assume a sense of “felt” responsibility. Illustrations of this distinction are found in pervasive theoretical perspectives that use responsibility as a key tenet toward construction of the theory. These instances will be reviewed in later chapters.

The second theme from Lauermann and Karabenick’s conceptualization was the consideration of responsibility as manifesting from an individual’s relatively stable disposition, and from situational factors that influence or interact with one’s sense of responsibility. The former would imply that some students feel responsible more consistently across situations than others because of individual tendencies, the latter takes into account the highly dynamic contextual state of the student and its influence on personally assumed responsibility.

These dimensions are present in several motivation theories, and this presence implies that it is not enough to consider an individual’s personality characteristics as a sufficient explanation of behavior without also considering the context within which the individual operates. Additionally, the consideration of context is important when interpreting theories of motivation because it helps to

refine the theoretical constructs, making them more legitimate representations of the constructs they seek to explain (Stefanou, Perencevich, DiCinto & Turner, 2004). Examples of this interplay between dimensions, with regard to responsibility, will be reviewed in later chapters.

Responsibility within the Motivation Literature

Responsibility within Self-Directed Learning. Among the theories of motivation presently reviewed, self-direction has been the most consistent in the acknowledgement of responsibility as a fundamental factor in its conceptualization. Self-directed learning has been a popular concept with regard to adult learning. The concept has taken on many definitions, but perhaps the most influential definition was articulated by Knowles (1975) who described self-directed learning “as a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating outcomes” (p. 18).

The original concept of self-directed learning was typified by contextual situations that impact the initiative of the learner. Throughout the years, researchers elaborated this definition by adding a dimension that allowed for the influence of personality traits on the process of self-directed learning. The evolution of the construct was advanced by Brockett and Heimstra (1991) who encompassed two distinct, yet interacting, dimensions within their model. They recognized the impact of instructional methods and differences in personality

characteristics. They referred to the situation-dependent dimension as *self-directed learning*, and the dimension of individual characteristics as *learner self-directed*.

The self-directed learner dimension was declared, “a process in which a learner assumes primary responsibility for planning, implementing, and evaluating the learning process” (Brockett & Heimstra, 1991, p. 24). This concept was intimately related to the perceived control of the learner and the ability to successfully take ownership of the learning process.

The learner-self directed dimension was described as “an individual’s beliefs and attitudes that pre-dispose one toward taking primary responsibility for their learning” (p. 29) and “a learner’s desire or preference for assuming responsibility for learning” (p. 24). This relationship between individual preferences and learning has led several adult education scholars to suggest a theoretical connection between self-directed learning and intrinsic motivation (Stockdale & Brockett, 2011).

These two dimensions were presented as part of a broader view of self-directed learning called the Personal Responsibility Orientation (PRO) model. The authors described personal responsibility as the individual’s assumed ownership of their own thoughts and actions. Brockett and Heimstra (1991) further clarified the definition of personal responsibility by noting that it does not necessarily refer to one’s control over personal life circumstances or environment, but it does mean that one has control over how to respond to a situation. In other words, they viewed personal responsibility as similar to the perceived control of

one's internal state, as opposed to the perceived control over one's environment. The authors maintained that while social contexts do impact the learning process, ultimately the point of departure for understanding learning lies within the individual. It was further suggested, that this personal responsibility or ownership of internal events (e.g., thoughts and actions) would continue and lead to a sense of ownership for the consequences produced by those actions.

To address issues with the theoretical usefulness of self-directed learning, Garrison (1997) developed a comprehensive model in which he also identified responsibility as an important component. His model included three dimensions, *self-management*, *self-monitoring* and *motivation*. Self-management was concerned with the external activities associated with the learning process; this dimension was similar to the traditional views self-directed learning. Garrison considered the second construct in his model, self-monitoring, as synonymous with responsibility. He explained, "Responsibility for self-monitoring reflects a commitment and obligation to construct meaning through critical reflection and collaborative confirmation" (p.24). Similar to Brockett and Heimstra's view of responsibility, Garrison (1991) acknowledged the learner's role to ensure that new information is integrated with existing knowledge structures and that learning goals are being met. Consistent with the other theories presently reviewed, the self-monitoring aspect of this model is not independent of contextual influences. In other words, a student may take responsibility for learning, but that ownership can be affected by external feedback, such as the teacher undermining the student's perceived control of the learning situation.

In this model, self-monitoring endorses a metacognitive perspective on learning. This type of awareness was referred to as cognitive responsibility, which Garrison (1991) equated with self-monitoring the learning process, assessing outcomes, and developing new strategies to achieve learning goals.

Further exploration of the relationship between self-monitoring (responsibility) and self-management (task control) was discussed as the author debated which dimension must precede the other. Garrison (1991) concluded that while these two aspects of his model are interwoven, it is difficult for learners to assume responsibility for their own learning without perceiving some control over the educational transaction. He also emphasized the importance of collaboration between students and teachers in the enhancement of the learner's perceived control.

The third dimension of Garrison's (1991) model was labeled *motivation*. He identified this dimension as "perceived value and anticipated success of learning goals at the time learning is initiated and mediates between context (control) and cognition (responsibility) during the learning process" (p. 26). This view of motivation contained two aspects, the first focused on deciding to participate in a learning activity (entering a task) and the effort required to stay on the task (task motivation). As a function of task motivation, the author acknowledged volition as the metamotivational mechanism necessary for students to take responsibility for the attainment of desired educational outcomes. The author further stated that students who perceive control internally are most likely

to be intrinsically motivated to learn, and this intrinsic motivation leads to an increased acceptance of responsibility.

Overall, the view of responsibility within the self-directed learning literature implies that the student is ultimately responsible for his or her learning. In other words, it represents a sense of ownership of the learning process and outcomes. This type of metacognitive awareness is enhanced by collaborative learning environments that promote internally perceived control for the learner. These elements combine to capture a version of responsibility similar to that of Lauermann and Karabenick's concept. However, from the perspective of self-directed learning, measures of responsibility have been sparse and when they have been developed, they consist of constructs such as self-efficacy and locus of control, which do not sufficiently assess a student's internal sense of obligation and commitment to produce or prevent outcomes.

Responsibility within Self-Determination Theory. Self-determination theory (SDT), developed by Deci and Ryan (2000, 2002) indicated three basic needs for optimal behavior – competence, relatedness and autonomy. These needs are the basis for categorizing aspects of the environment as either supportive or antagonistic to integrated and essential human functioning (Soric, 2009). The authors noted that humans do not always act as in accordance with the fullest representation of themselves as curious, inspired and self-motivated individuals. They contended, “it is clear that the human spirit can be diminished or crushed and that individuals sometimes reject growth and responsibility” (p. 267).

Deci and Ryan (2000) considered irresponsibility as an indication of non-optimal functioning and suggested that individuals whose motivation is authentic (self-endorsed) would be more likely to accept responsibility for negative outcomes and apply more effort toward achievement, and individuals who were motivated by external factors would more likely blame others for negative outcomes (e.g., teacher). The authors developed a continuum ranging from those who see themselves as autonomous and intrinsically motivated (internal regulation) to those who believe their actions are externally controlled (external regulation). SDT posits that higher internalization of assigned goals typically leads to increased personal commitment and persistence (Lauermann & Karabenick, 2011). Subsequently, individuals who view their actions as originated internally perceive more autonomy and are more likely to assume responsibility.

With respect to the consideration of contextual influences, Deci and Ryan (1985) presented *cognitive evaluation theory* as a subtheory within SDT that aimed to specify elements that either hinder or enhance intrinsic motivation. Studies showed that feelings of competence will not increase intrinsic motivation unless accompanied by a sense of autonomy, or an internal perceived locus of causality (Deci and Ryan, 2000).

This theory provides reasoning for both the intrinsic quality of “felt” responsibility and the consideration of contextual factors that influence the promotion of responsibility. However from this perspective, responsibility is viewed as a disposition that results from supportive environments and self-

determined behavior that facilitate a sense of authentic internal agency, as opposed to an internally generated sense of obligation to produce or prevent an outcome.

Responsibility vs. Autonomy. Autonomy has a rich history within the motivational psychology literature and has been studied from a number of perspectives (Ryan, Kuhl & Deci, 1997). The basic definition has been adjusted and reconstructed throughout the field of educational psychology; consequently, the concept of autonomy has been inconsistently represented. From within self-determination theory, Deci and Ryan (2006) asserted that autonomy retains its primary etymological meaning of self-governance, or rule by the self.

From an educational perspective, autonomy has been regarded as a key element for optimal student learning. Studies that explore the influence of classroom approaches on student autonomy have been plentiful (see Stefanou, Perencevich, DiCinto & Turner, 2004). Additionally, constructs such as *learner autonomy*, a popular theory in the language learning literature, have been developed to address student motivation (Xhaferi & Xhaferi, 2011).

Learner Autonomy and student responsibility. Holec (1981), who is considered the initiator of autonomous learning, defined it as “the ability to take charge of one’s learning.” Since then, responsibility has been a major principle of autonomous learning with students encouraged to take responsibility for their own learning (Chanock, 2003; Little, 1991). This version of autonomy has considered students with high learner autonomy as independent learners and students with low learner autonomy as more reliant on the teacher for knowledge acquisition

(Xhaferi & Xhaferi, 2011). For example, Boud (1988) detailed goals of autonomous learning as students to learn more effectively without the constant presence or intervention of a teacher and to help students take responsibility for their learning. Eventually, an increased value of interdependence in the classroom, and a desire to offset prevalent “individualistic” interpretations of the concept of autonomy led researchers to adopt the so-called “Bergen definition.” This definition regarded learner autonomy as “a capacity and willingness to act independently *and* in cooperation with other, as a social, responsible person (Smith, 2008).”

The notion of including cooperative others was supported by Chanock (2003) who suggested that the emphasis on independence within the construct of learner autonomy is a product of Western culture and students from a Confucian-heritage are particularly attached to the idea of relying on the teacher. The author clarified and suggested that autonomy should not be considered synonymous with responsibility. She noted, “we must recognize that there are countless things a student cannot readily discover for themselves, and that they are being responsible if they do not hesitate to ask someone who knows” (p. 4). A similar notion is found in the self-regulation literature, as students considered high in self-regulation are characterized by the adaptive quality of their help seeking (Karabenick & Knapp, 1991; Newman, 1994).

Responsibility and self-regulation. Academic self-regulation has been defined as self-generated thoughts, feelings, strategies and behaviors designed to reach academic goals (Schunk & Zimmerman, 1998). A central component of

self-regulation is self-efficacy, which refers to an individual's belief about his or her ability to learn or perform effectively; subsequently, self-efficacy for learning focuses on beliefs about using self-regulatory processes (e.g., goal setting, organizing, self-monitoring) (Zimmerman & Kitsantas, 2005). In other words, self-efficacy pertains to a student's belief in whether he or she "can" as opposed to whether he or she "will."

Zimmerman (1994) hypothesized that students' self-efficacy beliefs can influence their perception of personal responsibility. Because self-efficacious students view themselves as able agents of the learning process, they would more likely engage in proactive self-regulated learning. In other words, students with strong efficacious beliefs will use more proactive learning strategies than their efficacy lacking counterparts. Consequently, students with stronger self-efficacy beliefs for their capacity to learn on their own will perceive students (as a group) as more responsible for their learning than teachers.

From this perspective, responsibility is an outcome disposition facilitated by self-efficacy and self-regulated behavior. For example, Zimmerman and Kitsantas (2005) articulated, "self-efficacy beliefs are predictive of perceived responsibility because learners who believe they can self-regulate their learning processes are more likely to acknowledge responsibility for academic outcomes." This notion supports other studies that acknowledge interconnectedness between feelings of control and active self-regulation (Shell & Husman, 2008). In fact, Zimmerman and Kitsantas (2005) developed a scale to measure students' perceived responsibility for learning in which the respondents are asked on each

item to attribute responsibility for learning to either the student (internal) or the teacher (external) on a seven point scale; for example, “Who is more responsible for a student being interested in school?” In other words, it is a measure that obtains the students’ attributions of responsibility to either internal or external factors.

Although according to self-determination theory, those who experience competence or efficacy must also perceive their behavior as self-determined for intrinsic motivation to occur (Deci & Ryan, 2000). In fact, Lauermann and Karabenick (2011) viewed self-efficacy as a separate construct from responsibility. These authors contended that self-efficacy should not be used as a measure for responsibility as the constructs are predictive of different outcomes. For example, in any given situation, a student may feel efficacious but not responsible (e.g., I “can” do this, but I don’t necessarily feel responsible to actually do it).

The Role of Perceived Academic Control in Student Responsibility

When reviewing the pervasive motivational theories, it becomes evident that perceived control is an important element for the conceptualization of responsibility. Within the theories previously reviewed and other theoretical approaches, a consistent finding has been that students with a stronger sense of personal control over their academic outcomes generally assume more “felt” responsibility than those with a lower sense of control (Anderson and Prawat, 1983). Similarly, Harter and Connell (1984) found that students’ awareness of the

locus of control (external or internal) for their academic outcomes was useful in determining a sense of intrinsic motivation.

Although perceived control has been a prominent fixture in the development of motivation, there is no single control theory. Control beliefs encompass distinct and independent components such as, competency or agent-means beliefs (self-efficacy), response-outcome contingencies (outcome expectancies), mean-ends contingencies (causal attributions), and agent-ends relations (expectancy of success) (see Shell & Husman, 2008). Since Rotter (1966) introduced locus of control as global individual characteristic, it has been reformatted, reconstructed and featured prominently in numerous studies throughout the literature of motivational psychology. Because of the widespread use of perceived control, Perry and colleagues (2001) developed a measure for a domain-specific psychological construct which they called *academic control*. Following the general idea of perceived control as peoples' belief about their capacity to influence the environment and predict daily events, perceived academic control referred to students' belief in their capacity to influence academic situations and environments to predict or prevent outcomes.

Academic control includes the aforementioned dual-dimensionality of individual characteristics and contextual factors as interacting elements. Perry and colleagues (1998) described perceived academic control as, "a relatively stable psychological disposition affecting students' motivation and achievement-striving as manifested in class tests, assignments, course grades, GPA, etc" (Perry, 2003, p. 315). The authors clarified the use of "relatively stable" as necessary

because the construct includes transient elements that can modify a student's general sense of control. With regard to the contextual factors that influence a student's perceived control, the authors distinguished between two types of environments, low vs. high-control environments. Low-control environments are characterized by unpredictable events or outcomes that make it difficult for a student to perceive control internally. Typically, the first year of college is considered a low-control environment because students' perceived control is often undermined by heightened academic competition, an emphasis on success or failure, unfamiliar academic tasks, and an increased pressure to excel (Perry, 1991). Although transient academic conditions are temporary, if they persist repeatedly over time they are likely to reduce a student's stable academic control (Perry et al., 2001).

With respect to stable academic control as an individual characteristic, Perry and colleagues (2001) conducted a three-year longitudinal study of college students that gathered further evidence emphasizing the importance of perceived control in an academic setting. The authors concluded that students with a higher sense of control fared better in cognitive, affective, motivational variables and overall course performance. They found that students with high-control (internal) exerted more effort and reported less boredom and anxiety than those with low-control (external).

Secondary Control. The construct of academic control, as described by Hladkyj, Pelletier, Dewniak and Perry (1998), included *primary* and *secondary*

control as components of an individual's stable academic control. While primary control referred to the traditional concept of perceived control (the capability to influence one's environment to attain desired outcomes); secondary control referred to one's capability to influence his or her internal states (Pallant, 2000; Rothbaum et al., 1982). This is a useful distinction when viewing academic control as a predictive of responsibility because, as noted earlier, responsibility has been described as one's internal sense of obligation. An increase in perceived control of internal states will likely facilitate a sense of obligation and malleability for academic outcomes, thus increase the likelihood of student "felt" responsibility. Studies have shown that when faced with failure during the first year of college, students with high secondary control demonstrated a mastery orientation in their achievement-related cognitions, emotions, and strategies (Perry, 2001). This type of orientation facilitates adaptive goal striving, a quality often associated with self-directed, self-regulated, and "responsible" students.

Additionally, secondary control can serve as a failsafe when students' perceived control over their environment (primary control) is diminished. In this situation, a student may be faced with a loss of control in his or her circumstance, yet maintain control of internal states. For example, failure of a midterm exam could reduce a student's perception of control for later exams; however, the student can rely on an attitude "adjustment" to place him or herself in a manageable position for future success (e.g., It's not the end of the world, I'll just have to do better on the final). This balance between primary and secondary control is an adaptive process and has benefits not only for student motivation, but

for physical and mental health as well (Hall, Chipperfield, Perry, Ruthig, & Goetz, 2006).

The constructs of perceived academic control and student responsibility share a likeness with respect to the qualities they have in common. Despite the similarities between these constructs, they should not be considered equivalent. A student may perceive internal control, but that does not necessarily mean that he or she feels internally obligated to exercise this control (Lauermann & Karabenick, 2011). Ultimately, perceived academic control is a logical prerequisite for responsibility because students are more likely to assume ownership of academic situations when they believe that they have the capacity to influence these situations and the potential outcomes produced by these situations. However, the directionality of the relationship has not yet been determined.

Academic Entitlement. A layperson's view of student responsibility might involve the way students act during class and their attitudes toward academics. Behavior such as: talking, answering phones, sending text messages, arriving late to class, and inappropriate use of personal computers during class is considered uncivil student behavior (Chowning & Campbell, 2009). Why do some students display this type behavior while others do not? To address this question, Chowning and Campbell (2009) developed a scale to measure a construct they called *academic entitlement*. The researchers viewed this construct as a stable individual difference in personality and defined it as, "the tendency to possess an expectation of academic success without taking personal responsibility for achieving that success" (p. 982). Academic entitlement is characterized by an

externalized locus of control, as students relinquish responsibility for their own academic outcomes.

The measure for academic entitlement contained two subscales, Externalized Responsibility and Entitled Expectations. The former focused on the attribution of responsibility to either the student or external others, the latter focused on students' expectations of professors' policies and grading strategies. The researchers separated these categories into subscales because they believed they represented different constructs. Chowning and Campbell (2009) found that students with more internally attributed responsibility scored lower on academic entitlement than those who perceive more external control. This finding is consistent with their definition of academic entitlement, if students view external others as in control of their own academic outcomes than they will likely place the responsibility outward.

Students who are deemed academically entitled are more likely to display uncivil behavior in class. This behavior may seem irresponsible, but academic entitlement is separate from the responsibility construct presented by Lauermann and Karabenick (2011). Academic entitlement is characterized largely by externalized control, yet it does not capture the student's internal obligation or commitment to produce an outcome. Measures such as the Intellectual Achievement Responsibility (IAR) Scale (Crandall et al., 1965), Perceived Responsibility for Learning Scale (Zimmerman, 2005), and the Personal Responsibility Orientation to Self-Direction in Learning Scale (PRO-SDLS) (Stockdale & Brockett, 2011) also assess students' attribution for responsibility as

either internal or external, yet do not address the students' internal sense of obligation and commitment to produce or prevent desired outcomes.

Additionally, there are differences in attributions of causality and responsibility, yet these concepts are often intermingled. Weiner (1995) eventually addressed this predicament admitting "I believe that I erred in my prior conceptual analysis: Causal controllability is not to be equated with responsibility" (p.8). The author further clarified that attributions of control refer to characteristics of a cause, such as the lack of effort or aptitude. Alternatively, responsibility refers to a judgment made about a person (e.g., he should have been more prepared for the exam).

Both of these conditions involve attributions to past outcomes which, by nature, disregard a sense of responsibility for what "will" happen. This reveals another difference between perceived control and responsibility as explained by Lauermann and Karabenick (2011). These authors define responsibility as "a sense of internal obligation and commitment to produce or prevent designated outcomes or that these outcomes should have been produced" (p. 135), which indicates an element of future outcomes as being committed to and influenced.

The Role of Implicit Theory of Intelligence in Student Responsibility

The implications for attributing responsibility to either external or internal forces have been thoroughly studied. A common theme from these studies is the association between attributions of effort and responsibility (Anderson and Prawat, 1983). Dweck and Reppucci (1973) wondered why some students tend to give up in the face of failure while others do not. The authors hypothesized that students who do give up when faced with failure would take relatively less

responsibility for their successes and failures; and when outcomes were attributed to internal factors these individuals would blame the absence of ability rather than effort. Conversely, those who seem to persist in the face of failure would view their successes and failures as caused by their own actions and attribute outcomes to the presence or absence of effort.

Ultimately, Dweck and Leggett (1988) developed a theory that distinguished between two types of implicit theories. Those that view individual traits as fixed entities (entity theorists) and those who view individual traits as malleable (incremental theorists). The authors noted unique differences in goal striving, cognitive strategies, casual attributions, and achievement motivation when students approach the trait of intelligence with either of these implicit theories (Dweck, Mangels & Good, 2004).

Attribution theory (Weiner, 1979) plays a central in student motivation and student responsibility, as seen in the present literature reviewed. However, the attribution approach occurs only when a student has encountered an outcome, such as failure. In other words, attributions refer to what “has” occurred, not to what “will” occur. Dweck and colleagues (1999) contended that students’ implicit theories create a framework in which certain attributions occur, depending on which implicit theory the student brings in to the situation. From this perspective, it is possible to anticipate students’ attributions of causality. For example, entity theorists are more likely to blame their academic failures on a lack of intelligence, while incremental theorists are more likely to attribute

negative outcomes to a lack of effort or flawed strategy (Dweck, Chiu & Hong, 1995).

Similarly, students' implicit theories guide them to specific academic goal types. The authors suggested that entity theorists tend to orient more toward *performance goals*. Students with performance goals typically strive to avoid negative and gain positive judgments about their ability. Because they view their intelligence as a fixed trait, these students become concerned with actions that reflect their sufficient ability and avoid actions that demonstrate deficient ability. This type of goal is considered maladaptive. On the other hand, incremental theorists are more inclined to use *learning goals*. These goals are indicative of striving to attain knowledge and actions that increase ability. Because these students view intelligence as malleable, there is less concern with "showing it off" or protecting it and more emphasis on applying effort to attain the goal. This type of learning goal is considered optimal and has been linked to increased academic achievement (Blackwell, Trzesniewski & Dweck, 2007; Hong, Chiu, Dweck, Lin & Wan, 1999).

Why is this important with respect to student responsibility? The motivational theories that have mentioned responsibility have consistently portrayed the construct as inclusive of a stable (or relatively stable) individual characteristic. Dweck (1999) showed that students' implicit theories facilitate corresponding goal types and attribution styles even for students equal in intellectual ability. Students who take responsibility for their academics are likely to use more adaptive self-regulated behavior and achievement goals. This too,

seems to occur for students across all levels of intelligence. Other behaviors indicative of a responsible student (one who is internally committed to produce or prevent an outcome) such as study time and effort have also been associated to causal attributions and locus of control (Shell & Husman, 2008). Goal-setting theory (Locke & Latham, 1990, 2006) is another theoretical structure that is relevant to the construct of “felt” responsibility. In this theory, commitment plays an important role in goal-setting, as students who are committed to their goal will obtain increased task performance despite the type of goal used (Lauermann & Karabenick, 2011).

Because students’ implicit theories of intelligence seem to play a substantial role in determining their goal strivings, effort, and causal attributions, it is reasonable to believe that a student’s implicit theory is associated with his or her obligation and commitment to outcomes. It was the position of the present study that students’ implicit theories are related to their sense of responsibility.

In sum: although the concept of responsibility has been diluted and inconsistent within the motivational psychology literature, when viewed together these perspectives seem to include components reminiscent of the definition of responsibility detailed by Lauermann and Karabenick (2011). Additionally, student responsibility has been generalized and equated with other constructs that include components of self-efficacy, casual attributions and perceived control. But, it is the view of the present study that student responsibility is a separate construct from perceived control. It was expected, however, that a student’s perceived academic control is related to his or her sense of responsibility. In

other words, it was anticipated that students who perceive themselves as able to influence their academic environment, future outcomes, and internal states will more likely feel a sense of internal obligation and commitment to determining those outcomes, as opposed to students who perceive external others (e.g.; teachers) as in control. Also, it was expected that some students have an innate tendency to feel more responsible than others. This tendency is reflective of goal commitment and self-regulated behavior. It was anticipated that students who believe their intelligence is a malleable trait would be more likely to accept responsibility for academic outcomes because they perceive these outcomes as attainable through effort. Lastly, because the construct of student responsibility is presented as inclusive of individual characteristics and contextual factors at play, it was expected that students with high perceived control and an incremental theory would be more inclined to feel internally obligated to academic outcomes than students who have only one of these characterizations.

The Present Study

- 1. Perceived academic control (operationalized by primary and secondary control) will be positively and strongly related to student responsibility.*

Drawing from the literature above, it was hypothesized that students who feel as if they are in control would be more likely to feel internally obligated and committed to produce or prevent academic outcomes. Conversely, students with low perceived academic control would most likely not assume ownership over their academic outcomes. These students with low academic

control are likely to ascribe responsibility for academic outcomes to external others and thus, not feel obligated to produce or prevent the outcomes. In previous research, primary and secondary control have not been correlated to each other (Hall, Perry, Ruthig, et al., 2006), so for the mediation analysis they have been operationalized as a general control variable.

2. *Implicit theory of intelligence will be positively related to student responsibility, with entity theory representing the low end of the continuum and incremental the high end.*

Secondly, this study investigated the relationship of implicit theories of intelligence (viewing the trait of intelligence as fixed or malleable) on college students' responsibility. Based on the existing literature, it was expected that students with an incremental theory of intelligence would attribute responsibility for academic outcomes to internal and controllable factors (e.g., effort) more than their entity theorist counterparts. Thus, it was anticipated that students with an incremental theory of intelligence will perceive academic goals as surmountable and would more likely feel a sense of obligation and commitment to produce or prevent such outcomes.

3. *Implicit theory of intelligence will be positively related to perceived academic control (operationalized by primary and secondary control).*

Based on the literature, students with high academic control and incremental theorists share similar qualities in their self-regulation, attribution style and goal-striving. Students who perceive themselves as able to influence

academic outcomes are more likely to apply effort toward producing such outcomes. Similarly, students who believe their intelligence is malleable are likely to apply more effort toward learning goals and perceive more control over academic outcomes. Thus, these two constructs were expected to be strongly related to each other.

4. *Perceived academic control (operationalized by primary and secondary control) and implicit theory of intelligence will account for more variance of student responsibility together than by either of them alone.*

Lastly, this study examined the relationship between perceived academic control (perceptions of internal (high) or external (low) control of academic outcomes, and perceptions of the capability to influence internal states) and implicit theory of intelligence (viewing the trait of intelligence as fixed or malleable) on college students' sense of responsibility (internal obligation and commitment to produce or prevent outcomes). Based on previous results, it was anticipated that students with strong perceptions of the capability to influence outcomes and incremental theories of intelligence would view themselves as agents of change, be more intrinsically motivated, and apply effort to achieve goals. Thus, it was expected that students with high perceptions of academic control and incremental theories of intelligence would be more inclined to feel responsible (internally obligated and committed to academic outcomes) than students who had only one of the predictors. It was hypothesized that incremental theory of intelligence would

have a partial mediating effect on the relationship between academic control and student responsibility.

Methods

Participants

One hundred and fifty-two undergraduate students ranging in age from 18 to 22 were recruited from an Educational Technology class in a college of education at a public university in the southwestern United States. Participants were primarily Caucasian (69%) with 13% being Hispanic/Latino, 5% being African American, 4% being Asian, 2% being American Indian/Alaska Native and 5% reporting other/biracial for ethnicity. A majority of the participants were female (69%).

Procedure

Students enrolled in the educational technology class were recruited to participate in the study. The survey was conducted by a researcher during the regularly scheduled class periods. Participants each had access to a computer, with which they were able to access the online survey. The survey took approximately 20-30 minutes to complete. Students that participated were entered into a raffle to win a gift certificate to the university bookstore. A total of seven classes participated in the study, each with approximately 25 students enrolled.

Measures

Academic Control Scale or Primary Control. An 8-item instrument (Perry et al., 2001) was used to measure students' perception of control. This scale was designed for students to indicate the extent to which they agreed with statements such as "The more effort I put into my courses, the better I do in them"

and “I have a great deal of control over my academic performance in my psychology class” (see Appendix). These items are rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Chronbach’s alpha was .70.

Secondary Academic Control (SC). Secondary academic control beliefs and strategies will be assessed using a four-item, five-point Likert scale measure from Hladkyj, Pelletier, Drewniak, and Perry’s (1998) Secondary Academic Control Scale. Items included statements such as “No matter how well I do on a test or in a course, I try to see beyond my grades to how my experience at college helps me to learn about myself,” and “Whenever I have a bad experience at college, I try to see how I can turn it around and benefit from it (1 =strongly disagree, 5 =strongly agree) (see Appendix). Cronbach’s alpha was 0.72. The interpretive form of secondary control deviated from other forms of secondary control outlined by Rothbaum et al (1982; Hall, Chipperfield, Perry, Ruthig, & Goetz, 2006).

Implicit Theory of Intelligence Scale. This scale consists of six items, three entity theory statements such as “You have a certain amount of intelligence, and you really can’t do much to change it,” and three incremental theory statements such as “You can always greatly change how intelligent you are (Dweck, 1999).” Respondents were asked to report their level of agreement on a six-point Likert scale (1 = agree strongly, 6 = disagree strongly) (see Appendix). The incremental theory items were reverse scored and a mean theory of intelligence was calculated for the six items with the low end (1) representing a

strict entity theory, and the high end (6) agreement with the incremental theory. Cronbach's alpha was 0.81.

Student Responsibility Scale. The students' level of responsibility was measured using a five-item scale. This scale was developed by Lauermann and Karabenick and is currently being validated (personal communication, October 14, 2011). The respondents are asked to report their sense of personal responsibility on a ten-point Likert scale. Items include statements such as "...that I am interested in the subject area taught by the instructor" and "...that I learn the required material in class" (see Appendix). Because this measure is currently being validated it was used as an exploratory measure in the present study. Cronbach's alpha was 0.78.

Results

Descriptive Statistics

Descriptive statistics were gathered to assess whether the data met the assumptions required for the intended data analysis (see Table 1). These results show that the mean for each variable was on the higher end of the scale. All the proper assumptions for analysis were met.

TABLE 1
DESCRIPTIVE STATISTICS FOR ALL VARIABLES

	Min	Max	<i>M</i>	<i>SD</i>	Skew
Primary control	3.00	5.00	4.38	.42	-.90
Secondary control	1.50	5.00	3.82	.70	-.30
Implicit theory	1.50	6.00	4.18	1.08	-.29
Student responsibility	2.80	10.00	7.76	1.41	-.84

N=152

Correlations

The zero-order correlations among the six variables are presented in Table 2. As expected, primary control (PC) ($r = .33, p < .01$) and secondary control (SC) ($r = .25, p < .01$) were positively and significantly associated with student responsibility (SR). This indicates that students who perceive control over their academic environments feel a stronger sense of responsibility. The same is true for students who perceive control over their internal states. Also, the weak correlation between primary and secondary control ($r = .11, n.s.$) was consistent with prior research (Hall et al., 2006).

TABLE 2
CORRELATIONS AMONG STUDY VARIABLES

	1	2	3	4
1. Primary control	-			
2. Secondary control	.11	-		
3. Implicit theory	.28**	.08	-	
4. Student responsibility	.33**	.25**	.16*	-

Note: ** $p < .01$; * $p < .05$. Listwise $N = 152$

Implicit theory of intelligence was positively and moderately related to student responsibility ($r = .16$), and the relationship was significant ($p < .05$). As expected, students who have an incremental mindset are more likely to feel responsible for their academic outcomes. Implicit theory of intelligence was positively and significantly related to PC ($r = .28, p < .01$). Implicit theory was also positively related to SC ($r = .08, n.s$), however, the relationship was not significant. The association between implicit theory and PC was strong, which indicates that students who perceive control over their academic environment are more likely to be incremental theorists, despite their level of secondary control.

Mediation Analysis

A mediator model was proposed as the best method to statistically examine the hypothesized relationship among the variables. Consistent with the Baron and Kenny (1986) approach to mediation, a four step approach was conducted. The direct effect of the independent variable (perceived academic control) on the dependent variable (student responsibility), the direct effect of the independent variable on the mediator variable (implicit theory of intelligence), and the direct effect of the mediator variable on the dependent variable were

analyzed. The direct effect of the independent variable was then again examined controlling for the mediator variable.

As anticipated in Hypothesis 1, when primary and secondary academic control were used together as a predictor set in a regression model, they explained 13% of the variance ($R^2 = .14$, adj. $R^2 = .13$) in student responsibility and the relationship was significant [$F(2,150) = 12.45$, $p < .01$]. In examining Hypothesis 2, implicit theory was positively related to student responsibility; however, the relationship was weak ($R^2 = .03$, adj. $R^2 = .02$) and implicit theory did not significantly account for the variability of SR [$F(1,150) = 3.87$, $n.s.$]. As expected in Hypothesis 3, when the two perceived control variables were used together as a predictor set in a regression model with implicit theory as the dependent variable, they explained 7% of the variance ($R^2 = .08$, adj. $R^2 = .07$) in implicit theory and the relationship was significant [$F(2,149) = 6.66$, $p < .01$].

Only two of the first three steps in the Baron and Kenny approach (1986) were statistically significant which indicates that mediation did not occur. Results showed that the overall mediation model was significant, $R^2 = .16$, adj. $R^2 = .14$, $F(1,148) = 9.34$, $p < .01$. However, when controlling for the independent variables (PC and SC) the relationship between incremental theory and student responsibility was not significant, $t(151) = .75$, $n.s.$ Thus, implicit theory did not mediate the relationship between perceived academic control and student responsibility.

Discussion

The purpose of this study was to examine the relationship among perceived academic control, implicit theory of intelligence, and student responsibility. A mediator model was proposed in which implicit theory would mediate the relationship between perceived academic control and student responsibility. This is the first study in which the variable student responsibility has been used. Based on the existing literature and framework within which it was proposed, it was expected that student responsibility would be positively and strongly related to perceived control (Lauermann & Karabenick, 2011). As hypothesized, the perceived academic control variables were significantly associated with students' felt responsibility, and both of the perceived academic control variables (PC and SC) were significantly predictive of student responsibility independently of each other. This relationship indicates that students who believe they have the power to influence their environment in order to achieve intended academic outcomes are more likely to feel a sense of internal obligation to produce such outcomes. Conversely, if students do not believe they have the capability to influence their academic environment, they will likely lack a sense of commitment to produce or prevent outcomes. Additionally, students who perceived control of their internal states significantly felt more responsibility for their academic outcomes.

Primary and secondary academic control were not significantly related to each other yet, when used together in a regression model they significantly and positively predicted student responsibility, which supports the previous literature

that alluded to the reciprocal and beneficial nature of the academic control variables (Hall, Chipperfield, Perry, Ruthig, & Goetz, 2006; Rothbaum et al., 1982).

The present study also revealed that students with an incremental mindset felt more responsibility for their academic outcomes than did entity theorists. This significant relationship was expected, yet the relationship was only moderate in strength. As previous research has suggested, entity theorists are not likely to put forth the necessary effort to achieve academic outcomes (Dweck, Mangels & Good, 2004); the implications of the present study may reveal that entity theorists also do not feel a sense of internal commitment or responsibility to produce such outcomes. This relationship may imply that students with an incremental mindset have similar attribution styles to those who are high in student responsibility; however, this relationship needs further examination. Although students' implicit theory of intelligence was a significant predictor of their responsibility for academic outcomes, students' level of perceived academic control was a much stronger predictor of student responsibility.

The present study also examined the relationship between the perceived academic control variables and implicit theory of intelligence. As expected, this was a positive and significant relationship. Because the two academic control variables (PC and SC) were used together in this regression model, it is useful to look at the direct relationship of each of them individually. The zero-order correlations revealed that secondary control is weakly related to implicit theory, while primary control is strongly and significantly related. This indicates that

students' perceived capability to influence academic environment to produce academic outcomes is significantly related to their implicit theory of intelligence, despite their perceived control of internal states.

After establishing individual relationships among the variables, the proposed mediator model was examined. Unexpectedly, it was discovered that implicit theory of intelligence did not partially mediate the relationship between academic control and student responsibility. The overall mediation model was significant even with the mediator variable which reinforces the idea that perceived academic control is strongly related to student responsibility. In other words, the relationship between students' perceived capability to produce academic outcomes and the commitment felt toward producing such outcome is not affected by their implicit theory of intelligence.

Implications

The present findings have several implications within the realm of student motivation, and they provide researchers and educators a fuller sense of what it means for students to be internally committed to their school work. These results suggest that students need to feel as if their academic outcomes are within their power to achieve in order to feel responsible for the completion of the outcomes. However, the directionality of this relationship was not established in the present study. This means that students may first have a sense of responsibility for their learning which encourages them to perceive control over their academic outcomes. Although, previous literature (Garrison, 1991) would suggest that the perception of control would likely precede the sense of responsibility, as one may

not feel responsible for outcomes they cannot influence. Nevertheless, educators can take the appropriate steps to increase students' perceived academic control with the understanding that it should positively affect the students' sense of internal commitment and responsibility toward their schoolwork.

Students who had incremental mindsets about their own intelligence had significantly more perceived control over their academic outcomes than did entity theorists. The strength of this relationship indicates that students who believe their intelligence is malleable view themselves as able agents with the control to attain academic outcomes. These results are consistent with previous research that has suggested that incremental theorists attribute failure to controllable factors such as effort which leads to increased effort in future academic endeavors (Dweck, Mangels & Good, 2004). Given the results of the present study, one may suggest that students who attribute the reasons for academic outcomes to adaptable behaviors view their own action as sufficient for attaining such outcomes.

The present findings also suggest that not only is primary control a significant predictor of student responsibility, but secondary control is as well. The perception that students have to control their internal states played an important role in their sense of responsibility. Student responsibility was described by Lauermann and Karabenick (2011) as an internal sense of commitment, so it may not be surprising that students who feel as if they can manipulate their internal states are more inclined to feel responsible, as it is most likely the optimal perspective to have toward their academic outcomes, as

opposed to not feeling responsible. Students with high secondary control may realize that they alone are the ones who control their sense of commitment toward their schoolwork. According to these results, educators might benefit not only from teaching students the class material, but teaching them that they can control how they perceive academic situations. Students who believe they can manipulate their internal states will likely be more motivated and less anxious in school.

Limitations and Future Directions

The sample for the current study consisted primarily of Caucasians (69%). This skewed ethnic distribution may make it difficult to generalize the current findings to different ethnic groups. Also, a majority of the participants were female (69%) which could have several implications. Another demographic concern of the subject pool is the distribution of participants across grade levels within the university. Students in their first year of college may perceive their academic environments and outcomes differently than students who have experience in the unique and demanding world of university academics. Also, the scale used to measure student responsibility had not previously been used in empirical research. The participants in the present study filled out items that pertained to future outcomes/situations, (“I feel responsible that...I am interested in the subject matter taught by the instructor”). However, Lauermann and Karabenick (2011) contended that this version of responsibility also applies to outcomes that should have been produced or prevented, (“I feel responsible that...I *was* interested in the subject matter taught by the instructor”). A scale that

identifies both temporal dimensions of responsibility is currently being validated (Lauermann, personal communication, October 14, 2011). It should also be noted that a grammatical error was discovered in one item in the Secondary Control Scale. This may have affected the reliability of the scale, although even with the grammatical error, the Cronbach alpha supported the reliability of the scale.

As stated earlier, the positive and significant relationship between perceived academic control and student responsibility was established; however the direction of the relationship was not. Future studies aimed at examining the direction of this relationship are suggested. This will enable educators and researchers to produce interventions and practical methods for increasing students' felt responsibility for their schoolwork. Future studies can also focus on the motivation and affect of students when a their sense of responsibility is high and perceptions of control are low. Students who find them selves in this situation are likely to experience increased levels of anxiety.

Studies in the field of educational psychology can continue to focus on the mechanisms of student responsibility and the potential influence responsibility has on student achievement or self-regulative behaviors. Possible avenues for future studies include the examination of the relationship between student responsibility and knowledge building self-regulative behavior or other types of constructive self-regulative behavior. If researchers discover a significant relationship between the constructs it will expand the possibilities for educators to increase positive learning behaviors in students. Studies such as these will also further our understanding of the nature of "felt" responsibility. More specifically,

studies can be done that illuminate the interplay between students' internal responsibility and formal accountability.

Conclusion

The present study provides researchers with an empirical examination of the construct of student responsibility, which had not previously been studied. Concepts with similar characteristics to responsibility were determined to be separate, yet significantly associated with responsibility. The relationship between students' perceived academic control and sense of responsibility was significant and strong. The relationship between students' implicit theory of intelligence and sense of responsibility was also significant, yet only moderate in strength. The results of the mediator model indicated that students' implicit theory of intelligence did not mediate the relationship between their perceived academic control and felt responsibility. However, a student's belief about his or her capability to influence the environment and predict academic outcomes was associated with his or her sense of internal commitment to such outcomes. This was true for both the perceived control of one's environment and the perceived control of one's internal states.

Future studies can continue the investigation into students' felt responsibility by examining the predictability of student responsibility to other variables such as academic achievement and self-regulative behavior. An internal sense of commitment toward the production or prevention of academic outcomes is by nature an influential factor in a student's academic life; and the results of the present study indicate that student responsibility may be an important element in

the realm of student motivation. The field of educational psychology would benefit from further investigation into the mechanisms of student responsibility and its potential effects on student achievement.

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APPENDIX
ACADEMIC CONTROL, IMPLICIT THEORY, AND STUDENT
RESPONSIBILITY SCALES

Perceived Academic Control

Subscale	Item
<p>Primary Control (8 items)</p>	<p>-I have a great deal of control over my academic performance in my courses.</p> <p>-The more effort I put into my courses, the better I do in them.</p> <p>-No matter what I do, I can't seem to do well in my courses. (R)</p> <p>-I see myself as largely responsible for my performance throughout my college career.</p> <p>-How well I do in my courses is often the "luck of the draw." (R)</p> <p>-There is little I can do about my performance in college. (R)</p> <p>-When I do poorly in a course, it's usually because I haven't given my best effort.</p> <p>-My grades are basically determined by things beyond my control and there is little I can do to change that. (R)</p>
<p>Secondary Control (4 items)</p>	<p>-My academic performance and experience has given me a deeper understanding of my life than could be achieved without this experience.</p> <p>-Regardless of what my grades are, I try to appreciate</p>

how my college experience can make me a “stronger person” overall.

-No matter how well I do on a test or in a course, I try to “see beyond” my grades to how my experience at college helps me to learn about myself.

-Whenever I have a bad experience at college, I try to see how I can “turn it around” and benefit from it.

Implicit Theory of Intelligence

Subscale	Item
Entity (3 items)	<p data-bbox="574 367 1328 478">-You have a certain amount of intelligence, and you can't really do much to change it.</p> <p data-bbox="574 512 1328 623">-Your intelligence is something about you that you can't change very much.</p> <p data-bbox="574 657 1328 768">-You can learn new things, but you can't really change your basic intelligence.</p>
Incremental (3 items)	<p data-bbox="574 812 1331 924">-No matter who you are, you can significantly change your intelligence level.</p> <p data-bbox="574 957 1328 1068">-You can always substantially change how intelligent you are.</p> <p data-bbox="574 1102 1328 1213">-No matter how much intelligence you have, you can always change it quite a bit.</p>

Student Responsibility

	Item
I feel personally responsible to make sure that... (5 items)	...I am interested in the subject area taught by the instructors. ...I make excellent progress throughout the semester in my classes. ...I like the subject area taught by the instructors. ...I learn the required material in this class. ...I value learning the subject area taught by the instructors. ...I do well in class.

