Using the Integrative Model of Behavior Prediction to Understand Factors Influencing Graduate Teaching Assistants' Teaching Development Attendance

Dissertation

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Abstract

This dissertation proposes a modified version of the Integrative Model of Behavior Prediction (Fishbein, 2000) to understand motivations affecting Ohio State University Graduate Teaching Assistants (GTAs)' behavioral intentions for attending teaching development workshops at their university's center for teaching (UCAT). Current Ohio State GTAs (N = 139) were surveyed to explore how attitudes, norms, efficacy, and anticipated emotions affect their behavioral intentions. The study found support for some elements of the modified model, including the additions of response efficacy and anticipated emotions. Anticipated emotions were found to work as a mediator for the main variables' effects on behavioral intention. Support was not found for the interaction effect of injunctive and descriptive norms. The study also found that the distal variables of previous teaching experience and familiarity with their university's center for teaching affected behavioral intentions to attend teaching development workshops at the GTAs' center for teaching. Implications for behavior prediction research and teaching development implementation and marketing are discussed.

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Chapter 1: Introduction

This study seeks to understand the motivating factors that influence the likelihood that Graduate Teaching Assistants (GTAs) will attend teaching development workshops at their University's center for teaching. Research shows that graduate students are under-prepared for their teaching roles (e.g., Austin & Wulff, 2004; Boyer, 1991; Darling & Dewey, 1990; Golde & Dore, 2003; Heflinger, Doykos, 2016; Prieto, Yamokoski, & Meyers, 2007; Wulff, Austin, Nyquist, & Sprague, 2004), which affects not only the quality of undergraduate education (e.g., Baldwin, 2009; Reeves, Marbach-Ad, Miller, Ridgeway, Gardner, Schussler, & Wischusen, 2016), but graduate students' interest in future teaching careers (Austin, 2002; Golde & Dore, 2001). Teaching development programs and workshops have been developed to combat this lack of preparation (e.g., Chism, 1998; DeNeef, 2002; Kniola, Chang, & Olsen, 2012; Mueller, Perlman, McCann, & McFadden, 1997; Piccinin, Farquharson, & Mihu, 1993; Pruitt-Logan & Gaff, 2004; Wurgler, VanHeuvelen, Rohrman, Loehr, & Grace, 2013) and have shown positive results in improving GTA success in areas such as teacher efficacy, confidence, and student outcomes (e.g., Crowe, Harris, & Ham, 2000; Darling-Hammond, 2000; Denton & Peters, 1988; D'Eon, 2004; Williams, 1991). However, participation in these programs is voluntary and often minimal (BrchaLorenz, Wang, & Laird, 2015; Golde & Dore, 2001; Korpan, 2014; Linenberger, Slade, Addis, Elliott, Mynhardt, & Raker, 2014; Palmer, 2011; Mena & Capobianco, 2013); thus to improve the teaching preparation of

graduate students, it is imperative to understand what motivates GTAs to participate in much-needed teaching development workshops (Gansemer-Topf, Ross, & Johnson, 2006; Jennings, 1987; Lovitts, 2001; National Association of Graduate-Professional Students, 2001).

In this study, work from educational studies on the history and landscape of doctoral programs, as well as teaching development, is used to understand GTA teaching development, while the Integrative Model of Behavior Prediction (Fishbein, 2000) is used to study the specific variables involved in the decision-making process. This study also seeks to enhance the Integrative Model by investigating the roles of response efficacy (i.e., perceived workshop effectiveness) and anticipated emotions (e.g., anticipated anxiety or joy for attending teaching development workshops) as additional factors motivating attendance at workshops.

Doctoral Education at Research Institutions in the United States

Doctoral programs at large research institutions in the United States have a history of emphasizing academic research over teaching instruction (Wulff & Austin, 2004). This focus on research stems from an evolution in the size and structure of university systems during the rapid growth following WWII (Rudolph, 1962). During this time, there was not only a push for greater enrollment of students leading to less individualized instruction for students, but also a shift in the focus of universities from simply preparing future professionals for jobs to a focus on investigating and building new knowledge through academic scholarship (Trow, 2005). This led to our current higher education system, which has an evaluation and reward structure that often prioritizes publications, grant money, and publicity for faculty and academic units over teaching quality (e.g.,

Hutchings & Clark, 2004; National Science Foundation, 1996). This rapid increase in enrollment and shift in focus to academic research at large research-intensive institutions has brought about a plethora of concerns by government officials and researchers about the higher education system at the undergraduate and graduate levels.

At first, concerns about the quality of higher education at these institutions by government officials and researchers focused almost exclusively on the quality of education for undergraduate students. These concerns arose from data on student outcomes, such as grades and job placement (Bartlett, 2003; Pratasavitskaya & Stensaker, 2010; Wulff, et al., 2004). However, it became evident that to fully understand the quality of higher education for undergraduates at large, research-intensive institutions, it was also important to look at the education of graduate students, who often teach them (Wulff & Austin, 2004). Not only is graduate school where future academics are educated and socialized (Austin, 2002; Bragg, 1976; Tinto, 1987), but many doctoral institutions rely extensively on graduate teaching assistants (GTAs) to teach a large portion of introductory undergraduate courses (Marbach-Ad, Schaefer, Kumi, Friedman, Thompson, & Doyle, 2012; Parker, Boersma, Hicks, & Bennett, 2015; Trow, 2005; Wise, 2011), leading to an immediate and direct effect on undergraduate education. It is estimated that approximately 35% of all undergraduate courses at research institutions are taught by graduate students (Laurence, 2001) and, in some fields, such as biology, the number can be as high as 90% for laboratory sections (Sunderberg, Armstrong, & Wischusen, 2005).

Graduate Education

Increasing concerns about the impact of graduate preparation on the quality of undergraduate education led to a flurry of research focused on graduate student education

and teaching preparation starting in the 1970s and 1980s (Gardner & Barnes, 2007; Wulff & Austin, 2004). The growing use of GTAs as instructors (Chase, 1970) and the inadequacy of their teaching preparation and development structures became a focus of concern for researchers and government agencies, which found a lack of teacher preparation and decreasing obtainment of difficult learning outcomes(Nowlis, Clark, & Rock, 1968). As a result, many researchers voiced concerns and criticisms about the higher education system and pushed for structural changes higher education to remedy these issues (e.g., Anderson, 1992; Bloom, 1987; National Commission on Excellence in Education, 1983; Skyes, 1988; 1990).

However, even as government agencies and scholars recognized the need for graduate school reform due to its impact on the quality of undergraduate education, studies about graduate students still focused on development *after graduation*, from the first academic position to obtaining tenure (e.g., Olsen, 1993; Sorcinlelli, 1988; 1992; Sorcinelli & Austin, 1992). At first, the experience of graduate students *during* graduate school, in preparation for becoming a future faculty member, was largely ignored within the literature. Later; however, scholars started to understand that graduate school must be understood as an important *part of* faculty preparation, rather than a separate process, because of the direct and immediate effects on the quality of undergraduate education as more GTAs started directly instructing undergraduates (e.g., Anderson & Seashore Louis, 1991; Bess, 1978; Golde & Dore, 2001; Tierney & Rhoads, 1994; Weidman, Twale, & Stein, 2001). This shift in focus to understanding experiences *during* graduate school allowed researchers to get a more holistic view of the factors impacting the quality of undergraduate education.

Graduate education as socialization. To understand how graduate school prepared graduate students to be instructors, researchers started to look holistically at graduate school as a socialization process. Based on research stemming from theories of role acquisition (Thornton & Nardi, 1975), which suggest that individuals acclimate to their roles through four stages of socialization (anticipatory, formal, informal, and personal), the socialization stage (i.e., learning what behaviors and values are expected in a role; Van Maaanen, & Schein, 1979) during graduate school became known as "anticipatory socialization." During this stage, students are socialized for their roles as future faculty members by learning and preparing for the expectations of these future positions (Bess, 1978). Graduate students learn the responsibilities and values of academia through their interactions with faculty members and advisors (Blouin & Moss, 2015; Boman, 2013; Park, 2004; Lovitts, 2001; Tinto, 1993). Students get to build and try out these skills before they are officially in these "anticipated" future faculty roles. This new view of graduate school as a socialization stage was a much-needed shift in the evaluation of the higher education system [according to researchers, as the focus of research on higher education turned to understanding the *link between* preparation in graduate school and future faculty positions instead of looking at the processes separately (Austin & Wulff, 2004). This view preparation in higher education recognizes that the quality of teaching preparation during graduate school has an impact on graduate students' preparedness for future faculty positions.

To better understand the developmental role of doctoral programs in preparing students for the professoriate, a four-year longitudinal, qualitative study of 66 graduate students by Wulff and colleagues (2004) took a closer look at the socialization process of

graduate students. The study found numerous factors that affect the graduate student experience, including a student's background, teaching roles, experiences, informal connections, and incoming messages (both explicit and implicit). Wulff and colleagues (2004) concluded that the development stage of graduate school is not a set linear process for graduate students, but rather students are continually observing and integrating their experiences and interactions into their identity development during this time.

This contrasts with previous work using developmental perspectives of socialization that modeled the graduate experience as a *set linear process* where students must progress from one stage of development to the next sequentially (Schlossberg, Waters, and Goodman, 1995). Instead scholars such as Wulff started taking a contextual view of graduate student development, recognizing the possible interaction and overlap of developmental stages as an iterative process that can vary from time to time and student to student based on environmental and personal factors (Weidman, Twale, and Stein, 2001). Graduate students do not simply move from novice to expert as scholars, but rather their social, cognitive, and emotional experiences inside and outside of school affect their developmental path (Gansemer-Topf, Ross, & Johnson, 2006; Lovitts, 2001; Tinto, 1993). It is this holistic experience of socialization that affects graduate student success with teaching and research more than simply their academic performance (Bragg, 1976).

These views of socialization mirror research that has been done more broadly on organizational development and general career development which agree that socialization into a role (such as instructor) or organization is influenced by a combination of social and individual factors (e.g., Saks & Ashforth, 1997).

Organizational socialization theories (such as social cognitive theory; Bandura, 1986, and uncertainty reduction theory; Falcione & Wilson, 1988) and career development theories (such as social cognitive career theory; Lent, Brown, & Hackett, 2002), all consider the intertwined socializing roles of environmental factors and individual characteristics that can affect socialization at varying stages of development.

Socialization as future faculty. This new understanding of graduate student socialization during graduate school spurred reports by government agencies and scholars about the adequacy of this socialization process, who consistently found a mismatch between the research goals of doctoral programs and the needs of society and future employers due to a hyperfocus on research at these institutions (e.g., Gaff, Priott-Logan, & Weibl, 2000; Golde & Dore, 2001; Nyquist & Woodford, 2000). For example, looking specifically at teaching needs, a survey of over 4,000 graduate students by Golde and Dore (2001) found that few graduate students felt very prepared for teaching tasks such as leading discussion (57.9%), teaching labs (44.7%), and teaching lecture (36.1%), although a similar study of 688 doctoral students found that only 63% felt very prepared (Heflinger, Doykos, 2016).

Wulff and colleagues (2004) also found that during the socialization process, graduate students encountered mixed messages about the importance of teaching from formal policies and informal interaction with instructors and advisors. These messages, combined with the research-focused demands of the program, often left graduate students wavering on their value for developing their teaching skills (Wulff, et al., 2004). In fact, many studies about the graduate school experience have characterized the graduate school experience as an ambiguous "sink or swim" process with little formal or

consistent preparation or expectations for teaching roles (Austin, 2002; Chadha, 2013; Gaia, Corts, Tatum, & Allen, 2003; Shannon, Twale, & Moore, 1998; Wise, 2011). This unorganized, often negative, experience of graduate school often contributes to students' diminishing interest in pursuing occupations in academia. Golde & Dore (2004) found that 35% of graduate student participants' interest in future faculty positions decreased after exposure to the higher education system through their graduate programs.

Teaching Preparation

The lack of preparation for immediate teaching roles and future faculty positions, combined with the mixed signals about the importance of teaching, can not only lead to direct impacts on the quality of undergraduate education through instruction quality, but can also have an impact on undergraduate students' interest or success in college (e.g., Baldwin, 2009; Borko, 2009; Denton & Lacina, 1984; Ferguson & Womack, 1993; Knoblock, 1986; Reinholz & Croke, 2015). For example, ineffective teaching often pushes undergraduate students away from careers in certain fields such as in STEM (Reinholz & Croke, 2015; PCAST, 2012).

At the undergraduate level, students are often not interested or successful in courses in STEM due to the quality of instruction (e.g., Baldwin, 2009; Brainard, 2007; National Research Council, 2003; Seymour & Hewitt, 1997). Poor instruction often makes course content boring to students leading to dwindling interest and commitment to their degree program (Seymour & Hewitt, 1997). Poor instruction also means that many students do not succeed in the necessary entry-level courses, barring them from continuing in the major (Seymour & Hewitt, 1997). Negative effects are also seen at the graduate level, where a culture that undervalues teaching leads to fewer PhD candidates

being prepared for their teaching roles (e.g., Golde & Dore, 2001; Heflinger, Doykos, 2016). This lack of interest and preparation of students at both the undergraduate and graduate levels add to the continuous cycle of poor instruction in higher education (Austin, 2002; Wulff & Austin, 2004).

Understanding the graduate school experience overall, and graduate teaching development more specifically, is therefore imperative to developing institutions and resources to help motivate and prepare future faculty members, in turn creating a better quality undergraduate experience (Boman, 2013; Gansemer-Topf, Ross, & Johnson, 2006; Wulff & Austin, 2004).

Current landscape of teaching preparation. The concern about appropriate teaching development for graduate students (e.g., Committee on Science, Engineering, and Public Policy, 1995) has sparked the creation of many different university-wide teaching development programs for graduate students to increase the quality of their teaching instruction and prepare them for future faculty positions (Chism, 1998; Mueller, Perlman, McCann, & McFadden, 1997; Piccinin, Farquharson, & Mihu, 1993). These programs include Preparing Future Faculty Programs (DeNeef, 2002; Kniola, Chang, & Olsen, 2012; Wurgler, VanHeuvelen, Rohrman, Loehr, & Grace, 2013) and teaching and learning centers across the nation (Pruitt-Logan & Gaff, 2004). These university-wide programs are imperative since evidence shows that most academic departments either do not offer any teaching preparation or offer inadequate options (Border, 2010; Prieto, Yamokoski, & Meyers, 2007). University-wide structured and specialized programs and centers supplement the teaching development needs of GTAs by offering consistent and holistic trainings about teaching pedagogy (Poock, 2002).

These university programs have exhibited significant impacts on graduate student teaching development and preparation for future faculty life (e.g., Committee on Graduate Education, 1998; Gaff, Pruitt-Logan, & Weibl, 2000; Pruitt-Logan, Gaff, &Jentoft, 2002; Gaff, Pruitt-Logan, Sims, & Denecke, 2003) including increasing instructor confidence (e.g., Crowe, Harris, & Ham, 2000), decreasing anxiety (Williams, 1991) increasing effective teaching behaviors (e.g., D'Eon, 2004), and increasing student success (e.g., Darling-Hammond, 2000; Denton & Peters, 1988; Ferguson & Womach, 1993). However, these additional resources are still mostly *voluntary* options for GTAs and faculty (Korpan, 2014; Palmer, 2011).

Reasons for participation. Research has shown that the majority of GTAs participate in teaching development programs only as *requirements* with few taking advantage of *additional voluntary* opportunities (BrchaLorenz, Wang, & Laird, 2015; Golde & Dore, 2001; Linenberger, Slade, Addis, Elliott, Mynhardt, & Raker, 2014; Mena & Capobianco, 2013; Prieto, Yamokoski, & Meyers, 2007). Further, research suggests that the inconsistent and minimal development that *is required* by department is often less than one day for the entire program (Palmer, 2011) and is insufficient to prepare GTAs for immediate teaching roles or for future faculty positions (e.g., Golde &Dore, 2001; Lovitts, 2001; National Association of Graduate-Professional Students, 2001; Nyquist, Austin, Sprague, & Wulff, 2001). Additionally, a focus on teaching development as a *requirement*, or *punitive* measure, may create a negative climate around participating in these teaching development activities; scholars agree that it is important that individuals *voluntarily* and continuously participate in teaching development programs (Golde & Dore, 2001; Hutchings & Clark, 2004; Wulff, et al., 2004). However,

this leaves the question, what circumstances motivate GTAs to *voluntarily* attend much-needed additional development programs beyond what is required by their departments?

Thus far, studies on graduate student development in doctoral programs have focused on graduate school as a general socialization process (e.g., Anderson & Seashore Louis, 1991; Bess, 1978; Golde & Dore, 2001; Tierney & Rhoads, 1994; Weidman, Twale, & Stein, 2001). Studies have looked broadly at the journey that students experience during their time in graduate school. Some researchers have separated this process to look specifically at research compared to teaching preparation (e.g., Wulff, et al., 2004), however; few, if any, studies have focused specifically on the predictors of GTAs *voluntarily* attending additional teaching development. In order to elicit participation, it is imperative to understand graduate students' needs and motivations (Gansemer-Topf, Ross, & Johnson, 2006).

More broadly, work on participation in career development and training effectiveness give some insight into the important variables in the given context. Historically, these areas have looked at whether individuals change their behaviors or implement changes to understand the effectiveness of training. However, more recent research has called for a broader understanding of these behaviors, including the attitudinal beliefs and organizational contexts for these development behaviors (Mathieu & Martineau, 1997). Specifically, researchers have sought to understand the attitudinal motivators for participation in training (e.g., Campbell 1988, 1989; Tannenbaum and Yukl 1992) as well as individual characteristics such as sex that can affect participation in training (Mathieu & Martineau, 1997). However, researchers have cautioned that understanding these variables calls for a contextual view of the organization that the

behavior takes place in (e.g., Fleishman & Mumford, 1989). The context has great influence on the perceptions that individuals will have about training behavior and the likelihood that they will be motivated to learn during training and then implement behavioral changes after participation (Mathieu & Martineau, 1997).

This broader understanding of career development and training effectiveness guides the selection of the variables of importance in the given context. Consistent with past work in career development, organizational communication, and graduate socialization, the current study seeks to understand both the individual and contextual motivating factors of participation in teaching development workshops.

Study Aims

To understand the factors that motivate GTAs to voluntarily attend additional teaching development activities, the current research looks at this behavior through a lens of psychological behavior prediction, testing a modified version of the Integrative Model of Behavior Prediction (IM; Fishbein, 2000) which is founded in the principles of Social Cognitive Theory (Bandura, 1986). Social cognitive theory and related theories (e.g. Falcione & Wilson, 1988) are commonly used in research on general organizational socialization (Saks & Ashforth, 1997), career development (Lent, Brown, & Hackett, 2002), and academic choice (Lent, Brown, & Hackett, 1994) in order to understand and predict participation in and socialization to organizations and careers. These theories share the same main understanding that environmental (such as norms) and cognitive (such as attitudes) factors affect these processes.

Theoretical Framework for Understanding Teaching Development Behavior

In this study, I test a model of the factors influencing teaching development behaviors based on the Integrative Model of Behavior Prediction (IM; Fishbein, 2000). The IM (Figure 1) is a psychological model of behavior prediction that proposes that individual and cognitive factors influence the likelihood that an individual will complete a given behavior. The IM integrates common variables from previous reasoned action approaches into a refined and up-to-date version (Fishbein, 2000). With its roots in the Theory of Reasoned Action (TRA; Fishbein & Ajzen, 1974; 1975) and the Theory of Planned Behavior (TPB; Ajzen, 1985), the IM draws on propositions from foundational expectancy values approaches.

History of Reasoned Action Approaches

The TRA (and subsequent TPB) were designed to help explain and predict a multitude of different behaviors (Fishbein & Ajzen, 2010). The TRA (Fishbein &Ajzen, 1974; 1975) was developed from the main tenants of Social Learning theory (SLT; Bandura, 1977a), which advanced the idea that individuals can learn from observing others around them. SLT proposed that learning comes through seeing other peoples' behavior and perceiving the rewards and punishments associated with that behavior. This idea expanded other behavior theories at the time that conceptualized learning as strictly an outcome of direct behavior from copying and repetition (Bandura, 1977a). The later Social Cognitive Theory (SCT; Bandura, 1986) further structured these ideas by conceptualizing that learning *is* an outcome of behavior, but also is an outcome of environmental and cognitive factors.

The TRA (Fishbein & Ajzen, 1974; 1975) proposes that behaviors are predicted by behavioral, environmental, and cognitive factors. The TRA posits that salient beliefs about behaviors make up individuals' normative perceptions and attitudes. These factors, weighted by importance and willingness to comply (for norms), predict behavioral intentions, which in turn predicts behavior (Fishbein & Ajzen, 1974; 1975).

The subsequent TPB (Ajzen, 1985) added the consideration of *perceived behavioral control* to the model of the TRA after critics of the TRA noted that the model assumed that individuals always have full control over their behavior (Madden, Ellen, & Ajzen, 1992). *Perceived behavioral control* examines one's beliefs about resources and opportunities that they possess to complete a behavior (Ajzen, 1985). The idea that one's own ability perceptions affect the likelihood of completion of a behavior came from previous work done on self-efficacy (Bandura, 1977b). The addition of perceived behavioral control has been found to improve behavior prediction in some circumstances (e.g., physical activity: Chatzisarantis, & Biddle, 2002), but not all (e.g., condom use: (Albarracin, Johnson, &Fishbein, 2001). Fishbein (2000) notes that the predictive contribution of each individual variable in the model varies with the specific behavioral and situational circumstances, so it is not surprising that self-efficacy is not a key predictor of behavior in all contexts.

The IM (Fishbein, 2000; Fishbein & Ajzen, 2010) is the most recent extension of these reasoned action approaches. The model maintains the variables from the previous reasoned action approaches while adding new distal variables, such as demographics, and situational variables, such as skills, to the model. These additional distal and situational variables are found to indirectly affect behavior through the main variables or through

their moderation of the intention-behavior relationship (Fishbein, 2000; Fishbein & Ajzen, 2010).

Tests of the IM

Although the IM was developed primarily as a model for prediction of health behavior (Fishbein, 2000), it has been applied to many other contexts, from purchase intentions to political behavior (Fishbein & Ajzen, 2010). The model has been successful in predicting behavior in varying cultural contexts (Fishbein, 2000).

The cognitive factors of norms, attitudes, and efficacy that are accounted for in the IM to predict behavioral intentions and resulting behavior typically account for approximately 70% of variance in behavioral intention (Fishbein & Ajzen, 2010). By including all of these main cognitive factors, the IM is able to predict behaviors that weight attitudes, norms, and efficacy differently. In fact, Fishbein (2000) note that the magnitude of contribution of each factor often varies depending on the context and the culture of each specific evaluation. For example, in some contexts, attitudes may be the most important predictor, whereas in other contexts norms may be the most important predictor (Trafimow & Findlay, 1996). It is the integration of variables in the IM that allows the model to perform well across contexts (Fishbein & Ajzen, 2010).

The IM within education contexts. Within the context of education, the IM has been applied to the utilization of technology in faculty development programs and in classrooms. Admiraal, Lockhorst, Smit, and Weijers (2013) found that attitudes toward technology and the normative perceptions of integrating technology predicted the use of technology hardware and software in teaching development programs. Individuals' sex and level of teaching experience moderated the likelihood of use, such that women and

experienced teachers were more likely to use the technology. Self-efficacy was not found to be a significant predictor in this context. Each variable explained 20-35% of the variance in intentions. A similar study looked at the factors predicting the use of information and communication technologies (Kreijns, Van Acker, Vermeulen, & van Buuren, 2013) in classrooms and found that attitudes, norms, and self-efficacy were significant predictors of intentions. Previous use of technologies was also a significant predictor. In total, the model variables explained 68% of the variance, with attitudes being the strongest predictor of intentions.

The IM and graduate teaching development. While there are numerous behavior prediction models that include different variables to help predict behaviors, the IM was specifically chosen for the context of the present study because it integrates both individual (attitudes and efficacy) and social (norms) beliefs into the model to help explain behavioral intentions. In the context of doctoral programs, students are in a situation where they are being socialized to new roles and developing new values and identities (Wulff & Austin, 2004). In these new, potentially ambiguous, situations, individuals often look to others around them to understand what is valued or accepted (e.g., Stets & Berk, 2000). This is especially true in the doctoral context because the key referent groups surrounding students represent the identity groups that the new students seek to integrate into (researchers, future faculty, etc; Austin & Wulff, 2004; Colbeck, 2008). Therefore, in the doctoral context, it is not only individual beliefs such as attitudes and efficacy that help explain behavior, but normative perceptions are key as well. Therefore, the IM is well-suited for this context.

Model Variables and Predictions

Behavioral intentions. In the study of behavior prediction, it is often the case that actual performance of behavior cannot be measured, therefore the concept of behavioral intentions has been developed and used to gauge the readiness or likelihood of individuals performing given behaviors (Fishbein & Ajzen, 1976). In these studies, researchers use a variety of scales to ask individuals how likely they are to perform a given behavior (Fishbein & Ajzen, 2010). The use of a continuous scale rather than a dichotomous option allows researchers to better predict the actual likelihood of behavior. Further, research has shown that the specificity of the behavioral intention item is critical to effectively predicting future behavior. Thus, the behavioral intention items must include the exact behavior (rather than general) and must take into consideration elements such as the timeframe or frequency of completion of the behavior (Fishbein & Ajzen, 2010). In the present research, the behavior of interest is GTAs' attendance in teaching development workshops at the teaching center at the participants' university (University Center for the Advancement of Teaching; UCAT).

Although there have been no studies using behavioral intentions as a proxy for actual behavior in the context of teaching development behavior, meta-analyses of the broader use of the behavioral intentions construct have found that the measure of intentions has a reliable correlation with behavior of .44 to .56 across domains (e.g., Armitage & Conner, 2001; Notani, 1998; Randall & Wolff, 1994). Additionally, a meta-analysis by Webb & Sheeran (2006) of the effect of experimental manipulations of intentions further supports the consistency of this relationship, showing a causal effect of manipulations of intentions on behavior. In the context of education specifically, a study

on higher education attendance using the reasoned action approach found that behavioral intention was a significant predictor of actual behavior (Carpenter & Fleishman, 1987). Similar to the context of attending teaching development behavior, attendance at institutions of higher education can have a number of barriers; however, it was found that the model significantly accounted for these barriers as influences on behavioral intention, making the intention-behavior relationship stronger (Carpenter & Fleishman, 1987).

Distal variables. One of the additions of the IM is the inclusion of distal variables including personal variables such as demographics, culture, attitudes toward an individual (stigma, stereotype), personality traits, mood, exposure to media, and perceived risk (Fishbein, 2000). These additional distal variables are posited to have indirect effects on behavior via effects on attitudes, norms, and efficacy. For example, for some risky behaviors, it has been found that women are more influenced by norms while men are more influenced by their own attitudes (e.g., Pope, Smith, Wayne, & Kelleher, 1994). Thus, examining these additional distal variables can help explain the relationships of the key variables in the model and their differing effects on intentions (Fishbein, 2000).

Although understanding the role of distal variables is not the main aim of the current study, there are several variables that are important to consider that could have an indirect effect on behavioral intentions for attending teaching development workshops. For example, studies have found that the extent of previous teaching experience influences the likelihood of participating in teaching development, such that those who have more teaching experience are more likely to attend (e.g., Admiraal, Lockhorst, Smit, and Weijers, 2013; Boman, 2013). Additionally, a study by BrckaLorenz, Wang, and Laird (2015) found that women generally viewed teaching development as more

important than men. Further, since the behavior of interest involves a specific campus organization (UCAT) the extent of familiarity with the given organization will influence intentions to attend their activities, similar to how brand familiarity affects purchase intentions (e.g., Laroche, Kim, & Zhou, 1996). Thus, these distal variables (sex, teaching experience, and UCAT familiarity) are briefly explored as part of this study.

Situational variables. There are four situational factors that are included in the IM to understand the link between behavioral intentions and behavior, when actual behavior is measured. It is known that behavioral intentions do not always predict behavior (Fishbein & Ajzen, 2010), therefore these additional variables were added to the IM to help explain the conditions under which intentions are more predictive of behavior. These situational variables include skills, behavioral salience, environmental constraint, and habit (Fishbein, 2000). Although part of the full model, these variables are not as commonly considered because most researchers do not measure actual behavior, as is the case in the current study. The preceding model variables (attitudes, norms, and efficacy) take into consideration some of these concerns.

Attitudes. Attitudes are defined by contemporary researchers as summary evaluations of an attitude object that guide thought and behavior (Perloff, 2013). There are three important components of attitudes that are agreed upon by most scholars. First, attitudes are learned dispositions that individuals are not born with, but rather learn and develop through their experiences over time (Perloff, 2013). Second, attitudes are summary evaluations meaning that attitudes are made up of many different beliefs that can sometimes even be conflicting (Fishbein & Ajzen, 2010). The attitude; however, is the *summary* evaluation on a bipolar continuum from negative to positive. Finally,

attitudes influence thought and action (Perloff, 2013) through motivating an individual's behavior or even biasing their interpretation of information (e.g., Fazio & Williams, 1986). The IM proposes that more positive attitudes toward a given behavior will lead to increased behavioral intentions for that behavior (Fishbein, 2000)

The attitude object for which an attitude is measured can include people, places, or issues; however, the IM (and other) approaches look specifically at attitudes toward behaviors of interest (Fishbein & Ajzen, 1976). The researchers note that an attitude can exist toward any distinguishable part of an individual's life, including toward a behavior (Fishbein & Ajzen, 2010).

In order to predict a given behavior, the creators of the IM argue that attitude measurement must be specific toward that given behavior rather than just a general attitude object (i.e., attitude toward *smoking cigarettes* rather than just attitude toward overall health behavior; Fishbein & Ajzen, 1976). Known as the compatibility principle, it has been shown that attitudes are the most predictive of behavior when those attitude measurements are the most specific: including the exact behavior of interest and often even a given time frame or frequency for the behavior (i.e., attitude toward smoking a *pack of cigarettes in the next 24 hours*; Fishbein & Ajzen, 1976). This prinviple is important because the less compatible the attitude and behavior specificity is, the more outside factors can influence the attitude-behavior consistency (Fishbein & Ajzen, 2010). Thus, the current study looks at attitudes toward the behavior of interest: attending teaching development workshops at the teaching center (UCAT) at the participants' given institution.

Importance of attitudes in the current context. General studies of organization socialization and career development look at the effects of beliefs on the development process and find that these attitudinal beliefs have an effect on the goals and intentions that individuals hold (e.g., Falcione & Wilson, 1988; Lent, Brown, & Hackett, 1994; 20002; Saks & Ashforth, 1997). Studies on attitudes show that attitudes are more likely to influence behavior when the behavior is personally relevant to an individual or impacts an important aspect of the individuals' lives or values (Ajzen & Fishbein, 1980). In the current context, graduate teaching assistants are considering attending teaching development workshops. These workshops are relevant to GTAs because they would have a direct effect on their degree path (Austin, 2002) and, thus, would be influenced by their personal attitudes about the behavior. For instance, it has been shown that graduate students have different beliefs about the importance of attending teaching development (Golde & Dore, 2001) which would affect their summary evaluation (attitudes) for the behavior. Further, the general knowledge that individuals ascertain about teaching development (Wulff, et al., 2004) should influence this attitude evaluation.

Countless studies have found that attitudes are significant predictors of behavior (see Kraus, 1995 for review). It is widely accepted that the more favorable an attitude toward a behavior is, the more likely individuals are to enact the given behavior. Further, research shows that attitudes are likely to influence behavior when the behavior is deliberative and of high value. In the present context, the behavior of interest, attending teaching development workshops, is a highly deliberative behavior that is likely to be considered thoughtfully since, in graduate school especially, there is very limited time

and resources available thus each behavior must be carefully considered against the available resources.

Self-efficacy. Self-efficacy (also called perceived behavioral control) is the perception of one's ability to perform a given behavior (Fishbein & Ajzen, 2010). Self-efficacy was first developed by Bandura (1974a) as part of the Social Cognitive Theory to help explain behavior. The IM proposes that more positive self-efficacy perceptions for a given behavior will lead to increased behavioral intentions (Fishbein, 2000).

Self-efficacy often helps explain behavior, beyond other decision-making variables. In fact, in persuasion, especially health campaigns, self-efficacy is understood as an important variable for consideration. Often, manipulations of self-efficacy in message designs show that a base level of efficacy perception is needed for a behavior to even be performed (e.g., Block & Keller, 1995), which is why messages lacking efficacy components often fail (Fishbein & Cappella, 2006).

Like attitudes, self-efficacy is most predictive when the measurement specificity aligns with the behavior of interest (Bandura, 1977b). For example, a more general measure of self-efficacy (such as self-efficacy to "be healthy") is less predictive of behavior than a measure of specific behavior (such as self-efficacy to "walk *30 minutes per week*"). The precision of the self-efficacy target allows individuals to more carefully consider the full range of obstacles affecting their ability to complete the given behavior (Fishbein & Ajzen, 2010).

Importance of self-efficacy in the current context. In the current context, self-efficacy is especially important because individuals are in a situation where the behaviors and tasks they are completing are new to them (Austin, 2002). There is a lot of doubt

(e.g., Egan, 1989) and ambiguity (e.g., Chadha, 2013; Gaia, Corts, Tatum, & Allen, 2003; Shannon, Twale, & Moore, 1998) about the expectations and responsibilities that they must complete, which can affect perceptions of self-efficacy. Thus, given that self-efficacy is a motivating factor for behavior, lack of self-efficacy could be detrimental to intentions to participate in teaching development workshops.

In the study of organizational socialization (Falcione & Wilson, 1988) and career development generally (Lent, Brown, & Hackett, 1994), self-efficacy is found to have a significant effect on the likelihood that individuals will persist in a career and participate in development activities (Lent, Brown, & Hackett, 2002). These views on the importance of self-efficacy come from the foundation of social cognitive theory (Bandura, 1986) on which the IM is based.

Injunctive norms. Social norms are generally defined as social rules that govern behavior (Pepitone, 1976; Sherif, 1936). It is well-shown that in addition to personal attitudes, individuals are often influenced by the social pressures that surround them (Fishbein & Ajzen, 1974). Individuals may look to the social rewards and punishments of behavior in order to help determine which behaviors to perform. Importantly, these norms are *subjective perceptions* by individuals and are not necessarily accurate reflections of the actual norms (Cialdini, Reno, & Kallgren, 1990; Cialdini, Kallgren, & Reno, 1991; Reno, Cialdini, & Kallgren, 1993). Thus, sometimes there can be a mismatch between what an individual *perceives* the norms to be and what they *actually are*. This can exacerbate individuals' performance of behavior when they believe the behavior is what is desired, when in fact, actual norms may be less supportive of the behavior (Prentice &

Miller, 1993). This underscores the importance of understanding subjective norm *perceptions* because they may not align with the known or assumed norms.

There are many different conceptualizations of what social norms are and with these come different definitions and operationalizations. The reasoned action approaches started with the conceptualization of "subjective norms (TRA; Ajzen & Fishbein, 1974)." In these theories, subjective norms were defined as the perceptions of whether important referent others think an individual should, or should not, perform certain behaviors. This conception of norms is similar to the "injunctive norms" that was later outlined by Focus Theory (Cialdini, Reno, & Kallgren, 1990; Fishbein & Ajzen, 2010). Thus, the IM has adopted the newer injunctive norm terminology and methodology. The IM proposes that more supportive injunctive norms for a given behavior will lead to increased behavioral intentions for that behavior (Fishbein, 2000).

Importance of injunctive norms in the current context. In the current context, graduate school is a socialization process and thus the views of others have very important influences on behavior (e.g., Bess, 1978; Blouin & Moss, 2015; Boman, 2013; Park, 2004; Lovitts, 2001; Gardner & Barnes, 2007; Tinto, 1993; Wulff, et al., 2004). This is especially true in this context given that graduate schools is an evaluative context and the individuals surrounding students are in roles that students aspire to be in themselves (Austin & Wulff, 2004; Colbeck, 2008). Thus, the perceptions of what is or isn't seen as important behaviors for students in this context is extremely important.

Descriptive norms. Although the original reasoned action approaches did not make the distinction between different types of norms, there is a growing body of literature that supports the existence of a second type of norms, descriptive norms, as

coined by Focus Theory (Cialdini, Reno, & Kallgren, 1990). Descriptive norms are defined as perceptions of whether important referent others are performing the behavior of interest or not. The IM proposes that higher descriptive norm perceptions for a given behavior will lead to increased behavioral intentions for that behavior (Fishbein, 2000).

It has been noted that these two types of norms expose different human motivations and therefore have different effects on behavior (Deutsch & Gerrard, 1955). In fact, some studies have found that each type of norm can be more or less effective depending on the context. For example, some research has found that descriptive norms are more effective in cases informing individuals of *wanted* rather than *unwanted* behaviors (e.g., Goldstein, Cialdini, & Griskevicius, 2008; Winter, Cialdini, Bator, Rhoads, Sagarin, 1998). Thus, the IM has incorporated descriptive norm perceptions into the model to help explain additional normative influence beyond just injunctive norm perceptions (Fishbein, 2000).

Importance of descriptive norms in the current context. As with injunctive norms, individuals in the context of graduate school are likely to be influenced by descriptive norms because they are in new and ambiguous situations where they are being evaluated (Austin, 2002; Austin & Wulff, 2004; Chadha, 2013; Colbeck, 2008; Gaia, Corts, Tatum, & Allen, 2003; Shannon, et al., 1998; Wise, 2011; Wulff, et al., 2004). It is in these novel and ambiguous situations where individuals are less likely to be aware of the expectations (injunctive norms). In these cases, descriptive norms can have a greater impact on behavior because individuals can look at whether the behavior is or is not being performed (e.g., Deutsch & Gerrard, 1955; Rimal & Real, 2005). Descriptive norms are more observable than injunctive norms and thus easier to ascertain.

Proposed Model Modifications

Although there is a preponderance of support for the IM, as shown, findings in other areas of psychological research suggest refinements that would help improve the predictive power of the model that are especially important to given context. Thus, the aim of this study is to propose and test a modified version of the IM (see Figure 2). While several of the original IM hypotheses are included (H1-H3), I propose the: 1) the addition of a response efficacy construct, 2) interaction between descriptive and injunctive norms and 3) addition of anticipated emotions as a mediator of the effects of attitudes, efficacy, and norms on behavioral intention.

Proposed Addition of Response Efficacy

Response efficacy is the perception that a given behavior will have an effective or intended outcome (Witte, 1992; 1994). Most common in health behavior literature, response efficacy helps further explain the likelihood that an individual will perform a given behavior. This concept comes from communication literature such as the Extended Parallel Process Model (Witte, 1992; 1994) that typically looks at, or tries to change, the likelihood that an individual will perform desired health behaviors.

Response efficacy has had an important impact on the understanding of behavior, especially in circumstances where looking at a threat alone has garnered inconsistent behavioral outcomes (Witte, 1992; 1994). Within health literature, it was often the case that researchers would find inconsistent and even opposite effects for similar threat appeals (e.g., Kohn, Goodstadt, Cook, Sheppard, & Chan, 1982; Krisher, Darley, & Darley, 1973) because these initial studies did not account for varying efficacy perceptions. Once researchers started to account for response efficacy, they found more

consistent evidence that positive efficacy perceptions increased behavioral intentions (Witte, 1992). This additional consideration of response efficacy helped explain the varying outcomes of health appeals that were ineffective or even counterproductive when response efficacy was not present or manipulated through messaging. These studies on response efficacy showed that increased positive response efficacy perceptions will lead to increased behavioral intentions.

Response efficacy and the IM. Although not part of the IM or previous reasoned action approaches, there have been many calls for the incorporation of response efficacy into these behavior prediction models (e.g., Lam, 2006; Shiau, & Chau, 2016; Sun, Wang, Guo, Peng, 2013) . Many health behavior models such as the Integrative Theory of Health Appeals (Block & Keller, 1998) and Health Belief Model (Janz & Becker, 1984) consider some form of response efficacy. Because of this, researchers have argued the need to integrate a response efficacy construct into the reasoned action approaches such as the TPB and IM. For instance, one study looked at the use of electronic health technologies (Sun, Wang, Guo, & Peng, 2013) and compared a variety of models. Researchers found that the addition of response efficacy accounted for variance beyond the attitude, norm, and self-efficacy constructs of the IM. Tests found that the comprehensive model including all of the IM variables with the addition of response efficacy was the most predictive of intentions.

This call for the integration of response efficacy is not limited to the arena of health behavior. A similar study on water-saving environmental behavior argued the necessity of understanding response efficacy to explain behavior when individuals are likely to weigh the costs and benefits of a given behavior (Lam, 2006). The study found

that the addition of response efficacy explained behavior beyond the main IM variables (attitudes, norms, and self-efficacy). The comprehensive model was the best predictor of intentions to engage in water-saving behaviors.

In the realm of education, a similar study looked at the predictive power of different variables for understanding the use of cloud technologies in the classroom (Shiau, & Chau, 2016). The study found the same results: response efficacy helped predict behavioral intentions beyond the main variables of attitudes, norms, and self-efficacy. The comprehensive model with the addition of response efficacy was the most predictive of intentions to use cloud technologies in the classroom.

Importance of response efficacy in the current context. Similar to the outlined studies, the present study argues that response efficacy is an important additional predictor for understanding behavioral intentions to attend teaching development workshops. Graduate school is a very evaluative [what does this mean?] and time-consuming endeavor where students must weigh the outcomes of different behaviors to determine which will be the most effective use of time (e.g., Austin, 2002; Nyquist, et al., 2004). Thus, an important consideration in decision-making [for whom? About what?] includes the perception of the likelihood of effectiveness of a given behavior.

Because graduate school is a context where students' performance is continually being evaluated, it is expected that students are effectively utilizing their time to participate in activities that will be useful to obtaining their goals. Thus, beyond what a student thinks is important (attitudes), or what they perceive others think is important (norms), the perceived effectiveness of the given behavior will affect behavioral intentions. Without positive perceptions of response efficacy, individuals could believe

that a given behavior is important or necessary but not participate in the behavior because they do not believe that the behavior has high response efficacy. This underscores the importance for understanding perceptions of response efficacy, which can be a crucial consideration in the decision-making process beyond the current IM variables.

Proposed Interaction of Descriptive and Injunctive Norms

Although the IM makes advances over previous reasoned action approaches by differentiating descriptive and injunctive components of norms, the model simply proposes that each normative component (injunctive and descriptive norms) will directly and independently influence behavioral intentions (Fishbein, 2000). This ignores important theorizing within the Theory of Normative Social Behavior (TNSB) about the relationship between these two norm types that proposes an interaction effect (Rimal & Real, 2005). Thus, as predicted by the TNSB, we expect an interaction between injunctive and descriptive norms.

The Theory of Normative Social Behavior. TNSB (Rimal & Real, 2005) is an extension in the literature on norms that looks specifically at the relationship between descriptive and injunctive norms. TNSB lays out an interaction between descriptive and injunctive norms such that the influence of descriptive norms on behavior is moderated by injunctive norms. In this way, individuals often first look to what other people are doing (the descriptive norms) in a given situation as an informational cue (Deutsch & Gerrard, 1955). Then, they consider how acceptable the given behavior is perceived (injunctive norm). The more that an individual perceives important others to be doing a behavior (descriptive norm), multiplied by how positively that behavior is perceived (injunctive norm), predicts the likelihood that an individual will do the given behavior.

This means that an individual is most likely to do a behavior when they perceive others are doing it and that the behavior would be viewed favorably by others or have rewards (see Lapinski & Rimal, 2005; Rimal, Lapinski, Cook, & Real, 2005; Rimal & Real, 2005).

Tests of the TNSB. Much of the research testing the TNSB has looked at risky behaviors such as college alcohol drinking (Carcioppolo, & Jensen, 2012; Jang, Rimal, & Cho, 2011; Lee, Geisner, Lewis, Neighbors, & Larimer, 2016; Real & Rimal, 2007; Rimal, 2008; Rimal & Real, 2005). However, the TNSB has also been tested in other contexts such as handwashing behavior in daycares (Lapinski, Anderson, Schugart, & Todd, 2013) and environmental conservation behavior (Gockeritz et al., 2009). These tests have successfully shown an interaction between descriptive and injunctive norms such that behavioral intention is greater for those who perceive higher descriptive and injunctive norms for a given behavior. However, the TNSB has not been tested in a wide range of contexts and has not been tested specifically in education or teaching development behavior. However, in the context of graduate school, normative perceptions are likely to have a great influence on students as they are in novel and ambiguous situations where they are being evaluated (Austin, 2002; Chadha, 2013; Gaia, Corts, Tatum, & Allen, 2003; Shannon, Twale, & Moore, 1998; Wise, 2011). Thus, it is important to test this potential interaction effect of normative components.

Proposed Addition of Anticipated Emotions as a Mediator

It is important to consider that the IM is a cognitive model, which does not take into account affective considerations, such as emotions. In fact, critiques of reasoned action approaches have consistently noted that these approaches inherently assume that

individuals always act rationally (e.g., Ajzen, 1989, 1991; Gibbons, Gerrard, Blanton, & Russell, 1998; Reyna & Farley, 2006). The creators of the reasoned action approaches have responded to these criticisms by noting that, although the approaches lay out the variables in concrete steps, the researchers do not claim that all parts of behavior are deliberative (Fishbein & Ajzen, 2010). Rather, they believe that when an individual is confronted with a situation, attitudes, norms, and efficacy are most salient and therefore can most often instantaneously direct behavior. However, they [who?] do acknowledge that in certain circumstances the magnitude of the effect of each variable may vary (citation?) and that, for certain types of behavior, it may be necessary to consider additional variables in the model (Fishbein & Ajzen, 2010).

Anticipated emotions. One of these potential additional, less-cognitive variables, are emotions; more specifically, anticipated emotions. *Anticipated* emotions are distinct from *experienced* emotions because they are conceptualized as cognitions about the *emotional outcomes* that individuals expect to encounter *if* they were to carry out that behavior (Baumeister, DeWall, Vohs, & Alquist, 2010). In this regard, researchers have noted that anticipated emotions can be conceptualized as a type of outcome expectation that take into account affective perceptions (Fishbein & Ajzen, 2010).

Baumeister et al. (2009) note that anticipated emotions are more effective predictors of behavior than experienced emotions. In most previous research, emotions have been studied by looking at those that have been experienced (i.e., a child feels sad when his parent passes away). Previously, researchers thus contended that these experienced emotions have a direct impact on behavior (Baumeister, DeWall, Vohs, & Alquist, 2010). In this sense, past researchers looked at experienced emotions as

mediating the relationship between an environmental stimulus and some outcome behavior.

However, a meta-analysis of nearly 400 articles by DeWall, Baumeister, and Bushman (2008) found that the direct mediation hypothesis of *experienced* emotions was only supported in approximately 17% of the cases. Further, Baumeister, DeWall, Vohs, and Alquist (2009) note that even the studies that ultimately found a direct effect of experienced emotion on behavior could be explained through mediation effects such as mood management. In fact, other studies have found that the effects of experienced emotions can be eliminated by a simple manipulation informing participants that a placebo pill will freeze their mood. Thus, Baumeister et al. (2009) theorize that the effect of emotions is less so about the *experienced* emotion itself and rather is about the *anticipated* emotional outcomes of the given behavior. This is known as the feedback theory of emotions (Baumeister, DeWall, Vohs, & Alquist, 2010) which suggests that focusing on *anticipated* emotions will be more effective in understanding potential behavior. Thus, as outlined below, I predict that anticipated emotions (positive and negative) will mediate the effects of attitudes, norms and efficacy on behavioral intentions to attend teaching development workshops.

Importance of emotions in the current context. In the context of higher education, emotions are particularly important to consider. Teaching is often identified as an emotion labor task because teachers interact with a multitude of different students on a daily basis and they must strive to regulate their emotions and maintain control (Zhang & Zhu, 2007). Teachers' interaction with students is also rooted in a goal to help them

achieve some desired educational outcomes, therefore teachers' investment in student success adds another emotional element to their jobs.

Furthermore, in *preparation* for teaching, such as in the context of graduate education, individuals are often in circumstances of high ambiguity and identity formation where they are looking to those around them for cues on their desired behaviors and evaluation of their work (Austin, 2002). In these circumstances especially, emotions can play a key role in graduate students' experiences and development (Gansemer-Topf, Ross, & Johnson, 2006; Wulff, et al., 2004).

Even though the study of emotion has seen an overall increase in attention since the early 1980s (Lewis & Haviland, 1993), the understanding of emotions in higher education, and specifically teacher development, has not garnered as much attention (Sutton & Wheatley, 2003). A better understanding of the role of emotions in teachers' lives is imperative to evaluate the effects that emotions have on daily task completion and teacher development (Sutton & Wheatley, 2003).

This lack of understanding of the role of emotions is also echoed in other areas such as research on general career development (Hartung, 2011; Kidd, 1998, 2008). Researchers argue that emotion is an important motivator in career choice and perception (Hartung, 2011). This is especially true for understanding social contexts of career development since emotion is a part of interpretation of and experience with career-related decisions (Hartung, 2011). Further, new situations such as socialization to a new role have been found to evoke a mix of both positive and negative emotions associated with career experiences and well-being (Kidd, 2008).

In their review of the current literature on emotions and teaching, Sutton and Wheatley (2003) note both positive and negative emotions that have substantial effects on teachers. Positive emotions include happiness, satisfaction, and excitement. These emotions were often experienced in relation to the successful accomplishment of a goal or in response to recognition from a colleague or administrator (e.g., Emmer, 1994; Erb, 2002; Hatch, 1993; Nias, 1989). Negative emotions include anger, frustration, anxiety, and sadness. These emotions often arose from inability to meet a goal, lack of resources, or empathy for students who may be struggling (e.g., Bullough, 1991; Hargreaves, 2000; Sutton, 2000). These varying emotions have significant effects on the daily tasks and overall well-being of instructors. They can affect the likelihood that teachers commit to their work and their motivation to improve.

The present work is interested in the effects of these various positive and negative emotions on the likelihood to attend teaching development workshops. Because there are so many different emotions that can be a part of an individual's teaching experience and preparation, it is important to understand how these various emotions affect related tasks and behaviors. Because this understanding is so understudied, and to look at overall trends in the effects of anticipated emotions in this context, this study looks at the main underlying valence, or pleasantness of emotions by looking at the effects of various anticipated *positive* and *negative* emotions.

Anticipated emotions and the IM. The updated IM has included background variables such as emotional traits (Fishbein, 2000); however, many researchers have still noted that the model lacks utility to fully understand the dynamics of human behavior because it lacks any other consideration of emotions (e.g., Godin & Kok, 1996; Kim,

Kjite, & Hancer, 2013). Researchers argue that adding emotions to decision making models such as the IM is key to improving the understanding of behavior (e.g., Bagozzi, Gopinath, & Nyer, 1999; Cohen, Pham, & Andrade, 2008; Erevelled, 1998; Loewenstein, & Lerner, 2003; Mellers, Schwartz, & Ritov, 1999).

In fact, many studies that use the IM to predict behavior have begun to incorporate additional emotion variables into the equation, including anticipated emotions. Studies using reasoned action approaches have included many different anticipated emotions such as anticipated regret (Abraham, Henderson, & Der, 2004; Frost, Myers, &Newman, 2001; Sheeran & Orbell, 1999), sadness (Conner, Sandberg, McMillan, & Higgins, 2006), worry (Conner & Abraham, 2001), guilt (Lindsey, Yun, & Hill, 2007; Svenson, Weerman, Pauwels, Bruinsma, & Bernasco, 2013), exhilaration (Conner, Smith, &McMillan, 2003), and satisfaction (Conner, Graham, & Moore, 1999).

In these studies, anticipated emotions have been operationalized by asking participants how much they would *anticipate* to feel certain emotions *if* they were to do, or fail to do, the proposed behavior. A meta-analysis of 24 studies that used anticipated emotions found that the addition of anticipated emotion items to reasoned action approaches as a separate predictor of behavioral intentions accounted for an average of 7% of the variance beyond the main IM variables (Sandberg & Conner, 2008).

Anticipated emotions as a mediator. Although studies have found anticipated emotions to be significant predictors of behavioral intentions, most studies do not propose how anticipated emotions may interact with the other variables in the IM. Instead, anticipated emotions are simply added as additional, independent predictors (Fishbein & Ajzen, 2010). This leaves to question what specific role anticipated emotions

play in the behavior prediction process. Understanding the relationship that anticipated emotions have with the other variables in the IM will help message and program designers target communication that will be most successful in motivating attendance in teaching development activities.

The studies on the effect of anticipated emotions show support for the direct effect of anticipated emotions on behavioral intentions or behavior. For example, as Baumeister, et al. (2009) point out, individuals often consider how completing different behaviors will have desired or undesired affective outcomes. These hypothesized affective outcomes then directly influence the likelihood of completing a behavior, in the case of Feedback Theory (citation), by mediating the effect of current or past emotions. Understanding that anticipated emotions can have a direct effect on behavioral intentions, leaves the question of how anticipated emotions interact with the preceding variables of the integrative model (attitudes, norms, and efficacy).

In the few studies that have tested the role of anticipated emotions, anticipated emotions have been shown to serve as a mediator to the relationship between the IM variables (attitudes, norms, and efficacy) and behavioral intentions, similar to the mediation role of anticipated emotions in Feedback Theory (see Onwezen, Antonides, & Bartels, 2013 for a review) . In understanding this mediating role, the first key distinction made about anticipated emotions is the fact that anticipated emotions are *future-oriented* hypothetical predictions of potential positive and negative feelings that the individual may encounter if they choose to complete the given behavior (Richard, van der Pligt, & de Vries, 1996). In this sense, anticipated emotions are predictions made by individuals based on their past experiences and knowledge about a given behavior. Next, compared

to the other IM variables such as attitudes which are general, overall reactions, anticipated emotions are evaluated as *specific* potential outcomes (Rivis, Sheeran, & Armitage, 2009). These considerations distinguish anticipated emotions from the other key IM variables by anticipated emotions' future-orientation and specificity. Factor analyses have supported these distinctions between anticipated emotions and attitudes or behavioral beliefs (e.g., Evans & Norma, 2003; Richard, de Vries, & van der Pligt, 1998).

An investigation by Onwezen, Antonides, and Bartles (2013) compared the potential models of anticipated emotions' relationship with other IM model variables. The researchers proposed and found that the models placing anticipated emotions as a mediator between the main variables and behavioral intentions was the best fit to the data. Thus, we must consider the relationship between anticipated emotions and each of the key variables in the IM to explore this mediating role.

Attitudes are summary evaluations of views about the behavior. Because anticipated emotions are the expected positive or negative emotional outcomes that an individual perceives, these future-oriented judgements must consider the current information available about the behavior, such as by reviewing attitudes. Previous studies have found support for this indirect effect of attitudes on behavioral intentions through the mediating role of anticipated emotions (Hynee, MacDonald, & Marques, 2006; Onwezen, Antonides, & Bartels, 2013).

Norms are environmental factors that affect individuals' behavior by helping individuals determine what rewards and punishments a given behavior will have (e.g., Sherif, 1936; Cialdini et al., 1993; Fishbein & Ajzen, 1975). In considering these potential outcomes of given behaviors, individuals can also understand the anticipated

emotional outcomes of engaging in these behaviors. For example, if individuals perceive an outcome to be desired through their normative understanding of the prevalence and acceptability of the behavior, individuals will associate positive emotional outcomes with the given behavior (e.g., Manstead, 2000). Thus, normative perceptions will affect the judgment of future anticipated emotions (Onwezen, Antonides, & Bartels, 2013). This indirect effect of norms on behavioral intentions through the mediating role of anticipated emotions has been supported in studies looking at the relationship between norms and anticipated emotions (Hynee, MacDonald, & Marques, 2006; Onwezen, Antonides, & Bartels, 2013).

Efficacy is the perception that one has the ability to complete the given behavior and that the given behavior will be effective. In other areas of research, there has been debate on the role of efficacy in affecting judgments about the outcome of behaviors. Studies have shown that individuals often judge the utility or outcomes of a given behavior based on their ability to complete the behavior. For example, studies have shown that when individuals feel that they may not have the ability to complete a given behavior, they may minimize their perceptions of the positive outcomes that that behavior will have. Additionally, when individuals perceive a behavior to be effective in its goals, individuals are more likely to judge that behavior to have positive outcomes. In relation to anticipated emotions, this suggests that individuals will judge the likely outcomes of a given behavior based on their perceived ability and the effectiveness of the behavior.

Summary of Study Aims and Hypotheses

The current study sought to understand the motivations for GTAs to attend teaching development workshops at their university's center for teaching. The main aims

of this study are to test a modified version of the IM in this new context and to test the 1) addition of a response efficacy construct, 2) interaction between descriptive and injunctive norms**,** and 3) addition of anticipated emotions as a mediator of the effects of attitudes, norms and efficacy on behavioral intention.

As shown in Figure 2, the study tests the following hypotheses:

H1: Positive attitudes toward attending teaching development workshops at UCAT will be positively associated with behavioral intentions to attend teaching development workshops at UCAT.

H2: Self-efficacy for attending teaching development workshops at UCAT will be positively associated with behavioral intentions to attend teaching development workshops at UCAT.

H3: Response efficacy for attending teaching development workshops at UCAT will be positively associated with behavioral intentions to attend teaching development workshops at UCAT.

H4: The effect of descriptive norms on behavioral intentions to attend teaching development workshops at UCAT will be moderated by injunctive norms.

H5: Positive anticipated emotions for attending teaching development workshops at UCAT will be positively associated with behavioral intentions to attend teaching development workshops at UCAT.

H6: Negative anticipated emotions for attending teaching development workshops at UCAT will be negatively associated with behavioral intentions to attend teaching development workshops at UCAT.

H7: Anticipated emotions will mediate the effect of the main model variables (attitudes, norms, and efficacy) on behavioral intentions to attend teaching development workshops at UCAT.

Figure 1. Integrative Model of Behavior Prediction

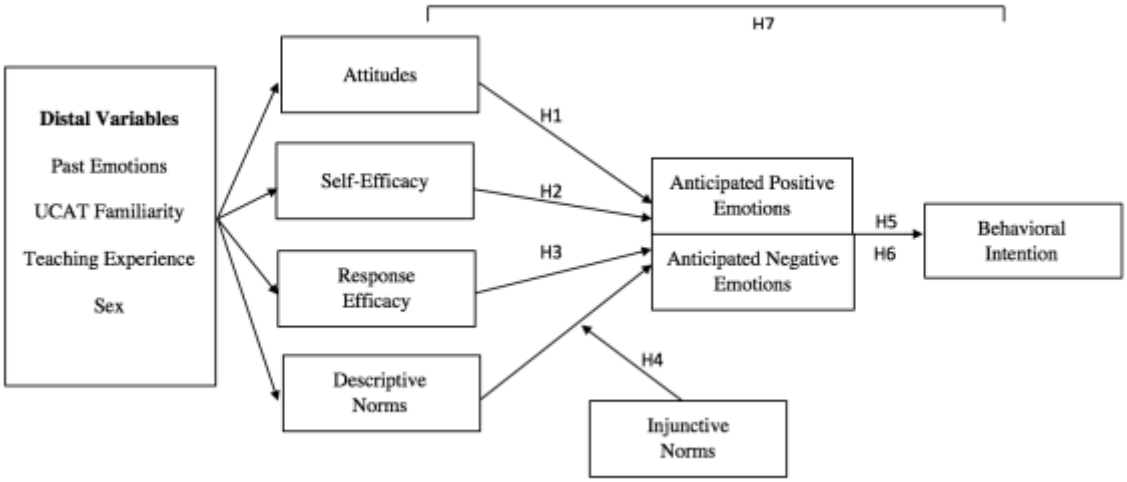


Figure 2. Proposed Model and Hypotheses

Chapter 2: Method

Study Design

This study was an online survey questionnaire of Graduate Teaching Assistants (GTAs) at Ohio State University in Fall, 2016, completed using Qualtrics survey software. All questions were available online and the survey could be completed at a time and place of the participants' choosing. Questions and items were randomized wherever possible to minimize testing effects.

Participant Recruitment

To participate in the study, students had to be a current GTA. GTAs were defined as graduate students whose official assistantship was classified as a teaching assistantship, meaning they could have roles ranging from grader to independent instructor. Seventeen departments (see Table 1) were targeted that were chosen to represent a range of discipline types from social sciences (i.e., English) to hard sciences (i.e., Chemistry). Since participants had to hold a current teaching appointment, human resources data was also reviewed to ensure that each department targeted had Graduate Teaching Assistants currently employed. When this data was collected (Fall, 2016) there were 1,657 graduate students enrolled across the targeted departments, which included those with and without teaching appointments.

Participants were recruited in a variety of methods including via flyers, emails, and personal invitation. First, flyers were posted in all of the departments that had

available space for such advertisement. Second, the appropriate administrator in each department was contacted to forward a recruitment email to all graduate students. Finally, a list of emails for all graduate students in all targeted departments was obtained from enrollment services and students were contacted directly with recruitment information via email from the researcher. Those who participated in or were recruited for the survey were also encouraged to invite potential participants to complete the study. For completion of the study, participants were entered into a raffle to win a $250 pre-paid gift card.

Participant Qualification

In order to participate in the study, participants had to be in one of the targeted departments (Table 1) and had to currently hold a graduate teaching assistant position. To ensure that each participant qualified for the study, interested participants first completed a qualification survey (Appendix A). Upon completion of the qualification survey participants were told if they did not qualify, or if they did qualify, they were given the link to the study survey. For comparison purposes, demographic information was also obtained in the qualification survey. A total of 173 graduate teaching assistants participated in this study. After removing incomplete and unqualified responses, 139 participants were used for the final sample

Procedure

Once participants completed the qualification survey (Appendix A) and were notified of their eligibility, those who qualified were given the link to the study survey (Appendix A). After agreeing to consent, participants first completed a series of demographic and past experience questions. Before completing the rest of the survey

participants received a definition of the term "UCAT" as "Ohio State University's University Center on the Advancement of Teaching.' UCAT's mission is to support and advocate for all who teach at Ohio State." This ensured that all participants had a common understanding of what the survey was asking about. The study survey included questions about past emotional experiences with teaching, and integrative model variables (i.e., attitudes, norms, anticipated emotions, efficacy, and behavioral intention). These measures are discussed in detail below.

Measures

Academic department. Participants were asked what academic department they were in (see Table 1). A total of 17 departments were targeted to represent a range of both social and hard science fields. Human resource data was also analyzed to ensure that the targeted departments had a high number of GTAs. Participants had to be in one of these departments to be eligible. A dummy code was created, identifying departments as either social sciences *(1)* or hard sciences *(0)* based on their university categorization and past research strategies (e.g., Golde & Dore, 2001; see Table 1).

Previous teaching-related emotions. To better understand the emotional experiences participants have had in their past teaching (Sutton, 2003), participants were asked "Thinking about your teaching experience cumulatively, how much would you say you have felt each of the following emotions?" These items were rated on a 5-point Likert scale from *1 (never)* to 5 *(always)*. Items included both positive (excited, joy, satisfied, self-assured, pleased) and negative (guilt, ashamed, anxious, upset, worried, frustrated, stressed) emotions. The emotions included were chosen based on Sutton (2003)'s meta-analysis of important emotional experiences in teaching while the question

wording was based on the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegan, 1988)

Principal components analysis (PCA) examined the emotion items and confirmed the presence of two components with eigenvalues exceeding 1, explaining 39.68% (positive items) and 20.22% (positive items) of the variance with all items loading on two components (coefficients > .51). The Kaiser-Meyer-Olkin value was .84, exceeding the recommended value of .6 (Kaiser, 1970) and Bartlett's Test of Sphericity (Bartlett, 1954) reached statistical significance ($p < .001$). These results are consistent with past research, therefore the items were averaged to create positive (Chronbach's $\alpha = .894$) and negative (Chronbach's $\alpha = .829$) past emotion subscales. These measures were used as covariates.

Positive and negative anticipated emotions. Anticipated emotions (e.g., Marschall, Sanftner, & Tangney, 1994; Perugini & Bagozzi, 2001; Swensson, Weerman, Pauwels, & Bernasco, 2013) for attending teaching development workshops at UCAT were measured using a 5-point Likert scale, from 1 *(not at all likely)* to 5 *(completely likely)*. Participants were asked "Imagine that you participated in a UCAT teaching development workshop. Please rate how likely you would be to feel each of the following." Items included the same twelve positive and negative emotions from the previous "past emotions" scale.

PCA confirmed the presence of the same two components with eigenvalues exceeding 1, explaining 37.10% (positive items) and 29.72% (negative items) of the variance with all items loading on two components (coefficients >.60). The Kaiser-Meyer-Olkin value was .83, exceeding the recommended value of .6 (Kaiser, 1970) and

Bartlett's Test of Sphericity (Bartlett, 1954) reached statistical significance ($p < .001$). These results are consistent with past studies (Fredrickson & Carstensen, 2011; Watson, Clark, & Tellegan, 1988) therefore the items were averaged to create positive (Cronbach's α=.913) and negative (Cronbach's $\alpha = .878$) anticipated emotions subscales.

Attitudes. Attitudes toward attending teaching development workshops at UCAT were measured using a set of semantic differential scales (Fishbein, 2000; Fishbein & Ajzen, 1976; 2010). These were 7-point scales with the bipolar adjectives bad/good, negative/positive, dislike/like, and unfavorable/favorable. This set of adjectives was used to measure the evaluative nature of attitudes. As noted by Fishbein & Ajzen (2010), it is often found that different dimensions of attitudes work differently for various attitudes objects or behaviors, so a PCA was performed to verify the structure of these adjective pairs.

PCA confirmed the presence of only one component with eigenvalues exceeding 1, explaining 76.08% of the variance with all items loading on one component (coefficients > .84). The Kaiser-Meyer-Olkin value was .80, exceeding the recommended value of .6 (Kaiser, 1970) and Bartlett's Test of Sphericity (Bartlett, 1954) reached statistical significance ($p < .001$). These results are consistent with past research (Fishbein, 2000; Fishbein & Ajzen, 1976; 2010), therefore the items were averaged to create an attitudes scale (Cronbach's $\alpha = .893$).

Injunctive norms. Injunctive norm perceptions for attending teaching development workshops at UCAT were measured using a 7-point Likert scale (Fishbein, 2000; Fishbein & Ajzen, 1976; 2010) from 1 *(strongly disagree)* to 7 *(strongly agree)*. Items included five statements that read "[Referent group] think that it is important for

me to attend UCAT teaching development workshops." The referent groups included "other graduate students in my cohort *(M* = 2.89, *SD* = 1.55)," "other graduate students in my department *(M* = 3.00, *SD* = 1.49)," "my advisor (= 3.06, *SD* = 1.72)," "professors (other than my advisor) in my department (*M* = 3.51, *SD* = 1.66)," and "administration in my department (*M* = 4.17, *SD* = 1.77)."

PCA confirmed the presence of only one component with eigenvalues exceeding 1, explaining 65.16% of the variance with all items loading on one component (coefficients > .73). The Kaiser-Meyer-Olkin value was .85, exceeding the recommended value of .6 (Kaiser, 1970) and Bartlett's Test of Sphericity (Bartlett, 1954) reached statistical significance *(p* < .001). These results are consistent with past research using these injunctive norm measures (Fishbein, 2000; Fishbein & Ajzen, 1976; 2010), therefore the items were averaged to create an injunctive norm subscale (Cronbach's α = .877).

Descriptive norms. Descriptive norm perceptions for attending teaching development workshops at UCAT were measured using an 11-point scale indicating perceived participation of the group from 0% to 100% in 10-point increments (Fishbein, 2000; Fishbein & Ajzen, 1976; 2010. Participants were asked "Thinking about [referent group], approximately what percentage do you think have attended a UCAT teaching development workshop ever/in the last 6 months/in the last year." Referent groups included "other graduate students in your department," and "other graduate students in your cohort." The combination of the two referent groups and three different time periods created a total of six items.

PCA confirmed the presence of only one component with eigenvalues exceeding 1, explaining 62.76% of the variance with all items loading on one component (coefficients > .73). The Kaiser-Meyer-Olkin value was .79, exceeding the recommended value of .6 (Kaiser, 1970) and Bartlett's Test of Sphericity (Bartlett, 1954) reached statistical significance *(p* < .001). These results are consistent with past research using these descriptive norm measures (fishbein, 2000; Fishbein & Ajzen, 1976; 2010), therefore the items were averaged to create a descriptive norm subscale (Cronbach's α = .855).

Self- and response efficacy. Participant efficacy for attending teaching development workshops was assessed using two subscales. These included items that express both self (Fishbein, 2000; Fishbein & Ajzen, 1976; 2010) and response efficacy (Witte, 1994) for completing the behavior. PCA confirmed the presence of two components with eigenvalues exceeding 1, explaining 53.52% and 28.03% of the variance with all items loading on two components (coefficients > .85). The Kaiser-Meyer-Olkin value was .83, exceeding the recommended value of .6 (Kaiser, 1970) and Bartlett's Test of Sphericity (Bartlett, 1954) reached statistical significance (p < .001). These results are consistent with past research indicating two separate subscales for self- and response- efficacy (Fishbein, 2000; Fishbein & Ajzen, 1976; 2010; Witte, 1994), thus these two subscales were created.

Self-efficacy. Participants' self-efficacy (Fishbein, 2000; Fishbein & Ajzen, 1976; 2010) for attending teaching development workshops at UCAT were measured on a 7-point Likert scale from 1 *(strongly disagree)* to 7 *(strongly agree)*. Six items included the statements "I have complete control over going to a UCAT teaching development

workshop ever/ in the next 6 months/ in the next year" and "If I really wanted to I could go to a UCAT teaching development workshop ever/ in the next 6 months/ in the next year." Due to the results of the PCA, these six items were averaged to create a self-efficacy subscale (Cronbach's $\alpha = .951$).

Response efficacy. The perceived response efficacy (Witte, 1994) for attending teaching development workshops at UCAT were measured on a 7-point Likert scale from 1 *(strongly disagree)* to 7 (*strongly agree*). Three items included the statements "Going to a UCAT teaching development workshop will be effective/ help me become a better instructor/ give me helpful tools to use as an instructor." Due to the findings of the PCA, these three items were averaged to create a response-efficacy subscale (Cronbach's $\alpha = .923$).

Behavioral intention. Participants' intention to attend teaching development workshops at UCAT were measured using a 7-point Likert scale from 1 *(strongly disagree)* to 7 *(strongly agree*; Fishbein, 2000; Fishbein & Ajzen, 1976; 2010. Items included three items that read "I plan to attend UCAT teaching development workshops in the next 6 months ($M = 3.28$, $SD = 1.69$)/ year ($M = 3.64$, $SD = 1.78$) /before I graduate ($M = 3.97$, $SD = 1.90$)."

PCA confirmed the presence of only one component with eigenvalues exceeding 1, explaining 91.45% of the variance with all items loading on one component (coefficients > .93). The Kaiser-Meyer-Olkin value was .71, exceeding the recommended value of .6 (Kaiser, 1970) and Bartlett's Test of Sphericity (Bartlett, 1954) reached statistical significance ($p < .001$). These results are consistent with past research using these behavioral intention measures (Fishbein, 2000; Fishbein & Ajzen, 1976; 2010,

therefore the items were averaged to create a behavioral intention subscale (Cronbach's α = .95).

Data Analysis

Descriptive analyses, correlations, t-tests, and one-way Analyses of Variance (ANOVAs) were first conducted to assess the data (Table 2). Analysis of multicollinearity found no strong correlations between variables (variance inflation factor all < 2). Multiple regression analyses were used to test hypotheses of interest as in past studies of the IM (e.g., Fishbein, 2000; Fishbein & Ajzen, 2010). Relationships between all of the variables in the model were first assessed, using hierarchical multiple linear regressions (Baron and Kenny, 1986). The use of hierarchical linear regression allowed us to test the additional variance explained by anticipated emotions which were added in the second step of the model. To test moderation prediction (H4), an interaction term was created. Both injunctive and descriptive norm scales were centered by subtracting the mean from each score. Mean centering was conducted to minimize possible effects of multicollinearity and increase interpretability (e.g., Hayes, 2013; McClelland & Judd, 1993; Williams, 2015). An interaction term was then created by multiplying the two centered scores. To test the mediation predictions (H7), Hayes (2013) PROCESS macro for SPSS Model 4 was used that utilized a bootstrapping procedure to achieve bias-corrected confidence intervals. Unstandardized indirect effects were computed for each of 10,000 bootstrapped samples. Covariates for all analyses included sex, department type, past teaching experience, familiarity with UCAT, and past negative and positive emotions. All analyses were tested separately with and without the Master's students (n = 9) and the same effects were found, thus the Master's and Doctorate students were

combined for all analyses; all results presented include both Master's and Doctorate students combined.

Table 1

Participants by Department (N=139)

	Participants	Percent
Chemistry and Biochemistry**	32	23%
Comparative Studies*	3	2.2%
East Asian Languages*	4	2.9%
Economics**	2	1.4%
Education*	1	0.7%
English*	15	10.8%
Environment and Natural Resources**	10	7.2%
Evolution, Ecology, & Organismal Biology**	2	0.7%
Geography**	1	0.7%
History*	16	11.5%
Microbiology**	6	4.3%
Molecular, Cellular, & Developmental Biology**	1	0.7%
Physics**	10	7.2%
Political Science*	5	3.6%
Psychology*	22	15.8%
Sociology*	6	4.3%
Statistics**	3	2.2%

* Social Science
** Hard Science

Table 2

Correlations and Descriptive Statistics for Model Variables (N=139)

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	*M*	*SD*	Scale range
1. Sex												0.58	0.49	0-1
2. Department Type	-.15											0.48	0.50	0-1
3. Past Teaching Exp	-.04	.16										4.02	2.99	0-1
4. UCAT familiarity	.06	.02	.12									2.53	1.12	1-5
5. Past Pos. Emotions	-.21*	.05	.03	.10								2.89	0.78	1-5
6. Past Neg. Emotions	.07	-.08	-.13	-.08	-.33**							1.93	0.51	1-5
7. Attitudes	.16	.03	.10	.27**	.28**	-.01						4.44	1.12	1-5
8. Self-Efficacy	.01	-.10	.09	.05	.15	-.20*	-.07					5.61	1.23	1-7
9. Response Efficacy	.13	.04	.05	.32**	.20*	-.21*	.68**	.05				4.93	1.04	1-7
10. Injunctive Norms	.01	.06	-.23	.12	.31**	.01	.48**	.03	.44**			3.31	1.37	1-7
11. Descriptive Norms	.05	.05	-.13	.15	-.06	.14	.36	.001	.08	.33**		3.46	1.93	1-7
12. Ant. Pos. Emotions	-.01	.03	-.02	.24**	.40**	-.07	.66**	.10	.60**	.50**	.03	2.22	.86	1-5
13. Ant. Neg. Emotions	.04	.01	-.13	-.20*	-.23**	.65**	-.16	-.10	-.22*	-.05	.14	1.50	0.64	1-5

** $p \leq .01$. * $p \leq .05$; Scale range represents possible values; 3/4 represent neutral on the 5/7 point scales respectively

Chapter 3: Results

Participant Characteristics

A total of 139 graduate teaching assistants comprised our final sample. Of participants, 42% (n = 58) were male. Participants were 82% Caucasian (n = 114) , 11.5% Asian (n = 16) , and 6.5% were Black or some other race (n = 9). Participants came from the seventeen departments across the University with approximately 52% (n = 72) representing a social science field and 48% representing a hard science field (see Table 1). Most participants (93.5%, n = 130) were doctorate students. Participants ranged from being in their first to ninth year in their program (Master's: M =2.22, SD = 0.97; Doctorate: M = 3.70, SD = 1.73).

Overall, graduate students intentions to attend teaching development workshops at UCAT were slightly unlikely (M = 3.63, SD = 1.71, n = 139). Additionally, results of the two independent samples t-test showed no significant differences for behavior intentions between males (M = 3.32, SD = 1.68, n = 57) and females (M = 3.85, SD = 1.72, n = 81), t = -1.80, df = 136, p = .07, 95% CI for mean difference [-1.11, 0.05] and no significant differences between participants across fields: social science (M = 3.54, SD = 1.68, n=72) and hard science (M = 3.72, SD = 1.75, n= 66) departments, t = -0.63, df = 136, p = .53, 95% CI for mean difference [-0.76, 0.40].

Analysis of variance found no significant differences in behavioral intention to attend teaching development workshops at UCAT based on past positive teaching-related

emotions, $F(1, 137) = 1.51$, $p = .09$ or for past negative teaching-related emotions, $F(1, 137)) = 1.19$, $p = .28$. However, significant differences in behavioral intention were detected based on whether or not students had past teaching experience, $F(1, 137) = 1.85$, $p = .01$ and whether they were familiar with UCAT, $F(1, 137) = 2.70$, $p = .03$. These results showed that participants with more previous teaching experience, and more familiarity with UCAT, had higher intentions to attend teaching development workshops at UCAT.

Model Tests

A hierarchical multiple linear regression was used to test the effects of integrative model variables (attitudes, descriptive and injunctive norms, and self-efficacy) on behavioral intention to attend teaching development workshops at UCAT (H1-H4), with the addition of response efficacy and the proposed interaction term (between injunctive and descriptive norms). Although the model was significant, $F(12, 109) = 15.35$, $p < .001$, the interaction term was not significant, $b = 0.01$, $t(109) = 0.12$, $p = .90$ (H4 not supported); thus, the term was removed from further analysis and a main effects model retested with the addition of response efficacy.

Test of Main Effects Model

The overall main model (see Table 3) was significant, $F(11, 110) = 10.36$, $p < .001$, and accounted for 45.5% of the variance in behavioral intention to attend teaching development workshops at UCAT. Significant main effects were detected for attitudes ($b = 0.52$, $t(110) = 3.34$, $p < .001$ (H1 supported), response efficacy, $b = 0.42$, $t(110) = 2.57$, $p = .01$ (H3 supported) and injunctive norms, $b = 0.25$, $t(110) = 2.21$, $p = .03$). Specifically, more positive or supportive views toward the behavior were associated with

increased behavioral intention. Self-efficacy was not significant, $b = 0.10$, $t(110) = 1.06$, $p = .29$ (H2 not supported) nor was descriptive norms, $b = -0.04$, $t(110) = -.05$, $p = .62$.

Tests of Anticipated Emotions

To test H5-6, anticipated positive and negative emotion were added to the previous hierarchical multiple regression and the model was retested (see Table 3). Results showed a significant overall model $F(13, 107) = 9.61$, $p < .001$ that accounted for 48.3% of the variance in behavioral intention. The addition of the anticipated emotion variables created a significant ΔR^2, $\Delta F(2, 107) = 3.27$, $p = .04$, accounting for an additional 2.8% of the variance. Positive anticipated emotion was significantly associated with intention, $b = 0.52$, $t(107) = 2.55$, p = .01; H5 supported) but negative anticipated emotion was not significant, $b = -0.08$, $t(107) = -0.34$, $p = .74$ (H6 not supported).

As a final step to assess mediation predictions, we tested whether anticipated positive and negative emotions mediated the effects of attitudes, self-efficacy, and norms on behavioral intention. As shown in Table 4, no significant indirect effects on behavioral intention were detected for IM model variables through *negative* anticipated emotion ($p > .05$) However, our results showed that attitudes, $b = 0.13$, $bSE = 0.08$, 95%*CI* [0.02, 0.32], response efficacy, $b = 0.12$, $bSE = 0.06$, 95%*CI* [0.02, 0.26], and injunctive norms, $b = -0.09$, $bSE = 0.05$, 95%*CI* [0.02, 0.21], indirectly influence behavioral intentions through anticipated *positive* emotion; no significant indirect effects for self-efficacy or descriptive norms were detected (H7 partially supported; See figure 3 and table 5 for summary of results).

Table 3

*Multiple Hierarchical Linear Regression Predicting Intentions to Attend Teaching Development Workshops (*N=139)

	Model 1		Model 2	
	b	*SE* b	b	*SE* b
Department Type^	.15	.24	.15	.24
Past Positive Emotions	.20	.17	.08	.18
Past Negative Emotions	.44	.25	-.43	.32
UCAT Familiarity	.04	.11	-.02	.11
Sex	.20	.25	-.27	.24
Teaching Experience	.02	.04	.02	.04
Attitudes	.52**	.16	.38*	.17
Self-Efficacy	.11	.10	.08	.10
Response Efficacy	.42*	.17	.32	.17
Injunctive Norms	.25*	.11	. 20	.11
Descriptive Norms	-.04	.07	-.02	.07
Anticipated Positive Emotions			.52**	.20
Anticipated Negative Emotions			-.08	.24
F (*df)*	10.33 (11,109)**		9.61 (13,107)**	
R^2	0.46		0.48*	

** $p \leq .01$. * $p \leq .05$

Notes: Department Type coded, 1= social science, 0= hard science

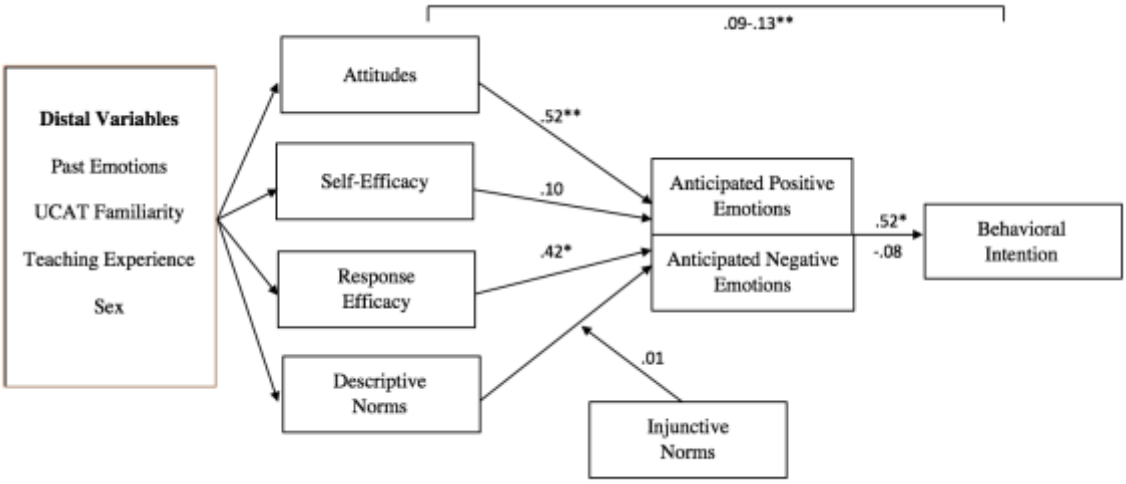
Table 4

Indirect Effects of IM Variables on Intentions to Attend Teaching Development Workshops via Proposed Mediators (N=383)

	Proposed Mediators			
	Anticipated Positive Emotions		Anticipated Negative Emotions	
Independent Variables	Est.	95% bCI	Est.	95% bCI
Attitudes	.132	[.016, .316]*	.012	[-.050, .148]
Self-Efficacy	.033	[-.034, .122]	-.001	[-.030, .017]
Response Efficacy	.117	[.017, .257]*	-.004	[-.093, .027]
Injunctive Norms	.090	[.018, .210]*	.002	[-.017, .054]
Descriptive Norms	-.026	[-.092, .014]	-.002	[-.043, .011]

Figure 3

Proposed Model with Beta Weights for Results



** $p \leq .01$. * $p \leq .05$

Table 5

Summary of Hypotheses and Results

Hypotheses	Description	Results
H1	Attitudes → Intention	Supported
H2	Self-efficacy → Intention	Not supported
H3	Response efficacy → Intention	Supported
H4	Descriptive x Injunctive Norm Interaction	Not supported
H5	Anticipated Positive Emotions → Intention	Supported
H6	Anticipated Negative Emotions → Intention	Not supported
H7	Mediation Predictions	Partially supported

Chapter 4: Discussion

The current study sought to understand the motivations for GTAs to attend teaching development workshops at their university's center for teaching. The main aims of this study were to test a modified version of the IM in this new context and to test the 1) addition of a response efficacy construct, 2) interaction between descriptive and injunctive norms**,** and 3) addition of anticipated emotions as a mediator of the effects of IM main variables on behavior intention.

Overall Intentions to Attend Teaching Development Workshops

This study tested whether a modified version of the IM framework (Fishbein, 2000) is an effective model for the prediction of behavioral intentions to attend teaching development workshops at a university teaching center. In general, behavioral intentions to attending teaching development workshops were negative, indicating overall lack of intentions to attend teaching development workshops. Sex, department, and past emotional experiences with teaching were not associated with intentions to attend teaching development workshops; however, past teaching experience and familiarity with UCAT were associated with intentions.

One past study found differences for sex (BrckaLorenz, Wang, and Laird, 2015) on perceptions of importance of teaching development. However, the current study looked specifically at *intentions* to attend teaching development workshops, so it is possible that sex differences in perceptions of importance do not carry over to intentions.

Department type has been found to affect the perceptions of preparation level or importance of teaching (e.g., Golde & Dore, 2001); however, no studies have looked at departmental differences in intentions to attend teaching development workshops as in the current study. Further, in the current study, departments were collapsed across department type. It is possible that the departments combined for each type were not homogenous and, thus, any effects of department type may have been unobservable.

Past emotional experiences with teaching were also not found to affect behavioral intentions to attend teaching development workshops. In this study, past emotions were measured for actual *past teaching behavior*. This measurement did not align with the behavior of interest: teaching development attendance. This breaks the compatibility principle (Fishbein & Ajzen, 2010) and thus diminishes the likelihood of finding effects.

Past teaching experience was found to be associated with intentions to attend teaching development. Similar studies (e.g., Admiraal, Lockhorst, Smit, and Weijers, 2013; Boman, 2013) have found similar effects for past teaching experience on attendance in teaching development. This suggests that direct experience with teaching may affect GTAs' views of teaching development workshops.

UCAT familiarity was found to influence behavioral intentions to attend teaching development workshops at UCAT. This is consistent with work in areas such as brand familiarity and advertising. Often, the more familiar and positive an individual is toward a brand, the more likely they are to buy that product.

To better understand the effects of these, and other, distal variables in the context of teaching development behavior, it is imperative that more studies explore these relationships to understand boundary conditions for where these variables are important.

Integrative Model Main Effects

Results showed that the IM accounted for nearly 60% of the variance in behavioral intentions to attend teaching development workshops. In this context, injunctive norms, response efficacy, and attitudes were found to be significantly associated with behavioral intentions to attend teaching development workshops. This is consistent with literature on graduate student development which shows that a mix of personal and social beliefs affect the experiences of teaching development during graduate school (e.g., Austin, 2002; Gansemer-Topf, et al., 2006; Nyquist, et al., 2004). Furthermore, anticipated positive emotion was a significant predictor, accounting for an additional 2.8% of the variance in behavioral intentions. Anticipated positive emotions was also found to mediate the effects of the significant main variables (attitudes, norms, and response efficacy) on behavioral intentions. This supports the idea that emotions are an important consideration in career development (e.g., Kidd, 2008) and graduate school (Gansemer-Topf, et al., 2006).

These findings show general support of the proposed modified IM in this context. Fishbein and Ajzen (2010) note that the utility of the IM comes from its ability to be applied to varying context. The authors explain that within different contexts, the predictive power of different model variables varies. However, initially exploring all variables in a given context allows researchers to fully understand the associations of the variables. Because this modified model accounted for the varying influences (personal and social; cognitive and affective) it is successful in more fully exploring teaching development behavior in this context. Future replications of these findings will help substantiate the utility of the IM in this context.

Unsupported Predictions

Self-efficacy. Interestingly, self-efficacy and descriptive norms were not significantly associated with intentions to attend teaching development workshops. In previous studies, self-efficacy has garnered mixed results as a predictor of behavioral intentions. For example, Admiraal and colleagues (2013) did not find self-efficacy to be a significant predictor of technology use in faculty development programs. Similarly, studies on condom use often do not find self-efficacy to be a significant predictor of behavioral intentions (e.g., Albarracin, Johnson, &Fishbein, 2001). However, other studies have found support for self-efficacy as a significant predictor such as in physical activity completion (Chatzisarantis, & Biddle, 2002). Fishbein & Ajzen (2010) note that these variations in the predictor power of self-efficacy could occur due to moderating factors such as the degree of rationality or emotion involved in a behavior (such as in condom use). Fishbein and Ajzen (2010) also note that the absence of self-efficacy (rather than the presence) is often what affects behavior and in the current study self-efficacy views were relatively high ($M = 5.61$).

Descriptive norms. Although higher injunctive norms were associated with greater intentions to attend workshops, descriptive norms were not significantly associated with intentions to attend teaching development workshops. This suggests that GTAs' perceptions of the views of referent others (such as advisors) about the importance of teaching development workshops (injunctive norms) are more important in this context than whether GTAs perceive their peers are attending teaching development workshops (descriptive norms).

There are some possible explanations for this finding. First, attending teaching development workshops is not a very public behavior that students would be able to easily judge through observation [not sure what this last part means]. To have influence [on what?], descriptive norms must be visible to serve as informational cues (e.g., Cialdini, et al., 1990; Deutsch & Gerrard, 1955). Therefore, perceptions of descriptive norms may not be understood accurately enough to affect behavioral intentions [not sure what you mean here?]. In many studies that find effects of descriptive norms on behavioral intention, the behavior of interest is a visible public or social behavior, such as college alcohol drinking (e.g., Rimal & Real, 2005).

TNSB Interaction

The IM looks separately at the effects of injunctive and descriptive norms; however, research on the TNSB suggests that injunctive and descriptive norms have an interactive effect on resulting behavioral intentions such that higher descriptive norms will be more likely to affect behavior when injunctive norms are also high (Rimal & Real, 2005; Rimal, 2007). The present study tested whether injunctive and descriptive norms would interact in this context to affect behavioral intentions to attend teaching development workshops. Results did not support the TNSB proposition of interaction. This is not surprising given that descriptive norms were not found to have any effects on behavioral intentions in the current context.

Other studies have also failed to find this interaction effect of descriptive and injunctive norms (Rimal & Real, 2005). In fact, critiques of the TNSB have noted the lack of convergent evidence supporting the interaction hypothesis. Rimal and Real (2008) responded to these critiques by testing an alternative mediation hypothesis of an indirect

effect of descriptive norms through injunctive norms and found support for this alternative model. The fact that both the moderation and mediation hypotheses were supported suggest a need for stronger theoretical support for TNSB effects. In fact, in their study, Rimal and Real (2008) noted that there are likely boundary conditions for when the interaction effects occur, such as the publicness of a behavior, that have yet to be fully understood. Given that the majority of tests of the TNSB have been done in a similar behavior context (drinking behavior; Carcioppolo, & Jensen, 2012; Jang, Rimal, & Cho, 2011; Lee, Geisner, Lewis, Neighbors, & Larimer, 2016; Real & Rimal, 2007; Rimal, 2008; Rimal & Real, 2005), more studies must be done to fully understand the relationship of injunctive and descriptive norms in varying contexts.

Anticipated Emotions Mediation

Criticisms of the IM have noted that the model is largely cognitive in nature (e.g., Ajzen, 1989, 1991; Gibbons, Gerrard, Blanton, & Russell, 1998; Godin & Kok, 1996; Kim, Kjite, & Hancer, 2013; Reyna & Farley, 2006). Anticipated emotions are a common concept that has been tested as an extension to the IM and has been positively associated with intentions (e.g., Abraham, Henderson, & Der, 2004; Conner, Graham, & Moore, 1999; Sheeran & Orbell, 1999). The present study sought to understand if anticipated emotions are effective predictors of behavioral intention in the context of graduate student teaching development. A mediation role for anticipated emotions, mediating the effects of attitudes, norms, and efficacy on behavioral intention was also tested. Results showed that anticipated *positive* emotions accounted for almost 3% additional variance in behavioral intentions to attend teaching development workshops. Further testing showed that these anticipated *positive* emotions served as a significant mediator for the

relationship between the significant IM variables (attitudes, response efficacy, and injunctive norms) and behavioral intentions. This mediation finding is similar to other studies that have started to explore the specific process for the behavioral decision-making process (e.g., Hynee, MacDonald, & Marques, 2006; Onwezen, Antonides, & Bartels, 2013); however, most studies have not explored at the specific role of anticipated emotions (e.g., Sandberg & Conner, 2008). These findings suggest that individuals considering attending teaching development workshops may weigh the anticipated affective outcome expectations of attending workshops.

However, the context of the current study (attending teaching development) is different than the context (e.g., environmental behavior; Onwezen, Antonides, & Bartels, 2013) of other studies that have found significant mediation using anticipated emotions. Since these behavioral contexts may be different on dimensions such as their pro-social nature, more studies must be done to substantiate the consistency of these mediation effects using anticipated emotions in differing contexts.

Negative anticipated emotions. Interestingly, anticipated *negative* emotions did not serve as a significant predictor of intentions to attend teaching development workshops. One may expect that increased expectations of negative anticipated emotions would discourage behavioral intentions. However, the current study only found that positive anticipated emotions were associated with increased behavioral intentions, rather than negative anticipated emotions inhibiting behavior. This is a noteworthy finding that further suggests that emotions may not be able to be considered as simple bipolar opposites. Rather, than assuming that negative emotions will have the opposite effect of positive emotions, it is important to explore the potentially independent effects of

positive and negative emotions (e.g., Costa & McCrae, 1980; Watson & Clark, 1997; Zautra, Potter, & Reich, 1997).

One possible explanation for this finding is that the mere presence of negative emotions may not always inhibit behavior. In fact, negative emotions can be *motivators* of behavior in some circumstances, such as for anxiety, when at minimal levels (e.g., Cantor, 1986; Mowrer, 1939). In the context of learning new information or going to workshops to improve a behavior, it would likely be expected that there would be some negative emotions such as anxiety (e.g., Bawden & Robinson, 2009). However, it is possible that the expected positive outcomes of that behavior (response efficacy) could outweigh the anticipated negative emotions. These findings suggest that rather than focusing on decreasing negative emotions, it may be more effective to focus on increasing anticipated positive emotions to motivate behavior.

On the other hand, another possible explanation for the lack of significant findings for anticipated negative emotions is the wording of the measurement instrument. In this case, anticipated negative emotions were measured based on whether individuals *did attend* teaching development workshops. Negative anticipated emotions are often measured in relation to *not doing* a desired behavior, because the negative emotions come from lack of behavior completion. Fishbein and Ajzen (2010) note that it is important to understand that differing results are often found when measuring intention *to do* a behavior versus intention *not to do* a behavior because different beliefs are considered for each judgment. Thus, it is important that future research explore both intentions *to attend and to not attend* teaching development workshops.

Practical Implications

The current study sought to understand the factors influencing graduate student attendance at teaching development workshops. Even though the literature substantiates the need for increased attendance at additional teaching development workshops (e.g., Austin, 2002; Golde & Dore, 2002; Nyquist, et al., 2004; Shannon, et al., 1998), little, if any, research has specifically looked at *why* graduate students *do, or do not*, voluntarily attend these workshops. Instead, the majority of research has only looked at the experiences of those who *do* attend (e.g., Cox, 2013; Hewson, Copeland, & Fishleder, 2001; Lee, Zhang, & Yin, 2001). This evaluation approach misses the whole segment of the population that is not attending because only those that *do* attend are being surveyed. While this type of summative evaluation is important to understand the effectiveness of programming, it does not give holistic insight into the motivations for participation (or lack thereof) in the first place. Arguably, understanding why individuals *do not attend* is the most important consideration in order to *increase* attendance. For example, in other areas such as environmental (e.g., Kollmuss & Agymen, 2002) or voting behavior (Kimberlee, 2002), scholars seek to understand the barriers to participation to better understand lack of behavior even when attitudes and norms are supportive of the given behavior.

By looking at attendance in teaching development workshops from a psychological perspective more broadly, it can help to better delineate what factors are critical in influencing this behavior. Rather than making assumptions about attendance and motivations through informal understanding of those who do or do not attend, systematic and formalized assessments would allow for a more accurate understanding of motivations. Through this understanding, practitioners can focus on not only developing

and marketing programming based on these actual motivations of graduate students, but practitioners could also work to *change* these underlying factors that motivate or inhibit attendance.

The current study found four main variables that were associated with behavioral intentions to attend teaching development workshops: response efficacy, injunctive norms, attitudes, and anticipated positive emotions. Each of these variables is an important consideration for practitioners who seek to develop and effectively market teaching development programming.

Response efficacy. In the current study, higher levels of response efficacy were associated with higher behavioral intention. Many marketing strategies and programming already directly focus on the response efficacy by citing benefits and expected outcomes such as through gain framing (e.g., Rothman & Salovey, 1997). These perceptions of response efficacy can also come through informal channels such as word of mouth (Sernovitz, Godin, & Kawasaki, 2006). The importance of response efficacy in the current study suggests that it is important that practitioners continue to emphasize the positive outcomes and benefits of their programming (such as skills obtained through participation) to motivate attendance. Further, practitioners must consider the informal channels that can also affect views of response efficacy. For example, whether development behavior is emphasized within a program can affect perceptions of the effectiveness of programming. If teaching development is not communicated as important, individuals can perceive that this means that teaching development is not worthwhile or effective (e.g., Mathieu & Martineau, 1997). Making sure that these

informal communications align with the formal publicized benefits of programming could increase intentions to attend.

Injunctive norms. In the current study, views of how important others thought the behavior was (injunctive norms) affected the likelihood that individuals would have behavioral intentions to attend teaching development workshops. More support from referent groups about the importance of attending workshops was associated with higher behavioral intentions; however, overall injunctive norm perceptions were low ($M = 3.31$). Research shows that graduate education is often less supportive of teaching development activities than research activities (e.g., Austin, 2002; Golde & Dore, 2001; Wulff & Austin, 2004). Often, formal policies and informal communications either fail to support or diminish the importance of teaching development (Nyquist, et al., 2004). In fact, many calls have been made to change this culture of higher education (Bloom, 1987; National Commission on Excellence in Education, 1983). Given that the current study found injunctive norms to be an important motivator of attendance, it is important that practitioners consider how to change the injunctive norms around teaching development attendance.

In order to change these norms, it is important to consider the groups that messages regarding teaching workshops are coming from. Rather than outside sources (such as centers for teaching and learning) attempting to tell graduate students to attend, or telling them what the other referent groups (such as advisors) think, it may be a more effective strategy for these supportive messages to come directly from the advisors or their peer groups. In order to do this, teaching and learning practitioners must move beyond their roles of creating effective programming work to create organizational

change; this could mean that practitioners work directly with administrators or advisors to change their views of training and to increase their communication about opportunities for teaching development with graduate students.

Attitudes. As is often the case in many behaviors, the current study found attitudes to be the largest predictor of behavioral intention (Fishbein & Ajzen, 2010). Attitudes are made up of a variety of beliefs about a given behavior. Thus, in order to understand the effects of attitudes on behavior, it is important to understand the beliefs that make up attitudes (Fishbein & Ajzen, 1975). This is especially the case since individuals often have conflicting beliefs (Pratkanis, Breckler, & Greenwald, 2014). Studies on teacher education show that attitudes and beliefs shape not only classroom styles and activities, but also influence teacher change processes and development views (e.g., Nespor, 1987; Pajares, 1992; Richardson, 1996). These results suggest means that it is important for practitioners to understand the perceptions of teaching development that they offer. By understanding the makeup of individuals' attitudes, practitioners would be able to shape attitudes, and thus motivate behavior.

This exploration of attitudinal beliefs could come through formal evaluation such as needs assessments. These techniques allow practitioners to not only understand individuals' views of specific workshops, but can also help explore broader views of organizational structures (e.g., Mathieu & Martineau, 1997). Once the beliefs that graduate students hold about teaching development are understood, practitioners can communicate to increase the positivity of attitudes by increasing the salience or quantity of those positive beliefs. However, it is imperative that these communication strategies align with the goals and values of the individuals being targeted. For example, if working

with individuals whose focus is on research, increasing beliefs about how attending teaching development workshops can increase teaching efficiency, thus leaving more time for research, would be an effective option.

Anticipated emotions. This study found that anticipated positive emotions are associated with increased behavioral intention. Literature has shown that beliefs about anticipated emotional outcomes can affect behavioral intentions (e.g., Abraham, Henderson, & Der, 2004; Conner, Graham, & Moore, 1999; Sheeran & Orbell, 1999). Specifically, this study found that anticipated positive emotions serves as a partial mediator between the significant variables (attitudes, response efficacy, and injunctive norms) and behavioral intention. Rather than only being separate predictors of intentions, this finding suggests the process by which these key variables influence behavioral intentions such that the perceptions that individuals hold affect their views of anticipated emotional outcomes, which in turn affect behavior intention. For instance, when individuals perceive a supportive norm for a given behavior, they anticipate that the behavior will have positive emotional outcomes (Rivis, Sheeran, & Armitage, 2009). Although in the current study the addition of anticipated positive emotions accounted for 2.8% of the variance, this suggests, that at least part of the time, anticipated emotions affect the likelihood that individuals will attend teaching development workshops. Many scholars note that behavior prediction models tend to be exceptionally cognitive in nature (e.g., Ajzen, 1989, 1991; Gibbons, Gerrard, Blanton, & Russell, 1998; Godin & Kok, 1996; Kim, Kjite, & Hancer, 2013; Reyna & Farley, 2006). This finding reiterates the importance of practitioners also considering the emotions and perceived emotional outcomes of their programs and activities. Emotions may not be the sole motivator of

behavior, but ensuring that GTAs perceive anticipated positive emotions from modes of advertising or word of mouth regarding workshops could help further motivate attendance.

Limitations

Although there are many useful findings in the present study, there are several imitations that must be considered. First, this study was one of the first of its kind to explore the motivations for attendance in teaching development workshops using the IM framework. Further, the current study only had 139 participants. It is imperative that more and larger studies are conducted to explore whether these findings are consistent. Additionally, the current study is limited in its generalizability since participants were recruited from only one institution and only one general behavioral intention was considered. Studies at a diversity of institutions and populations will help substantiate the claims in the present study and increase their generalizability.

Further, this study looked specifically at attending teaching development workshop at the University center for teaching (UCAT) generally. Therefore, this study is limited in that it does not take into account other types of teaching development that individuals could have already attended or could plan to attend. Future studies should attempt to account for the range of development opportunities to better understand teaching development behavior and to also start to differentiate the potential differing effects of these programs.

Another limitation of this study is the method of recruitment. One of the reasons that studies are often skewed in looking at what factors motivate those who *do* participate in programming is because of the nature of data collection. Since participation in surveys

is voluntary, those who participate are often those who have attended making them accessible for recruitment, or those who are inherently interested in the topic and thus seek out participation. For this study, this limitation was minimized by using multiple methods of recruitment to reach a wide range of individuals. Participation was not limited to those who had previously participated in teaching development; in fact, the study purposefully sought to recruit those with a diverse range of previous participation and interest. However, due to the nature of voluntary participation through general marketing, it is possible that the sample of the current study is skewed toward those who are more interested in teaching, and thus more likely to have higher behavioral intentions to attend teaching development workshops. Future research should seek to design methods that allow for a broader sample of graduate students, such as through including survey materials within other required tasks that would be completed by a larger range of participants.

A common limitation of behavior prediction research is that studies often do not measure actual behavior. As is true in the current study, researchers often rely on self-report behavioral intentions measures to gauge the likelihood of actual behavior. However, research shows that there are often factors that influence the consistency from behavioral intentions to actual completion of behavior. In the future, it is important that researchers seek to design studies where actual attendance in teaching development workshops can be evaluated. Due to the limited resources and time constraints of the current study, measurement of actual behavior was not possible; however, future studies should seek to partner with teaching centers and design longitudinal studies that enable capturing of actual behavior data.

A final limitation of this study is the methods used to assess response efficacy. There are a range of methodologies for measuring and interpreting response efficacy; thus, the specific aspects of the current measure and potential limitations must be considered. For instance, the measure of response efficacy in this study was general (efficacy for teaching) rather than specific to a topic or skill that may be addressed at a given workshop which would better reflect the specific objective of a given workshop.

Future Directions

The current study is an important first step in understanding factors that influence attendance in teaching development workshops. However, further work still needs to be done to more fully understand these factors and their relationships and origins in order to affect behavior. In addition to further studies with more and varied participants, other methods of study and evaluation would be beneficial to more completely understand this behavior process. For instance, the current study was an online survey of general perceptions. Future studies should use mixed method approaches to supplement the general understanding of a quantitative approach with the in-depth understanding of a qualitative approach. Similar to other studies in graduate student development, expanding research to interviews and policy assessment will allow researchers to not only summatively understand these factors, but also critically understand the culture and communications that lead to these perceptions. By understanding the origins of these perceptions, practitioners can more effectively change and shape the important factors that influence attendance in teaching development workshops.

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Appendix A: Measurement Instrument

Pre-Screen Questionnaire

These questions were answered first by participants to see if they were eligible to participate in this study.

- What is your sex?
    - Male, Female, Other
- What is your race?
    - Native American, Black/African American, Caucasian, Asian, Pacific Islander, Other
- What is your academic department?
    - Chemistry and Biochemistry, English, Mathematics, Psychology, Physics, History, EHE Human Sciences, Statistics, Economics, School of Environmental and Natural Resources, Political Science, Introductory Biology, East Asian Languages and Literature, Philosophy, Sociology, Other
        - **In order to qualify to participate the respondent much have chosen one of the above (not "other") departments which we limited our data collection to.**
- What year is this for you at OSU as a graduate student in this department? If you are completing multiple degrees consecutively in the same department, include all years.

- 1-8

- What degree program are you currently completing?
  - Master's, PhD, Join Master's-PhD, Other (please explain)
- Do you currently have a Graduate Teaching Assistant (GTA) appointment where you either teacher or assist another professor or graduate student with their teaching?
  - Yes/No
    - **In order to qualify to participate the respondent must have chosen yes because the population of interest is only GTAs.**

Ineligible Participants

If participants are ineligible to participate in this study, they were informed of this and there was no further interaction with the individual. The wording was as follows.

- "Based on your answers to our pre-screen questionnaire, you are currently ineligible to participate in this study. Thank you for your interest."

Eligible Participants

If participants are eligible to participate in this study, they will be informed that they are eligible to participate and will be given a link to the actual study. The wording will be as follows.

- "Congratulations, you are eligible to participate in this study! The following link will take you to the study questionnaire. You should make sure that you have sufficient time to complete the study when you go to this link.

  By participating in this study you will be entered for a chance to win a $250 pre-paid gift card.

If you wish to participate later, please copy the link and complete the survey within the next 7 days. If you provide your email address, this information will also be emailed to you for your records.

Once you click on the survey link, you will be given more information about the study and will be able to choose whether you would like to participate or not at that time. -Link to survey-

Thank you for your interest in this survey! Please provide your email below so we can also send you a copy of the study information for your records."

Study Questionnaire

Demographics

- What is your sex?
    - Male, Female, Other
- What is your race?
    - Native American, Black/African American, Caucasian, Asian, Pacific Islander, Other
- What is your academic department?
    - Chemistry and Biochemistry, English, Mathematics, Psychology, Physics, History, EHE Human Sciences, Statistics, Economics, School of Environmental and Natural Resources, Political Science, Introductory Biology, East Asian Languages and Literature, Philosophy, Sociology
- What year is this for you at OSU as a graduate student in this department?
    - 1-8
- What degree program are you currently completing?

- Master's, PhD, Join Master's-PhD, Other (please explain)

Teaching Experience

Please choose approximately how many sections you have had for each of these roles at OSU.

- Grader (Assisted another instructor, primary role was grading)

  Recitation/Lab facilitator (Led a recitation/lab section of a class that had a primary instructor)
- Section leader (Led a section of a course where you were the primary instructor but you were given the materials for the course)
- Independent instructor (Led a section of a course where you were the primary instructor and were able to develop the majority of the materials (syllabus, assignments, etc) yourself

Do you have teaching experience outside of your GTA positions at Ohio State?

(If yes-) Please choose how many classes/sections you had for each of these roles

- Teaching at another university
- Teaching at a high school
- Teaching at an elementary school
- Teaching in some other role

Past Teaching-Related Emotions (Sutton, 2003)

There items were rated on a 5-point scale from never to always.

- Thinking about your teaching/teaching development experience cumulatively (physically teaching and preparation), how much have you felt each of the following?

Negative Emotions

- I felt guilty.
- I felt ashamed.
- I felt anxious.
- I felt upset.
- I felt worried.
- I felt frustrated.
- I felt stressed.

Positive Emotions

- I felt excited.
- I felt joy.
- I felt satisfied.
- I felt self-assured.
- I felt pleased.

Attitudes (Fishbein & Ajzen, 2010)

These items were rated on a 7-point scale.

- For the following items please pick the point between the two adjectives that represents your thoughts about: Attending teaching development workshops at UCAT
    - Bad-good, Dislike-like, Negative-positive, Unfavorable-favorable

Descriptive Norms (Adapted from Fishbein & Ajzen, 2010)

These items were rated on an 11-point scale from 0% to 100% in 10-point increments.

- Thinking about other graduate students in your cohort what percentage do you think have:
    - Attended a UCAT teaching development workshop ever?
    - Attended a UCAT teaching development workshop in the last 6 months?
    - Attended a UCAT teaching development workshop in the last year
- Thinking about other graduate students in your department what percentage do you think have:
    - Attended a UCAT teaching development workshop ever?
    - Attended a UCAT teaching development workshop in the last 6 months?

      Attended a UCAT teaching development workshop in the last year?

Injunctive Norms (Fishbein & Ajzen, 2010)

These items were rated on a 7-point scale from strongly disagree to strongly agree.

- Other graduate students in my cohort think that it is important for me to attend UCAT teaching development workshops.
- Other graduate students in my department think that it is important for me to attend UCAT teaching development workshops.
- My advisor thinks that it is important for me to attend UCAT teaching development workshops.
- Other professors in my department think that it is important for me to attend UCAT teaching development workshops.
- Administration in my department think that it is important for me to attend UCAT teaching development workshops.

Efficacy (Fishbein & Ajzen, 2010)

Self-Efficacy/Perceived Behavioral Control

These items were rated on a 7-point scale from strongly disagree to strongly agree.

- I have complete control over going to a UCAT teaching development workshop.
- If I really wanted to, I could go to a UCAT teaching development workshop.
- I have complete control over going to a UCAT teaching development workshop in the next 6 months.
- If I really wanted to, I could go to a UCAT teaching development workshop in the next 6 months.
- I have complete control over going to a UCAT teaching development workshop in the next year.
- If I really wanted to, I could go to a UCAT teaching development workshop in the next year.

Response Efficacy

These items were rated on a 7-point scale from strongly disagree to strongly agree.

- Going to a teaching development workshop at UCAT will help me become a better instructor.
- Teaching development workshops at UCAT are effective.
- Going to a teaching development workshop at UCAT will give me helpful tools to use as an instructor.

Anticipated Emotions

These items were rated on a 5-point scale from not at all to extremely.

- Imagine that you were to participate in a UCAT teaching development workshop. Please rate how much you feel each of the following:

Negative Emotions (e.g., Marschall, Sanftner, & Tangney, 1994; Swensson, Weerman, Pauwels, & Bernasco, 2013)

- I would feel guilty.
- I would feel ashamed.
- I would feel anxious.
- I would feel upset.
- I would feel worried.
- I would feel stressed.
- I would feel frustrated.

Positive Emotions (e.g. Perugini & Bagozzi, 2001)

- I would feel excited.
- I would feel joy.
- I would feel satisfied.
- I would feel self-assured.
- I would feel proud.

Behavioral Intentions (Fishbein & Ajzen, 2010)

These items were rated on a 7-point scale from extremely unlikely to extremely likely.

- I plan to attend UCAT teaching development workshops in the next 6 months.
- I plan to attend UCAT teaching development workshops in the next year.
- I plan to attend UCAT teaching development workshops before I graduate.