UNDERSTANDING OLDER WORKERS' DECISIONS TO PARTICIPATE IN VOLUNTARY TRAINING OPPORTUNITIES

by

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ABSTRACT

ERIKA CARELLO LOPINA. Understanding older workers' decisions to participate in voluntary training opportunities. (Under the direction of DR. STEVEN G. ROGELBERG).

The current study integrated theories of adult development with theories of training motivation to address two overarching research questions: 1) Does the likelihood of participating in training differ between younger and older workers? and, 2) Are the decision policies (i.e., the utilization of information in the decision-making process) for participation in training and development age-dependent? Adult development research suggests that generativity, goal orientation, and cognitive abilities change over the lifespan. In the current study, the topic, goal, and structure of a training opportunity were manipulated to correspond to these age-related factors. It was hypothesized that older workers would be less likely to participate in training overall. In addition, age was hypothesized to moderate the relationship between features of training (topic, goal, and structure) and the decision to participate in training. Eighty one participants recruited from a university faculty population completed a policy-capturing study and a self-report survey. In the policy-capturing study, participants were presented with a series of training descriptions and asked to make a decision about their likelihood of attending the training. Each training description contained the same features (topic, goal, and structure); however, the features were manipulated to reflect theoretically derived age-relevant factors. In the self-report survey, participants completed measures of individual differences. The data were analyzed using multilevel analyses. Older workers were found to be less likely to participate in training overall. Age group moderated the

relationship between the training topic and the training decision; however, the pattern of the relationship was in the opposite direction of the hypothesis. Age group did not moderate the relationship between the other training features (goal and structure) and the training decision. The age-related factors appeared to be more strongly related to general training decisions, rather than the utilization of specific information about training characteristics. Interpretations, implications, limitations, and future research directions are discussed.

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INTRODUCTION

The graying of the United States workforce is a phenomenon receiving increased media and research attention. Individuals over the age of 55 are projected to represent 25.2% of the labor force in 2020, which is nearly double their representation in 2000 (13.1%; Toossi, 2012). In addition, the percentage of men and women working beyond the traditional retirement age of 65 is forecasted to be at its highest point in three decades (Purcell, 2009). This shift in workplace demographics is a result of the aging Baby Boomer generation, longer life expectancies, lower birth rates, and economic challenges (Wang & Shultz, 2010). The changing landscape of the workforce presents a number of challenges to organizations as well as individuals, and is ripe for academic investigation. Now and in the coming decades, organizational scientists will play an essential role in informing organizational policies and practices that will benefit the health, well-being, and performance of the aging workforce.

The Value of Training and Development

Organizations invest substantial resources in employee training and development. The Association for Talent Development's (ATD) most recent survey of 475 U.S. based organizations estimated that nearly $165 billion was spent on employee training and development in 2012 (ATD, 2013). This financial investment reflects organizations' recognition that to be competitive in the rapidly changing, global marketplace, they must create the structures, practices, and processes to facilitate and encourage training and development of their employees (Edmondson, 2008; Gong, Huang, & Farh, 2009). Besides training and development leading to an adaptive, innovative, agile, committed, and resilient workforce, engagement in training and development is beneficial for

individuals as well. Specifically, voluntary and involuntary job change is commonplace in today's economy. According to recent estimates, people change jobs an average of 11 times between age 18 and 46 (Bureau of Labor Statistics, 2013). Furthermore, adults entering midlife face a period of re-evaluation and renewal that often inspires career change (Barclay, Stoltz, & Chung, 2011). Whether it is a job change or a career change, individuals seeking employment face a fiercely competitive market in which demand for jobs greatly exceeds the supply of jobs, and today's expertise is tomorrow's obsolescence[1]. Thus, motivation for and participation in training and development opportunities are essential for older adults to contribute to organizational productivity and remain competitive in the job market.

Despite the benefits of training and development for organizations and individuals, a recent review of the literature suggests that older workers are less motivated to participate and pursue such opportunities (Ng & Feldman, 2012). However, more research is necessary to understand *why* older workers are—or appear to be—less motivated for training and development. Drawing on existing research and theory around aging and training motivation, the current study sought to examine the following overarching research questions: 1.) Does the likelihood of participating in training differ between younger and older workers?; and, 2.) Are the decision policies (i.e., the

[1] Based on data collected by the Bureau of Labor Statistics, there were more people looking for jobs than there were job openings between April 2014 and March 2015 (Economic Policy Institute, 2015). This pattern was consistent across fourteen of the seventeen industries: professional and business services; retail trade; accommodation and food services; government; durable goods manufacturing; other services; transportation, warehousing, and utilities; information; construction; nondurable goods manufacturing; educational services; real estate and rental and leasing; arts, entertainment, and recreation; and mining and logging. Three of the seventeen industries—health care/social assistance, finance/insurance, and wholesale trade industries—had recorded more job openings than job seekers.

utilization of information in the decision-making process) for likelihood of participation in training and development age-dependent?

LITERATURE REVIEW

The Decision to Participate in Training

According to Beier and Kanfer (2010), training motivational processes can be represented as a 3-stage model: *Stage 1*, the decision to participate in training; *Stage 2*, motivation during learning; and, *Stage 3*, motivation for the transfer of training. The linear progression of the stages serves as a useful organizing structure; however, in reality, the motivational processes within each stage may have overlapping and reciprocal effects (Beier & Kanfer, 2010). The focus of the current study was on the first stage, the decision to participate in training. In general, researchers have utilized expectancy value theories to understand individuals' decisions to participate in training (Beier & Kanfer, 2010). Specifically, expectancy value theories propose that goal choice and behavior are determined by three properties: 1) *value or valence*, the importance of the outcome of the goal or behavior; 2) *instrumentality*, the likelihood that engagement in the behavior will actually result in a desired outcome(s); and, 3) *expectancy*, the individual's belief that their effort will be sufficient to successfully perform the required activities (Kanfer, 1990; Vroom, 1964). In the context of training, existing research has supported the predictions of expectancy value theories and has shown that individuals are more likely to pursue and participate in training when they perceive the outcomes of training as valuable (value or valence), expect that their participation and performance in training will result in a valued outcome (instrumentality), and believe that they can achieve the necessary training performance (expectancy; Mathieu, Tannenbaum, & Salas, 1992).

Given the viability of expectancy value theories for understanding training participation, researchers have also examined the trainee characteristics and

organizational context variables that influence individuals' perceptions of valence, instrumentality, and expectancy. Based on Colquitt, LePine, and Noe's (2000) meta-analysis and Beier and Kanfer's (2010) more recent literature review, the following appear to be the most commonly and consistently studied and supported trainee characteristics related to training participation. First, studies of personality and training motivation have shown that individuals that are higher in conscientiousness are also higher in training motivation (Colquitt & Simmering, 1998; Noe & Schmitt, 1986; Noe & Wilk, 1993). Second, studies of job attitudes have shown that greater levels of job involvement, organizational and job commitment are related to greater training motivation (Colquitt & Simmering, 1998; Mathieu, et al., 1992; Noe & Schmitt, 1986; Noe & Wilk, 1993; Tracey, Hinkin, Tannenbaum, & Mathieu, 2001). Finally, both motivation to learn (Birdi, Allan, & Warr, 1997; Noe & Schmitt, 1986; Noe & Wilk, 1993) and training self-efficacy (Colquitt, et al., 2000; Noe & Wilk, 1993; Tracey, et al., 2001) consistently have been found to relate positively to training motivation. Furthermore, in their meta-analysis of training motivation, Colquitt et al. (2000) found that motivation to learn and training self-efficacy partially mediated the relationships between the personality and job attitude predictors and training motivation.

With regards to organization context, research has demonstrated the importance of the following factors: the trainee's role in the decision to participate (i.e., voluntary versus required training); how training is framed; and, the nature of the organizational climate (Quiñones, 1997). In general, research has indicated that individuals are more motivated to participate in training when their involvement is voluntary (e.g., Guerrero & Sire, 2001; Mathieu, et al., 1992); however, other research suggests that when mandated

training is perceived as important for organizational goals, employees are more motivated to participate (Tsai & Tai, 2003). Interestingly, the findings of Tsai and Tai (2003) have also been interpreted as potentially resulting from cultural characteristics, such as power distance (Beier & Kanfer, 2010). Specifically, Beier and Kanfer (2010) suggest that the cultural norm of acceptance and obedience of authority may cause employees from cultures with greater power distance (such as Taiwanese culture, which was the sample for Tsai and Tai, 2003) to have greater training motivation for mandated training than employees from cultures with smaller power distance (e.g., United States). Clear, straightforward, nonthreatening, realistic, and informative training framing has been positively associated with the decision to participate in training (DeRouin, Fritzsche, & Salas, 2004; Hicks & Klimoski, 1987; Holladay, Knight, Paige, & Quiñones, 2003; Martocchio, 1992). Finally, a positive organizational climate for learning has been shown to influence employees' decisions to participate in training (Kozlowski & Farr, 1988; Maurer & Tarulli, 1994). Such climates are characterized by the presence of training-friendly company rules and procedures, availability of resources for training and development, and training support from supervisors and coworkers (Colquitt, et al., 2000; Kozlowski & Farr, 1988; Kozlowski & Hults, 1987).

Older Workers and Participation in Training

Generally speaking, American society values youth and views aging and the aged negatively (Kite, Stockdale, Whitley, & Johnson, 2005; Kite & Wagner, 2005). Such sentiments filter down into organizational life, and are expressed through ageist discourse, ageist attitudes, and age-based discrimination (McCann & Giles, 2005). One common age-stereotype is that older adults cannot be trained (e.g., *"You can't teach an*

old dog new tricks"; DeRouin, et al., 2004; Fritzsche, DeRouin, & Salas, 2009). This stereotype has led to a general perception that older workers cannot be trained, and furthermore, do not want to be trained (Maurer, 2009).

Research examining perceptions of older workers' capacity for training and development has demonstrated a consistently negative view of older workers. In one of the foundational studies of perceptions of older workers, Rosen and Jerdee (1985) presented a sample of business students and business professionals with a list of characteristics related to job competencies. One of the competency areas described characteristics related to the potential for development. Participants were then asked to rate the average 30 year old man and the average 60 year old man based on the provided list of characteristics. Rosen and Jerdee (1985) found that participants' rated the 60 year old man as having a lower potential for development. Interestingly, this negative view of development potential remained even among older raters. Finkelstein, Burke, and Raju (1995) used meta-analytic techniques to compare ratings of younger (24 to 34 years old) and older workers (55 to 65 years old) with regard to the potential for development. The results of their meta-analysis were consistent with Rosen and Jerdee's (1985) study; older workers were rated as having less potential for development[2].

In addition to the perception that older workers have less potential for development, there is also a perception that older workers are not interested in pursuing training and development. For example, industry surveys of business leaders have found that as many as 59% of business leaders perceive older employees as being resistant to training (Capowski, 1994). In addition, Wrenn and Maurer (2004) found that participants

[2] Finkelstein et al. (1995) attempted to determine whether the negative ratings of older workers potential for development differed depending on the age of the rater. However, there were not enough studies utilizing older raters to allow for an age group comparison.

rated older workers as being uninterested in training and development opportunities, especially when the raters held the belief that learning abilities decline with age.

In studies of actual training participation rates, age is often included only as a demographic characteristic rather than a focal variable of interest (e.g., Colquitt, et al., 2000). However, there have been a handful of studies that have directly examined age in relation to training participation. For example, Rosen, Williams, and Foltman (1965) surveyed production workers at two points in time. At time 1, participants reported their age; roughly one year later, time 2 data were collected about whether the original participants underwent training, applied to receive training but failed the entry tests, or did not opt to pursue the training opportunity. Of those that pursued the training, 39% were over the age of 40 and 61% were under the age of 40 (Rosen et al., 1965). Although this difference was not tested for significance, the descriptive data suggested that fewer older workers volunteered for the training opportunity.

A similar pattern of results was found in a cross-sectional study of self-reported training participation from both employees and managers (Cleveland & Shore, 1992). Among the study materials, participants were asked their chronological age as well as whether they engaged in developmental opportunities (on-the-job training and career counseling) during the previous calendar year. Employees' age was significantly and negatively related to self-reported and manager-reported developmental activities. Thus, early studies of age and training participation rates suggested that older workers were less likely to seek training and development opportunities.

More recently, Greller (2006) examined training participation in a slightly different fashion. Specifically, participants were asked to report the number of hours

they spent per week in professional development activities. Participants were then separated into subgroups, based on age (20-29 years old, 30 to 39 years old, 40 to 49 years old, and 50 to 70 years old). The oldest workers (50 to 70 years old) reported spending significantly fewer hours in developmental activities as compared to the youngest workers (20 to 29 years old). However, there were no significant differences found between the oldest workers and the remaining age subgroups. Unlike Cleveland and Shore's (1992) design that measured and analyzed age as a continuous variable, Greller's (2006) study was based on age group comparisons. The lack of difference between the oldest workers and the two middle-age groups raises the question of the age at which training participation declines. In addition, the observed difference between the oldest and the youngest workers was no longer significant when overall career motivation (a multidimensional measure of investment and interest in one's career) was included in the model (Greller, 2006).

Thus, individual studies focusing on the relationship between age and training participation yield somewhat different results. In general, older workers do appear to engage in less training and development activities. However, this pattern of results has been qualified by the use of multiple age group categories and the inclusion of additional relevant factors (e.g., career motivation, Greller, 2006). Because age is rarely the focal variable in studies of training, the use of meta-analytic techniques to explore the relationship between age and training participation has provided additional insight. That is, results of training studies that measure age as a demographic characteristic can be meaningfully summarized and interpreted. In their recent meta-analysis of 61 empirical

studies[3], Ng and Feldman (2012) found a negative relationship between age and engaging in training and development activities. This relationship held after controlling for organizational tenure and across several different operationalizations of 'engagement in training and development,' including: training participation, training motivation, career development motivation, career development behaviors, career development behaviors rated by others, motivation to learn, and learning self-efficacy (Ng & Feldman, 2012).

To address the first research question, the current study sought to replicate the findings of Ng and Feldman's (2012) meta-analysis. However, the current study utilized an idiographic methodological approach not used to date, policy capturing. The results of Ng and Felman's (2012) recent meta-analysis as well as prior studies examining age and training participation suggest the following hypothesis:

Hypothesis 1: Compared to younger workers, older workers will be less likely to participate in the training opportunity.

Age-Related Training Decision Factors

Previous research suggests that older workers' are less prone to attend training. To build on that research, the central focus of the current study was to identify age-related training decision factors. Researchers have yet to directly explore the factors that influence older workers' decisions to participate in training and development. This exploration may improve organizations' understanding of the factors that weigh into older workers' training decisions, which, in turn, will improve organizations' ability to create targeted and impactful interventions to increase training participation and motivation. In addition, given the dearth of empirical research on age and work

[3] The full meta-analysis consisted of 380 empirical studies; however, only 61 studies provided data used in the analysis of the relationship between age and training and development.

motivation, this research will help to develop and refine the application of adult development theories to workplace phenomena (Kanfer & Ackerman, 2004). Thus, the current study drew upon theories of aging to identify age-related factors that may shape older workers' perceptions of valence and instrumentality of training, as well as their expectancy of performance within a training context.

Age-Related Factors. Scholars in the fields of psychology and gerontology have proposed that the values and motives of individuals change throughout the lifespan. For example, research has shown that older workers place greater value on intrinsic rewards, such as personal meaning and fulfillment (Kooij, de Lange, Jansen, Kanfer, & Dikkers, 2011; Rhodes, 1983). This shift in values may be explained, at least in part, by socioemotional selectivity theory (Carstensen, 1995).

According to socioemotional selectivity theory (Carstensen, 1995), as individuals age they perceive less time remaining in their lives which results in a shift in values. As a result of perceiving less time remaining, older adults place less value on acquiring novel knowledge and information, and more value on sustaining and creating emotionally meaningful experiences (Lang & Carstensen, 2002). Such emotionally meaningful experiences may be accomplished through *emotional regulation* (i.e., enhancing positive emotions, deepening existing emotional connections, avoiding conflict), and through *generativity-seeking* (i.e., concern and care for the well-being of future generations).

The concept of generativity originated in Erikson's model of development, in which individuals are theorized to progress through a series of eight crises, or challenges (Erikson, 1950, 1963). The seventh crisis occurs in mid-to-late adulthood (after age 40) and revolves around experiencing either stagnation or generativity (Erikson, 1950, 1963).

McAdams and de St. Aubin (1992) describe the stage of generativity as a time when, "the adult nurtures, teaches, leads, and promotes the next generation while generating life products and outcomes that benefit the social system and promote its continuity from one generation to the next," (p. 1003). Empirical research has shown that generativity motives, goals, and expression increase with age (e.g., McAdams & de St. Aubin, 1992). For example, Sheldon and Kasser (2001) recorded and content-coded the narrative statements of the personal strivings (i.e., day-to-day goals) of 108 participants, ranging from 17 to 82 years old. Generativity-related personal strivings were found to increase with age (Sheldon & Kasser, 2001).

In addition to general studies of generativity and adult development, age and generativity motives have been examined within the work context. For example, motivation for generativity-related work tasks has been shown to increase with age (Stamov-Robnagel & Biemann, 2012). In a study examining leadership success, subordinates' ratings of generativity increased as leaders' age increased (Zacher, Rosing, Henning, & Frese, 2011). Among workers 50 years of age and older, the opportunity to achieve generativity motives was related to career satisfaction in both career-jobs and bridge-jobs (Templer, Armstrong-Stassen, & Cattaneo, 2010). Thus, within the work context, older workers value and seek opportunities for generativity (Mor-Barak, 1995), which may inform their decision-making processes at work.

Training may facilitate a workers' ability to demonstrate care and concern for the next generation by offering content that can lead to generativity-expression. Training content that leads to generativity-expression may impact older workers' perceptions of both the valence (i.e., perception that the outcome of training is valuable) and

instrumentality (i.e., expectation that participation in the training will result in the valued outcome) of a training opportunity. Based on the research reviewed above, older workers' may place greater value on generativity expression. Thus, an older worker may evaluate training content that results in generativity expression as important and valuable. In addition, generativity-based training content may also increase perceptions of instrumentality. Specifically, older workers may believe that pursuing generativity-based training will likely result in acquiring the desired outcome of actual generativity expression. Therefore:

Hypothesis 2: Age group will moderate the relationship between the training content and the training decision, such that the relationship between the generativity content and the training decision will be stronger (i.e., greater propensity to participate) for older workers than younger workers.

In addition to a shift in values, underlying motives also undergo changes across the lifespan. One approach for understanding changing motives is the examination of goals and goal orientations. Individuals vary in the types of goals that they pursue, which, in turn, "create[s] the framework for their interpretation and reaction to events or outcomes," (Button, Mathieu, & Zajac, 1996, p. 26). Various conceptualizations of goals and goal orientations have been proposed: 1) Dweck and colleagues' two-factor model, learning versus performance (Dweck, 1989; Dweck & Leggett, 1988; Heyman & Dweck, 1992); 2) VandeWalle's (1997) three-factor model, learning versus performance-prove versus performance-avoid; and, 3) Elliot's (1999) 2(*direction:* approach versus avoidance) x 2(*referent:* mastery versus by performance) model. In the current study, Elliot's (1999) goal orientation framework was utilized because of its relevance to the

adult developmental theories. Specifically, theories of and research on aging suggest that both the direction and referent of goal orientations change throughout the lifespan (Baltes, Staudinger, & Lindenberger, 1999; De Lange, Van Yperen, Van der Heijden, & Bal, 2010; Ebner, Freund, & Baltes, 2006; Kanfer & Ackerman, 2004).

According to Elliot's (1999) achievement goal model, goals can be described by the intersection of two dimensions. The first dimension classifies behavior based on the hedonic principle, which states that humans seek pleasure and avoid pain. Thus, goals can be broadly classified as *approach*, in which individuals actively seek a positive outcome, and *avoidance*, in which individuals strive to avoid a negative outcome (e.g., Davidson, 1993; Elliot, 1999; Elliot & Sheldon, 1997; Emmons, 1996). For example, a student may set an approach goal of, "I want to earn an 'A' in this course," or, an avoidance goal of, "I do not want to fail this course." According to lifespan developmental theory, individuals alter their goals across the lifespan in response to a changing balance between gains and losses in physical, cognitive, and socioemotional functions (Baltes, Staudinger, & Lindenberger, 1999; Ebner, Freund, & Baltes, 2006). In general, older adults may perceive greater losses in functioning due to age-related declines in physical and cognitive domains (Ebner et al., 2006). As such, the aging process has been shown to be related to a shift from approach, or growth, goals to avoidance, or loss prevention goals (e.g., Kanfer & Ackerman, 2004).

The second dimension of Elliot's (1999) goal orientation framework defines the comparison reference as either other people (performance) or oneself (mastery). Continuing with the student example, a student may set goals based on personal prior performance (e.g., the grades they have previously earned in the course) or based on the

performance of their classmates (e.g., the grades their classmates have received in the course). The 2 (*direction:* approach versus avoidance) x 2 (*referent:* performance versus mastery) achievement goal model (Elliot & McGregor, 2001) results in four goal orientations: 1) *approach-mastery*, seeking to improve performance relative to one's prior performance; 2) *approach-performance*, seeking to improve performance relative to other's performance; 3) *avoidance-mastery*, seeking to avoid a loss in performance relative to one's prior performance; and, 4) *avoidance-performance*, seeking to avoid a loss in performance relative to other's performance.

In general, older workers may perceive less value in training intended to produce higher levels of performance (Beier, Teachout, & Cox, 2012; Kanfer & Ackerman, 2004). Research has shown that older adults are more motivated by intrinsic, mastery-based outcomes (Inceoglu, Segers, & Bartram, 2011; Leen & Lang, 2013; Rhodes, 1983). In a direct examination of Elliot's (1999) achievement goal model, De Lange et al. (2010) found that older adults were more likely to have avoidance-mastery goals (i.e., a desire to avoid doing worse than their own performance) than younger adults. Within the older adult group, avoidance-mastery goals were significantly more prevalent than the other three types (i.e., approach-performance, approach-mastery, and avoidance-performance).

To encourage participation in training, Beier et al. (2012) recommend framing the goals of training to be congruent with the goals of older workers. In reference to expectancy theories of training participation, older workers may place a greater value (valence) on training that results in an outcome consistent with their own developmental needs. That is, older workers may more positively evaluate training that results in mastery and facilitates the avoidance of losses in their skills, knowledge, or abilities. As

such, older workers may be more likely to attend training that is framed to facilitate avoidance-mastery goals. Therefore,

Hypothesis 3: Age will moderate the relationship between the training goal direction and the training decision, such that the relationship between the avoidance training goal and the training decision will be stronger (i.e., greater propensity to participate) for older workers than younger workers.

Hypothesis 4: Age will moderate the relationship between the training goal referent and the training decision, such that the relationship between the mastery training goal and the training decision will be stronger (i.e., greater propensity to participate) for older workers than younger workers.

Real and Perceived Changes in Cognitive Abilities. The cognitive abilities associated with learning change with age. Cattell's (1957, 1987) bifurcation of intelligence—fluid intelligence (Gf) versus crystallized intelligence (Gc)—has been widely cited and has received robust empirical support. Gf is associated with abtract reasoning, working and short-term memory, whereas Gc reflects accumulated knowledge and expertise. The two types of intelligence display differential patterns across the lifespan. Specifically, Gf abilities peak in early adulthood and then decline, whereas Gc steadily grows and remains fairly constant well into late adulthood (e.g., Birren & Fisher, 1995; Maciokas & Crognale, 2003; Salthouse, 2012; Schaie, 1996). In the context of training, researchers have suggested that Gf may be a better indicator of learning efficacy (e.g., Hundal & Horn, 1977; Kanfer & Ackerman, 2004). Gf is important for the encoding and storage of information (i.e., working and short-term memory processes), and has been linked to general attentional capabilities (e.g., Kanfer & Ackerman, 1989).

Thus, older adults may not perform as well as younger adults in training activities. In their meta-analysis of 32 empirical studies of age and job-related training performance, Kubeck, Delp, Haslett, and McDaniel (1996) found that older workers had lower training mastery scores. This observed age difference was moderated by the study design. That is, age differences were found to be greater in laboratory studies than in field studies. Regardless of the design, the age-related decrement in training performance remained present and was significant (Kubeck, et al., 1996).

In addition to actual changes in cognitive abilities, individuals may also *perceive* experiencing undesirable losses in cognitive functioning (e.g., Heckhausen, Dixon, & Baltes, 1989; Schmidt & Boland, 1986). Perceived or actual cognitive changes may create a sense of self-doubt, such that older workers do not believe that they will be able to successfully perform in training. This sense of self-doubt may be reflected in a decrease in training self-efficacy, or the belief that one can be successful in training (Maurer, Weiss, & Barbeite, 2003). For example, a study of early, mid, and late career stage employees found a significant difference in training self-efficacy such that late career employees had lower training self-efficacy than early/mid-career stage employees (Guthrie & Schwoerer, 1996).

In light of the deleterious learning consequences of both real and perceived changes in cognitive abilities, research suggests that the aging process results in a shift in the conditions necessary for optimal learning (Shore & Goldberg, 2005). In their meta-analysis, Kubeck et al. (1996) found that older workers required more time to complete the training task and the training program. Thus, Beier et al. (2012) recommend that training designs provide additional time in order to facilitate the learning of older

workers. Self-paced training designs are one strategy for providing additional learning time. In a meta-analysis examining training structure and age, older workers were shown to excel in training when the training structure was self-paced (Callahan, Kiker, & Cross, 2003). In addition, older adults have been shown to more positively evaluate self-paced training as compared to timed training (Fritzsche, et al., 2009). Fritzsche et al. (2009) posit that the ability to control the pace of training presentation may allow older workers to compensate for real or perceived deficits in Gf.

Thus, older workers may have greater expectancy (i.e., belief that they can achieve the necessary training performance) when the training structure allows for additional time. A self-paced training structure may provide the additional time that older workers need (or perceive that they need) to successfully perform and complete the training. As such, older workers may be more likely to attend training that is offered in a self-paced format. Therefore,

Hypothesis 5: Age will moderate the relationship between the training structure and the training decision, such that the relationship between self-paced training and the training decision will be stronger (i.e., greater propensity to participate) for older workers than younger workers.

To examine the factors involved in older workers' decisions to engage in training, as mentioned above, the current study utilized a policy-capturing experimental design. In a policy-capturing experiment, participants are presented with a series of scenarios and asked to make a decision following each scenario (Aiman-Smith, Scullen, & Barr, 2002). The scenarios each contain the same set of variables, or cues; however, the levels of the variables are manipulated. The presentation of multiple scenarios allows for all possible

combinations of variables and their levels to be read and evaluated by participants. As such, each individual's decision-making pattern, or policy, can be statistically described; then, group level comparisons (e.g., age groups) can be conducted (Cooksey, 1996). In the current study, older and younger workers were presented with a series of training scenarios that combined different levels of generativity, goal orientation, and structure. After each scenario, participants indicated their likelihood of participating in the training. The decisions on the scenarios were then examined to address the two research questions: 1) Does the likelihood of participating in training differ between younger and older workers?; and, 2) Are the decision policies (i.e., the utilization of information in the decision-making process) for participation in training and development age-dependent?

SUMMARY AND LIST OF HYPOTHESES

Individuals and their employing organizations benefit from continuous learning; however, research has revealed that motivation to participate in training declines with age. The current study sought to confirm previous findings of age-related differences in training propensity, as well as provide a more nuanced understanding of why older workers may be less inclined to participate in training. To determine age-dependent characteristics of training (opportunities for generativity, types of achievement goals, and structure of training delivery), theories of adult development were applied and organized according to a general expectancy theory of training motivation. The hypotheses of the study, organized by research question, were as follows:

Research Question 1: Does the likelihood of participating in training differ between younger and older workers?

Hypothesis 1: Compared to younger workers, older workers will be less likely to participate in the training opportunity.

Research Question 2: Are the decision policies (i.e., the utilization of information in the decision-making process) for participation in training and development age-dependent?

Hypothesis 2: Age group will moderate the relationship between the training topic and the training decision, such that the relationship between the generativity topic and the training decision will be stronger (i.e., greater propensity to participate) for older workers than younger workers.

Hypothesis 3: Age will moderate the relationship between the training goal direction and the training decision, such that the relationship between

the avoidance training goal and the training decision will be stronger (i.e., greater propensity to participate) for older workers than younger workers.

Hypothesis 4: Age will moderate the relationship between the training goal referent and the training decision, such that the relationship between the mastery training goal and the training decision will be stronger (i.e., greater propensity to participate) for older workers than younger workers.

Hypothesis 5: Age will moderate the relationship between the training structure and the training decision, such that the relationship between self-paced training and the training decision will be stronger (i.e., greater propensity to participate) for older workers than younger workers.

METHODS

Guiding Considerations: Defining 'Older Worker'

Age is a multidimensional construct, and consists of chronological and socio-psychological components. With regards to chronological age, researchers have drawn upon various referents in order to determine the cutoff for "older worker." Common cutoffs include 40 (based on the Age Discrimination in Employment Act), 50 (based on AARP membership eligibility age), and 55 (based on public policy acts, including the Older Americans Act, 1965; the Job Training Partnership Act, 1982; and the Workforce Investment Act, 2000) (Hedge, Borman, & Lammlein, 2006). In an analysis of studies of 'older workers' conducted between 1970 and 1985, the age 55 was most commonly used to demarcate the category of 'older worker' and the average age used in studies of younger and older age groups was 53.4 years (Ashbaugh & Fay, 1987). In addition, several recent studies examining older workers have utilized age 55 to define 'older worker' (e.g., Avery, McKay, & Wilson, 2007; James, McKechnie, & Swanberg, 2011). Consistent with this empirical work, in the current study, the age of 55 was used to determine the older worker group.

The age of 55 was also deemed appropriate given the sample choice of university professors. University faculty begin their careers at a slightly older age than workers in other industries. For example, a new assistant professor entering the faculty ranks after continuous schooling (i.e., progressed from undergraduate to graduate studies without interruption) would be approximately 28 years old (average age of undergraduate graduation=22 years old; average duration of doctoral program=6 years). The age of entry would be older given noncontinuous schooling, a longer doctoral program, or the

completion of a post-doctoral appointment prior to joining the university faculty ranks. According to TIAA-CREF's Higher Education Survey, 60% of university faculty intend to work past the typical retirement age of 65 (Yakoboski, 2011). This percentage was even higher in a more recent study conducted by Fidelity Investments, in which 74% of higher education faculty between the age of 49 and 67 planned to delay retirement well past 65 or had no plans to retire at any specific age (Hicken, 2013). A colorful quote from a George Mason University anthropology professor captures the trend among faculty, "The joke in anthropology is you do it [work in academia] until you die…and then we shove you in the pit we're digging," (Hicken, 2013). Given the delayed entry and retirement of university faculty, 55 years old was posited to be more representative of an 'older' worker in a faculty sample than the alternate, younger chronological cutoffs of 40 or even 50 years of age.

To categorize younger workers, the cutoff age of 39 years old was used in the current study. As described above, individuals between the age of 40 and 54 occupy an empirical gray space. That is, in some studies they are older workers, whereas in other studies they are younger workers. To be consistent with previous research, the current study used the most conservative and common designation—workers under the age of 40. This designation resulted in the comparison of more extreme groups, which may have improved the power to detect smaller effects (Preacher, Rucker, MacCallum, & Nicewander, 2005). The age groups were determined *a priori* based on previous research, which is the preferred approach for dichotomizing continuous variables (Preacher, et al., 2005).

In the current study, chronological age was chosen because of its theoretical relevance for the predictor variables of interest. That is, the predictors themselves highlight processes associated with chronological age (i.e., shifts in future time perspective, generativity, goal orientation, actual and perceived cognitive abilities). In addition, the use of chronological age was consistent with the majority of existing research examining age differences in the context of training (cf. Maurer et al., 2003), as well as the broader organizational literature (cf. Cleveland & Shore, 1992; Avery et al., 2007). Finally, from a methodological standpoint, the research questions of interest focused on age *group* differences. As described above, clear—albeit not universal—guidelines have been established for categorizing 'younger' and 'older' workers. To the best of my knowledge, such guidelines have not yet been established with alternate definitions of age.

Study Design

The policy-capturing methodology used in the current study stems from Brunswik's (1955) probabilistic functionalistic theory of understanding behavior, and is a common and widely accepted methodology in studies of human judgment and decision making (Cooksey, 1996). For instance, the policy-capturing design was used to examine the factors influencing restaurant patrons' decisions regarding tipping (Rogelberg, Ployhart, Balzer, & Yonker, 1999). Policy-capturing utilizes an idiographic-statistical approach, such that the primary goal is to understand and describe an individual's decision-making. Once individual behavior can be statistically described, then group level, or nomothetic, comparisons and conclusions can be conducted (Cooksey, 1996).

In a policy-capturing experiment, participants are presented with a series of scenarios and asked to make a decision following each scenario (Aiman-Smith, et al., 2002). The scenarios consist of variables, and each variable has multiple levels. That is, all scenarios contain the same set of variables, but the levels of the variables vary across scenarios such that all combinations of variable levels are represented. Based on the decision outcomes across multiple scenarios, an individual's judgment policy (i.e., how they weigh the variables) can be modeled as a regression-based equation (Zedeck & Kafry, 1977). Furthermore, the regression weights reflect the weighting of the specific variables within the decision policy. In addition, judgment policy patterns for groups of interest (e.g., groups based on age) can be analyzed to determine whether group differences exist (Cooksey, 1996).

The strengths of the policy-capturing experiment are that it allows the researcher to systematically examine multiple variables of interest, controls for confounding explanations, involves precise measurement of variables, and can generalize beyond the experiment to the real-world (Carroll & Johnson, 1990; Cooksey, 1996; McGrath, 1982). For example, Russell and Van Sell (2012) compared intentions to quit measured in a policy-capturing framework with survey measures of intentions to quit taken at 6-month intervals, and found that the policy-capturing results were superior for predicting actual turnover. Policy-capturing experiments can be limited, however, in their ability to approximate real-world decision-making contexts (Aiman-Smith, et al., 2002). That is, policy-capturing designs ask participants to make a series of decisions based on information presented in brief, written-descriptions. In the real-world, individuals are more likely to make one decision at a time, based upon cumulative or ongoing

information (Aiman-Smith, et al., 2002). However, policy-capturing studies are more realistic than other experimental designs because they present multiple variables within each judgment scenario, rather than one variable at a time (Karren & Barringer, 2002).

In the current study, the realism of a policy-capturing study was further enhanced through the following best practices (Aiman-Smith, et al., 2002; Cooksey, 1996). First, cue development was based on interviews with subject matter experiments (SMEs), results from a pilot study, and follow-up pilot-testing with a different set of SMEs (described below in "Scenario Cue Development"). Second, in both the pilot study and the policy-capturing experiment, participants were recruited from the population of interest: University professors. The use of familiar decision-makers (i.e., individuals who are likely to be in the position to make the decision under examination) in the experimental context adds to both the realism of the design, and, ultimately, the generalizability of the results (Aiman-Smith, et al., 2002; Cooksey, 1996). Finally, to confirm the validity of the variable selection and presentation, participants were asked to explicitly report the importance of the variables presented in the judgment scenarios. Specifically, all of the variables included in the scenarios were presented in a list format and participants were instructed to assign points to each variable to reflect how important they viewed each variable (100 total points; higher point values=greater importance; McDonough, 2010).

In addition, the final set of variables and their respective value levels were developed such that the cues presented in each scenario were as orthogonal as possible. Karren and Barringer (2002) recommend that intercorrelations not exceed 0.20.

Orthogonal cues facilitate interpretation of the resulting judgment policy regression weights (Karren & Barringer, 2002).

Scenario Cue Development: Pilot Study 1

As part of the initial cue development, two SMEs (University professors and members of the dissertation committee) were interviewed. Specifically, the SMEs were asked a set of questions to generate specific examples of the cues of interest (e.g., In your experience as a professor, what are some concrete examples of mastery-based goals that you have set?). Interview responses were used to create the survey used in the pilot test. A pilot study was conducted to ensure that the study participants received a representative set of characteristics with realistic importance (Cooksey, 1996).

Participants

Using convenience sampling, fourteen professors within a single doctoral program were contacted to complete an online survey. In addition to requesting their participation, they were invited to forward the online survey to a colleague 55 years of age or older. This was intended to ensure representation from younger and older workers. A total of thirteen professors completed the pilot study (Age M=48.15, SD=11.52; Assistant Professor, 31%; Associate Professor, 38%, Full Professor, 31%).

Procedure and Measures

The pilot study was administered online and consisted of three main parts. In the first part, a critical incident approach was used to prompt participants to identify key cues, or variables, that they consider important when deciding whether to participate in training and development opportunities. In the second part, the participants were given descriptions and hypothetical examples of each of the scenario cues. They were asked

whether or not the example reflected the description. In the third part, participants were again presented with the descriptions for each of the scenario cues and were asked to rate how important each would be in their decision to participate in a training opportunity.

After completing the three main parts of the survey, participants answered an open-ended item asking them to identify any additional factors that influence their decision to participate in training. Finally, participants answered several demographic questions.

Measures

Identification of cues. A critical incidents approach was utilized to prompt participants to generate characteristics they view as important when deciding whether or not to participate in training. Specifically, participants were asked the following questions:

1) Think of a time when you decided to attend a training session offered by the University. What was the topic of the training (e.g., pedagogical strategies, technology in the classroom, using Moodle, etc.)? If you do not remember the topic of the training, you may leave the response field blank.
2) What factors influenced your decision to attend the training session?
3) Think of a time when you decided NOT to attend a training session offered by the University. What was the topic of the training class (e.g., pedagogical strategies, technology in the classroom, using Moodle, etc.)? If you do not remember the topic of the training you may leave the response field blank.

4) What factors influenced your decision NOT to attend the training session?

Cue description-example verification. Participants were provided with the following variables, each with a brief description (Appendix A): the training goal (mastery versus performance; approach versus avoidance); training group composition (familiar workgroup versus unknown others); the training structure (self-paced versus conventional). Participants were asked: "*Does the hypothetical example reflect the description of [cue]*?" (response options: *yes* or *no*).

Importance of cues. Participants were asked: "*Please indicate how important that factor would be in your decision to participate in a training opportunity*," (5-point Likert scale; 1=*very unimportant*, 5=*very important*).

Demographic information. Participants were asked to indicate: *1) Chronological age:* Age (in years) based on their date of birth; 2) *Position title:* Assistant Professor, Associate Professor, Full Professor, or Other; 3) Teaching activity: a) On average, how many undergraduate courses do you teach each semester?, and, b) On average, how many graduate courses do you teach each semester?.

Analysis of Pilot Study

Identification of cues. The responses to the critical incident prompts in part one were examined to determine additional scenario cues. A general theme of "training relevance" was apparent across participants' responses to the first prompt (what factors influenced your decision to attend the training session?). This justified the addition of "training topic" as a scenario cue.

Cue description-example verification. To assess whether revisions to cue wording were necessary, responses to the cue descriptions were evaluated in terms of the

percentage of participants that perceived the example to reflect the description. The results (Table 1) revealed that the examples for mastery-avoidance, conventional training, and familiar workgroup did well to reflect their respective descriptions. However, the remainder of the cue examples required additional revisions.

Importance of cues. The average scores of importance were used to determine which variables were included in the policy-capturing experiment. Variables with an average rating of 3.0 or greater were retained. Training group composition was removed; training structure and training goal were retained (Table 1). Three of the four levels of training goal did not meet the important cutoff; however, the cue was retained because one of the levels (mastery-approach) was rated above the cutoff.

Scenario Cue Development: Pilot Study 2

After the new cue (training topic) was added and the retained cues were modified, the policy-capturing scenarios were created and combined with the intended survey measures. The study materials in their entirety were reviewed by four additional SMEs (one of whom was part of the initial set of interviews; all were university professors). SMEs were asked to evaluate the scenarios in terms of realism, the study instructions in terms of clarity, and the study materials in terms of length and potential fatigue. Two of the four SMEs provided their feedback via email; the other two provided real-time feedback via telephone. Based on the feedback of the four SMEs, the materials were further modified and refined.

Policy-Capturing Study

Participants

Participants were full and part-time faculty at a large, public university located in the Southeast United States. Participants were recruited through a broadcast email inviting them to participate in the research study. To incentivize participation, a ten dollar donation for every completed survey was made to one of three possible local charities. One hundred and eighty-seven people accessed the survey. Of those, 132 completed the scenario portion of the study and provided their age (Figure 1 provides an overview of survey access and participation). The final sample consisted of 29 younger workers (25 to 39 years old) and 52 older workers (55 years and older).

Procedure

Study materials were presented in an online format through the Qualtrics survey platform. The study materials included: 1) the policy-capturing survey; 2) age and other individual difference predictors. To prevent order effects, the presentation of materials were counterbalanced such that half of the participants received the policy-capturing survey first and the other half received the individual difference questions first. Participants were randomly assigned to receive the policy-capturing survey first or last. All participants were asked to provide their age as the final part of the study process.

Measures

Policy-capturing scenarios. Each scenario included the same general introduction. Participants were told to imagine that the chair of their department forwarded an email about an upcoming training opportunity. In addition, participants were asked to imagine that they had not previously attended the training. Results from

the pilot study suggested that lack of time was a common reason for individuals to decide not to participate in a training opportunity; therefore, participants were also asked to imagine that they had the time to participate in the training. Participants were instructed to read the scenario carefully, and rate their likelihood for attending the training after each scenario. The presentation of the scenarios was designed to closely resemble a forwarded-email, and was based on actual training email invitations sent at the University (two sample training scenarios are presented in Appendix B). To familiarize the participants with the task procedure and maximize judgment consistency, one practice scenario was presented prior to the actual experimental scenarios (Aiman-Smith, et al., 2002).

All scenarios contained the same set of variables, or cues, that may influence the decision to participate in training; however the level of each cue was altered across scenarios. The scenario cues were presented in a fully-crossed design, such that all variable levels were presented in all possible combinations (2*(training generativity)* x 4*(training goal)* x 2*(training structure)*). Thus, participants read a total of eighteen scenarios: one practice scenario, one repeated scenario, and sixteen experimental scenarios.

Generativity scenario cue. To create the different levels of training goal and training structure, respondents were shown descriptions that corresponded to the definition of the respective levels (described below). In contrast, generativity was manipulated through descriptions of the topic of training. Participants were provided with either a service-learning or popular instructional technologies training topic and description. Because of its emphasis on community service and engagement, the service

learning training topic was chosen to represent training that facilitated generativity-based motives. The popular instructional technologies training topic was selected because of its relevance (technologies are constantly changing) and commonality (technology-based training is a regular training offering within the population of interest). The training topics and descriptions were based on actual training offered by the University; however, portions of the description were modified to create consistency across the two training topics.

Participants completed a manipulation check of the generativity scenario cue to ensure that participants perceived the service learning topic as more generative than the popular instructional technologies topic. Specifically, participants were provided the training topics and descriptions in the survey portion of the study. After reading each training topic and its description, participants were asked to evaluate the descriptions based on the following prompt derived from the concept of generativity: 1.) *To what extent does service learning [do popular instructional technologies] provide an opportunity for faculty to demonstrate care and concern for the well-being of future generations?*. There was a significant difference between the generativity scores for the service learning (M=3.90, SD=.95) and popular instructional technologies (M=3.00, SD=1.00) training topics ($t(76)=6.23$, $p<.001$). The perception of the generativity of both training topics was also examined within each age group. Consistent with the overall manipulation check, both older (service learning: M=3.75, SD=1.04; technology: M=2.98, SD=1.04) and younger workers (service learning: M=4.14, SD=.74; technology: M=3.03, SD=1.21) perceived the service learning training topic as more generativity-based ($t(47)=4.42$, $p<.001$; $t(28)=4.42$, $p<.001$, respectively).

Goal scenario cue. The goal cue resulted in a 2 (*direction:* approach x avoidance) x 2 (*referent:* mastery x performance) manipulation. Thus, participants read four different goals across the training scenarios. The wording for each goal was based on the definitions from Elliot and McGregor's (2001) achievement goal model. The four goal cues were: 1.) *Approach-mastery*: To help individuals who are seeking to improve their teaching performance relative to their own performance; 2.) *Approach-performance*: To help individuals who are seeking to improve their own teaching performance relative to other people's performance; 3.) *Avoidance-mastery*: To help individuals who are seeking to avoid a decline in their teaching performance relative to their own prior performance; and, 4.) *Avoidance-performance*: To help individuals who are seeking to avoid a decline in their teaching performance relative to other people's performance.

Structure scenario cue. Participants were provided with a description for self-paced or conventional training structure. Self-paced training was described as, "Self-paced instructional materials, with an interactive, online group forum." Conventional training was described as, "Scheduled day and time to receive instruction, with interactive, in-class discussions."

Decision outcome. After reading each scenario, participants were instructed once again to imagine that they had the time to participate in training. They were then asked to rate the likelihood that they would participate in the training activity (4-point scale; 1=*definitely would not participate*, 4=*definitely would participate*). To assess the participants' reliability in judgment policies, one of the scenarios was selected at random and presented at the end of the experiment (Aiman-Smith, et al., 2002; Cooksey, 1996).

Participants' decisions on the initial and duplicated scenario were highly correlated ($r(79)=.80$, $p<.001$), which provided satisfactory evidence for the consistency of judgments across scenarios.

Subjective weighting measure. After completing all scenario judgments, participants were given a subjective weighting measure in which they were asked to indicate what variables were most important in their decision to participate in training and development opportunities by distributing a total of 100 points across the study variables (McDonough, 2010). These subjective weights were compared to the objective weights (beta weights) obtained from the policy-capturing procedure. Specifically, participants' subjective weights were correlated with the absolute values of their objective weights. Overall, participants' subjective cue weights were significantly, positively related to their respective objective cue weights (Topic, $r(68)=.47$; Structure, $r(68)=.39$; Goal, $r(68)=.25$), and negatively or nonsignificantly related to the other objective cue weights. This provided satisfactory evidence for the validity of the policy-capturing decision policy measure.

Age and Other Individual Differences Survey.

All survey items and instructions are presented in Appendix C.

Age. Participants were asked to indicate: 1) Chronological age: Age (in years) based on their date of birth; and, 2) Organizational age*:* a) position tenure, the number of years in their current position (open-ended); and, b) organizational tenure, the number of years at the organization (open-ended).

A variety of individual difference variables were also collected to measure individual variability and standing on the age-related predictors, as well as perceptions of

the two training topics (generativity-based service learning; non-generativity-based popular instructional technologies). They included the following: generativity, future time perspective (FTP), achievement goal orientation, and training topic perceptions (i.e., familiarity, interest, and relevance). These measures were included to facilitate follow-up exploration of the hypothesized age group differences.

Generativity. Generativity was measured with the 17-item Loyola Generativity Scale (McAdams & de St. Aubin, 1992) (Cronbach's alpha=.91). One item, "I have important skills that I try to teach others," was removed because of the nature of the sample and feedback from the SMEs in the second pilot study. Responses were on a 5-point scale (1=*does not apply at all*; 5=*applies completely*).

Future time perspective (FTP). FTP was measured using Zacher and Frese's (2009, 2011) scale of Future Occupational Time Perspective, which consisted of three-items measuring participants' perception of time remaining in their occupation (e.g., *Most of my occupational life lies ahead of me;* Cronbach's alpha=.74). Participants responded on a 5-point response scale indicating the degree to which each of the statements applied to them (1=*does not apply at all*; 5=*applies completely*).

Achievement goal orientation. Van Yperen and Orehek's (2013) work-context adaptation of Elliot and McGregor's (2001) original measure of achievement goal orientation was presented to participants. Specifically, achievement goal orientation was measured by self-ratings of four statements regarding goals at work (1=*definitely not*; 5=*definitely*).

Training topic perceptions. Participants were asked about their familiarity with both of the training topics, their interest in both of the training topics, and the relevance

of the training topics for their course offerings (single-item measures; 5-point response scale; 1=*not at all*, 5=*to a great extent*).

Other demographics**.** Participants were asked to indicate their gender (male or female), and occupational rank (adjunct, lecturer, senior lecturer, visiting professor, assistant professor, associate professor, full professor, professor emeritus, other).

RESULTS

Pre-Analysis Data Considerations

The variables presented in the policy-capturing scenarios were categorical and were dummy-coded prior to entry in the analyses (Cooksey, 1996). The scenario variables and their dummy codes are summarized in Table 2. Age group was also dummy-coded (Table 2).

Descriptive Statistics

Demographic information (age, organizational tenure, position tenure, gender, and position title) for participants categorized as younger and older workers is presented in Table 3.

The descriptive statistics and zero-order correlations for the aggregated training decision (i.e., the average decision across the sixteen training scenarios), age group, and individual difference variables are presented in Table 4. This study's research questions and rationale revolved around comparing older and younger workers. Not surprisingly, age group membership was strongly and significantly correlated with both measures of organizational tenure. Compared to younger workers (25 to 39 years old), participants in the older worker group (55+ years old) reported longer tenure (both in their current position and with the organization). Age and tenure tend to be strongly correlated; however, studies with nonacademic samples generally report correlations around .40 (e.g., Avery, et al., 2007; Hochwarter, Ferris, Perrewé, Witt, & Kiewitz, 2001). The point-biserial correlations of age group and the two tenure measures (position, $r(75)=.55$;

organization, $r(75)=.53$)[4] observed in the current sample were greater than commonly found in the organizational literature. Controlling for tenure in the current study would remove a substantial amount of systematic variance associated with age group. Thus, the subsequent analyses did not include tenure as a control.

As mentioned above, in addition to manipulating training features within the scenarios, individual levels of generativity, future time perspective, and goal orientation were measured with self-report survey items. The point-biserial correlations (Table 4 between age group and the measures of the three age-related constructs suggest that older and younger workers differed with regard to their standing on these characteristics. In general, older workers (M=3.97, SD=.56) were higher in generativity than younger workers (M=3.56, SD=.62; $r(79)=.32$, $p=.003$) and had a lower future time perspective (older workers, M=2.42, SD=.55; younger workers, M=3.41, SD=.59; $r(79)=-.65$, $p<.001$). These results are consistent with theoretical and empirical studies of generativity and future time perspective. The pattern of results for goal orientation was complex and contradicted previous research. On average, older and younger workers differed with regard to the degree to which they reported having performance-avoidance, mastery-approach, and mastery-avoidance goal orientations (rs=-.23 to -.30, ps<.05). There was not a significant age-group difference in performance-approach goal orientations. Based on existing theory and previous research, older workers were expected to have more of a mastery-avoidance goal orientation than younger workers. However, older workers' reported *less* of a mastery-avoidance goal orientation (M=3.35, SD=1.26) relative to younger workers (M=4.10; SD=1.01).

[4] Because age was dichotomized, the magnitude of the correlations between age group and the tenure measures were attenuated. When the age of younger and older workers was examined as a continuous variable, the correlations were .61 and .74 for position and organizational tenure, respectively.

Tests of Hypotheses

The policy-capturing design was multilevel, such that responses to scenarios (Level 1 variables) were nested *within* individuals. In addition, age group membership (younger versus older) and other individual characteristics (i.e., organizational tenure, generativity, FTP, goal orientation) differed *between* individuals and, thus, were Level 2 variables. Given that the assumption of independence of Level 1 observations was violated, the use of multilevel analysis was appropriate. Thus, to examine the decision policies of participants, multilevel analyses were conducted using MPlus software (Muthen & Muthen, 1998-2012). Multilevel analysis is preferred when data are nested because it does not assume independence of errors and avoids the inherent problems with disaggregation (e.g., ecological fallacy) and aggregation (e.g., atomistic fallacy; Luke, 2004). To justify the use of multilevel analyses, a null model (the outcome variable entered without any Level 1 or Level 2 predictors) was analyzed and an intraclass correlation (ICC(1)) was computed. The null model resulted in an ICC(1) of .56 (n=81)[5]. According to LeBreton and Senter (2008), ICC(1)s can be interpreted using the general effect size framework such that ICC(1) values of .01, .10, and .25 are considered small, medium, and large, respectively. In the current study, the ICC(1) value of .56 indicates that a large amount of variance in the Level 1 outcome variable (i.e., the decision to participate in training) was due to Level 2 factors (i.e., individual participants).

Age differences in overall training decisions. Overall, older workers were predicted to be less likely to participate in training than younger workers (Hypothesis 1).

[5] The null model included only participants belonging to either the younger (25-39 years old) or older (55+ years old) age group. Null models were also examined for the younger and older age groups separately. The results of these null models also showed a large nesting effect: younger workers ICC(1)=.61 (n=29), and, older workers ICC(1)=.49 (n=52).

To test this hypothesis, age group was entered as a Level 2 predictor in an intercept-as-outcomes model with the decisions on the sixteen training scenarios as the Level 1 outcome variable. On average, older workers' ratings of their likelihood of participating in training were .38 points lower than younger workers (γ_{01}=-.38, p=.008; Table 5). That is, overall training decisions differed between younger (M=2.79, SD=.72) and older workers (M=2.41, SD=.58), such that older workers were less likely to indicate an intention to participate in the training opportunity[6].

Training participation decision policies. Hypothesis 1 was intended to confirm previous findings of an overall age group difference in training motivation, thereby establishing the foundation to examine the focal hypotheses of the current study. There did appear to be an age group difference in the overall decision to participate in training. The next set of hypotheses sought to take a closer look at the decision-making process itself. That is, Hypotheses 2 through 5 were concerned with *how* participants utilized key pieces of information, or cues, to decide whether to participate in training. Specifically, the three training scenario cues—generativity-based topic, goal orientation, and training structure—were selected because of their theoretical meaning for older workers.

Prior to examining age group differences, the relationship between the specific cues and the decisions to participate in the training were examined within the entire sample (i.e., regardless of age group membership). The scenario cues were entered as Level 1 predictors of the training decision (Level 1 outcome variable) in a multilevel

[6] This relationship was then examined with the inclusion of organizational tenure as a control variable. Organizational tenure was grandmean centered, and both organizational tenure and age group were entered as Level 2 predictors in an intercepts-as-outcomes model with the training decisions as the Level 1 outcome variable. The pattern of the relationship between age group and training decision remained the same; however, this relationship was no longer statistically significant. Tenure with the organization was also not significantly related to the decisions on the training scenarios.

analysis. As a set, the scenario cues accounted for 54.11% of the within-person variance in the training decision (Table 6). Two of the three cues, the generativity-based training topic and the goal, were significantly related to the training decision. With regards to the training topic, participants were more likely to participate in training that was not generativity-based (i.e., the technology training topic). The training goal was a 2 (*direction:* approach versus avoidance) by 2 (*referent:* mastery versus performance) manipulation. The results indicate that participants' ratings of their likelihood to participate in training were higher when the training goal was approach and mastery-oriented. The training structure cue (self-paced versus conventional training) was not significantly related to participants' decisions to attend the training opportunity.

Two of the three selected scenario cues appeared to be important sources of information in participants' decision-making process. In addition, all three cues had significant variation in their slopes (variance component, Table 7), which justified the further examination of the hypothesized age-group cross-level interactions.

To test Hypotheses 2 through 5, the decision policies of older workers were compared to those of younger workers. First, the scenario cues were entered as a set as Level 1 predictors of the training decision (Level 1 outcome variable) in a model for older workers and a model for younger workers. Pseudo-R^2 values were calculated for the two separate models. If the scenario cues were related to age, then, as a set, they should have accounted for more variance in the training decision for older workers than for younger workers. There was a descriptive difference between the age groups, such that the scenario cues accounted for 4.57% more variance in older workers' training decisions (older workers pseudo-R^2=55.73%; younger workers pseudo-R^2=51.16%). This

result lends preliminary support for the presence of age group differences in training decision policies.

Second, Hypotheses 2 through 5 were directly tested with cross-level interaction analyses in which the scenario cues were entered as Level 1 predictors and age-group (*younger*=25 to 39 years old; *older*=55+ years old) was entered as a Level 2 predictor in a slopes-as-outcomes model. There are two guidelines for having sufficient power for cross-level interactions. According to Cohen (1992), a sample of 64 is needed to achieve a power of 0.80 when comparing two groups (ANOVA framework; medium effect size[7]; $p<0.05$). Within a multilevel analysis framework, 30 Level 1 observations and 30 Level 2 observations are recommended (Scherbaum & Ferreter, 2009). The design of the current study met Cohen's (1992) guideline; however, there were fewer Level 1 observations than would be optimal to satisfy Scherbaum and Ferreter's (2009) guideline.

If the decision policies were related to age, then the relationships between the age-related cues (generativity topic (Hypothesis 2), avoidance-mastery goals (Hypotheses 3 and 4), and self-paced structure (Hypothesis 5)) and the training participation decisions should have been stronger for older workers than younger workers. Results of the analyses do not support Hypotheses 3, 4, or 5 (Table 7). There were no significant age-group differences in the weights of the type of goal (approach-avoidance; mastery-performance) or the structure of the training (self-paced versus conventional). However, a significant age-group difference was found for the relationship between generativity-

[7] Although there was not previous research available to accurately calculate the projected effect size of the policy-capturing study, one of the benefits of the policy-capturing design is that there tends to be high consistency in individuals' judgments, which reduces the standard deviation of observations, resulting in larger effect sizes than traditional research designs (Cooksey, 1996). A small effect size would likely be present in a traditional research design; thus, a medium effect size was optimistically anticipated.

oriented training topic and the training decision (Hypothesis 2)[8]. The significant interaction effect was graphed using Preacher, Curran, and Bauer's (2010-2015) online multilevel interaction graphing tool (Figure 3). The relationship between the *non*-generativity topic (i.e., technology) and the training decisions was stronger for older workers than for younger workers (contrary to Hypothesis 2)[9]. Older workers appeared slightly more inclined to participate in training about technology (*M*=2.76) than service learning (*M*=2.29). Younger workers were relatively equally likely to participate in either service learning (*M*=2.72) or technology (*M*=2.81) training.

In light of the significant age group x generativity-based topic interaction, exploratory follow-up analyses were conducted. As part of the survey, participants were asked to indicate their level of familiarity, interest, and course-relevance for each of the training topics. These training topic perceptions were examined in two ways: 1) independent samples *t*-tests were conducted to explore whether older and younger workers differed in their ratings of the training topics; and, 2) paired samples *t*-tests were conducted to examine whether older workers' ratings differed significantly by topic. First, the results of the between-group comparison yielded significant age group differences with regard to interest in service learning and relevance of technology training (no age group difference in topic familiarity: service learning *M*s=3.18, 3.52; *SD*s=1.33, 1.06; technology, *M*s=3.39, 3.69; *SD*s=1.04, 1.00; older and younger workers,

[8] The cross-level interactions were also examined with organizational tenure as a control. Organizational tenure was grandmean centered, and entered along with age group in four separate slopes-as-outcomes models. The pattern of results remained the same.

[9] The cross-level interaction was also tested with a subset of the original data. Participants that rated the service learning topic as less or equally generativity-oriented as the technology topic were removed from the analysis (remaining sample, younger *n*=20, older *n*=27). The pattern of results remained unchanged—the cross-level interaction between age group and the generativity-based topic cue was still significant, and in the opposite direction of Hypothesis 2.

respectively). Compared to younger workers, older workers rated the service learning topic significantly less interesting (older workers, *M*=2.77, *SD*=1.19; younger workers, *M*=3.50, *SD*=1.20; *t*(74)=2.57, *p*=.01), and the technology training as significantly less relevant for their courses (older workers, M=3.06, SD=1.29; younger workers, *M*=3.72, *SD*=1.28; *t*(78)=2.23, *p*=.03).

Second, the comparison of older workers' perceptions of the two training topics resulted in only one difference of note[10]—the difference in older workers' ratings of the relevance. Older workers rated the technology topic (*M*=3.39, *SD*=1.04) as *more* relevant to their courses than the service learning topic (*M*=3.18, *SD*=1.33; *t*(47)=-1.88, *p*=.07). Although nonsignificant, the difference in perceived relevance may, at least in part, have contributed to older workers' likelihood for attending the technology training.

Regardless of age, participants appeared to utilize a similar set of factors when deciding whether to attend training. Overall, the age-related factors appeared to be more useful for older workers than younger workers. However, the results of the cross-level interaction analyses do not support the hypotheses that training decision policies are age-dependent (the one significant interaction was in the opposite direction of the hypothesis). Rather, the results indicate that the topic of training and the intended goal of the training matter to workers across chronological age group distinctions.

Supplemental analyses to triangulate findings. Contrary to the hypotheses, the training decision policies did not appear to be age-dependent. That is, the relationships between the scenario cues and the training decisions were similar for younger and older workers. The scenario cues were based on existing theory and research about

[10] There were no significant differences in older workers' ratings of familiarity (service learning *M*=3.18, *SD*=1.33; technology *M*=3.39, *SD*=1.04) or interest (service learning *M*=2.77, *SD*=1.19; technology *M*=2.98, *SD*=1.30) for either topic.

developmental changes across the lifespan such that future time perspective, generativity, and goal orientation were posited to manifest as differential scenario cue importance. In addition to completing the training scenario portion of the study, participants also completed self-report survey scales measuring their future time perspective, generativity, and goal orientation.

As a follow-up to the direct tests of Hypotheses 2 through 4[11], an alternate approach utilizing the self-report survey measures was used to explore whether the underlying age-related factors were related to overall training decisions. As described earlier, older workers had significantly more limited future time perspective, greater degree of generativity, and lower scores on three of the four types of goal orientations. Three analyses were conducted to parallel the tests of hypotheses described above. First, the overall training decision was regressed onto the set of individual difference predictors for older and younger workers in a multiple regression framework[12]. For the older workers, the set of predictors accounted for a significant 26% of the variance in their overall training decision (R^2=.26, F(5,45)=3.10, p=.02). In contrast, the relationship between the set of predictors and the overall training decision was nonsignificant for younger workers, and accounted for only 15% of the variance in their overall training decision (R^2=.15, F(5,23)=.80, p=.56). These results support the earlier analyses showing an overall age group difference in the utility of the scenario cues.

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[11]Follow-up analyses for Hypothesis 5 (training structure, self-paced versus conventional) this scenario cue were not conducted because: 1) this scenario cue was not significantly related to training decisions, regardless of age group membership; and, 2) due to space limitations, the underlying age difference—changes in cognitive abilities—was not measured at the between-person level.

[12] A multiple regression framework, rather than a multilevel framework, was utilized to facilitate the calculation of the amount of variance in the outcome variable accounted for by the set of predictors. Although a pseudo-R^2 can be calculated in a multilevel framework, R^2 is a more straightforward and preferred estimate of explained variance.

The second set of analyses sought to triangulate the examination of the relationships between the specific scenario cues and the training decisions. Specifically, six multilevel intercepts-as-outcomes models were analyzed in which the decisions on the sixteen training scenarios (Level 1 outcome variable) were regressed onto the six age-related predictors (generativity, future time perspective, and the four goal orientations; Level 2 predictor variables). All Level 2 predictors were grand-mean centered prior to entry in their respective models. Three of the six age-related predictors were significantly and positively related to participants' overall training decision: future time perspective, mastery-approach goal orientation, and mastery-avoidance goal orientation (Table 8). Participants that perceived greater time remaining in their occupational life were more likely to intend to participate in training. With regards to goal orientations, individuals with mastery-based goals were more likely to participate in training, whether they were focused on actively improving their performance (approach-based) or seeking to avoid a loss in their performance (avoidance-based).

Finally, age group differences in the relationships between the age-related predictors and the overall training decision were explored by entering the centered predictors and an age-group x predictor interaction term. The relationship between the six predictors and the overall training decision did not differ by age group (all interaction terms were nonsignificant).

The results of these triangulation analyses suggest that, regardless of age, future time perspective as well as mastery-based goals (either approach or avoidance) may be related to individuals' decisions to participate in training. This lends support to the conceptual basis for Hypotheses 2 and 4. In addition, older and younger workers did

differ in terms of their relative standing on these age-related factors. Specifically, older workers in the current study reported a more limited future time perspective and had lower overall mastery goal orientations as compared to younger workers. Thus, when taken together, the results of the direct hypothesis tests and triangulation analyses suggest that age-related characteristics are important factors in the decision to participate in training. These age-related characteristics appear to impact the general propensity for training rather than the differential evaluations of specific features of training.

DISCUSSION

The current research sought to answer the call for greater attention on the impact of adult developmental changes in general work motivation (Kanfer & Ackerman, 2004), and within the specific context of training (Maurer, 2009; Maurer, et al., 2003; Van Rooij, 2012). Specifically, two main research questions were posed: 1) Are older workers less likely to participate in training opportunities? and, 2) Are the training decision-making patterns age-dependent? To address these research questions, a novel approach for examining training motivation, namely, policy-capturing, was utilized. Specifically, theories of aging were integrated with expectancy theory to identify age-related factors that may influence older workers' decisions to participate in voluntary training opportunities. Participants were presented with a series of training descriptions in which the theoretically relevant factors were presented and varied as three features of training: topic, goal, structure.

In general, the results suggest that the age-related factors appear to matter to workers regardless of their age. Both younger and older workers had relatively similar decision-making patterns; however, the set of age-related factors were more useful for explaining older workers' decisions. Furthermore, the age-related factors appeared to be more strongly related to general training decisions, rather than the utilization of specific information about training characteristics. Interpretations, implications, limitations, and future research directions are discussed in the following sections.

The Decision to Participate in Training: Interpretations

In accordance with previous research, the results of the analysis of the main effect of age group supported Hypothesis 1; older workers were less likely to intend to

participate in the training opportunities. Because of the nature of the sample, age group was strongly and positively correlated with organizational tenure. Thus, analyses of age group relationships were examined both *without* the control of organizational tenure and *with* the control of organizational tenure. According to Maurer et al. (2003), such an approach is recommended because:

> "The data then tell two important and related stories. From one point of view, we learn what older workers in a population are experiencing regardless of other characteristics of the workers themselves or their situations. From the other point of view, we learn whether age is uniquely related to the variables of interest, independent of potentially influential variables confounded with age," (p. 719).

The inclusion of organizational tenure as a control did not alter the pattern of results; however, the collinearity of the two age measures masked the significant main effect on training decision. That is, as individual predictors, both age group and tenure were significantly related to the overall training decision; when entered in the same model, neither predictor was significantly related to the overall training decision. Nonetheless, the presence of the age group difference in training propensities cannot be interpreted as entirely due to age group membership alone. Tenure, as well as other factors not included in the study, may be associated with age and, thus, account for the differences in training participation intentions.

The second research question sought to delve deeper into understanding how older workers utilize information about training opportunities in their decision-making process. As a set, the age-related training features were more strongly related to the training decisions of older workers. In general, though, older and younger workers utilized the age-related training features in a similar way when deciding whether to attend the training. Overall, the approach-mastery training goals were strongly related to

training decisions, regardless of age group (contrary to Hypotheses 3 and 4). Approach-mastery goals are conceptually akin to learning goals, which involve the active pursuit of knowledge and ability improvements (Dweck & Leggett, 1988; Heyman & Dweck, 1992). Learning goals and learning goal orientations (i.e., relatively stable expressions of a type of goal) have been well-supported as antecedents of training motivation in the extant literature (Colquitt & Simmering, 1998; Kozlowski, et al., 2001; Phillips & Gully, 1997). Thus, the relationship between approach-mastery goals and intentions to participate in training is consistent with the broader training literature.

The structure of training, self-paced or conventional, was not significantly related to the decision to participate in training, regardless of age group (contrary to Hypothesis 5). Self-paced training has been recommended as an instructional design element that facilitates efficacy and performance among older adults (Beier, et al., 2012; Fritzsche, et al., 2009). The basis of the benefit of self-paced training is the presence of real or perceived losses in cognitive abilities, specifically, Gf. The current sample consisted of highly educated, highly intellectually stimulated adults. Education level and cognitive stimulation have both been shown to stave off age-related cognitive declines (e.g., Baldivia, Andrade, & Bueno, 2008; Bickel & Kurz, 2009; Karlsson, Thorvaldsson, Skoog, Gudmundsson, & Johansson, 2015). Thus, in the current sample, concerns over cognitive changes may not have been salient.

The only training feature that demonstrated a significant age group difference was the generativity-based topic, and the pattern of the difference was in the opposite direction of Hypothesis 2. The relationship between the *non*-generativity training and the decision to participate in training was stronger for older workers than for younger

workers. Socioemotional selectivity theory (Carstensen, 1995) and empirical research examining Erikson's lifespan theory both suggest that older adults would be more inclined to engage in activities that allow for generativity expression. The lack of support for Hypothesis 2 appears to contradict these theoretical underpinnings. The results of the supplemental analyses may shed some informative light on the pattern of results that were observed.

First, individual differences in the level of generativity were not related to the overall decision to participate in training. This suggests that attending workplace training may not be perceived as an avenue for generativity expression. Thus, whether or not the training *topic* is generativity-based may be irrelevant. Second, individual differences in future time perspective were related to the overall decision to participate in training. Participants that perceived less time remaining in their occupational life were less likely to intend to attend the training. Although this result would support a potential preference for generativity-based training, generativity expression is only one of several outcomes of a limited future time perspective. According to socioemotional selectivity theory (Carstensen, 1995; Carstensen, Pasupathi, Mayr, & Nesselroade, 2000), the perception of a limited future time horizon may also result in emotional regulation strategies (e.g., deepening of existing relationships). The decision to attend training—regardless of the topic—may be perceived as an obstacle rather than a vehicle for navigating a shortened occupational time horizon. For example, a faculty member may view a coffee meeting with a close colleague or student as a better way to engage in emotionally meaningful experiences than attending a training session.

Although this reasoning may begin to address why older adults were not more likely to attend the generativity-based training, it does not explain why they were actually more likely to attend the *non*-generativity-based training. The follow-up analyses of the training topic specific questions indicated that older workers were less interested in the topic of service learning than younger workers. Thus, the apparent lack of preference for service learning training appears potentially unrelated to the degree of generativity and more in line with general interest. Perhaps, older workers are more actively engaged in generativity-oriented activities *outside* of the classroom, and have less interest in pedagocial strategies for increasing generativity expression *within* the classroom. Furthermore, older workers did appear to find the technology training more relevant to their courses, which suggests that their training preference may have been driven by a more targeted, needs assessment of their teaching activities. Previous research has found that the training participation rates of older workers varied by the type of training (Simpson, Greller, & Stroh, 2002). Specifically, older workers were actually more likely than younger workers to engage academic credentialing programs, specific career and job skill training, and technology (i.e., computer) training. Simpson et al. (2002) posited that the appeal of technology training to older workers may be linked to the real and perceived environmental demand for technological savvy. Older workers may be more in tune with such environmental demands and changes (Sterns, 1986). This may be particularly relevant among a faculty sample because such workers remain on the frontlines of the organization throughout their careers and are continuously exposed to rapidly changing technologies.

Theoretical and Practical Implications

The sample utilized in the current study provided a unique lens to view the application of adult developmental theories within a training context. Specifically, a sample of university faculty can be characterized as a group of highly intelligent, highly educated workers with a common core value for learning. In addition, the work of a faculty member has a high degree of complexity, which remains relatively consistent over time. A 55-year old professor and a 35-year old professor engage in many of the same day-to-day work tasks[13]. In other professions, increasing age is commonly associated with more dramatic shifts in the types of responsibilities. That is, younger workers tend to have entry-level positions, whereas older workers occupy managerial level positions. Thus, the use of an academic sample provided an opportunity to examine workers of all ages with similar intelligence, education level, and job responsibilities. In addition, turnover is less common among faculty than in other occupations, and the typical retirement age is more open-ended. The unique features of the sample provide an important context for deriving implications of the current research.

The results of the current study may inform the utility and scope of adult developmental theories in an organizational context. Older and younger workers demonstrated the anticipated developmental differences in generativity and future time perspective. Thus, the Erikson's lifespan development theory and Carstensen's socioemotional theory appear to be applicable for describing characteristics present to varying degrees in younger and older workers. In contrast, the age group differences in goal orientation did not align with previous research and rationale. This suggests a more

[13] Although there is consistency of job responsibilities, the academic career is marked by stages in which teaching, service, and research are more or less emphasized.

nuanced understanding of work motivation that involves a complex interplay of age-related factors, individual differences, and job-specific characteristics

Age-related changes in goal orientations are presumed to result from a shift in the balance of perceived gains and losses. However, the high level of job complexity may offset developmental losses (Marquie, et al., 2010). First, individuals that self-select into academic careers may have different baseline Gf and Gc levels. Given higher baselines, perceived and actual declines may be delayed further into older adulthood. Second, performance of a faculty job relies heavily on Gc, which is maintained and even enhanced during late adulthood. Thus, individuals employed in highly complex, Gc dependent jobs may not perceive developmental losses; instead, they may retain an approach-based goal orientation. What is interesting, then, is that older workers in the current sample demonstrated an approach-mastery orientation. As described earlier, this pattern of goal-striving has been shown to be related to training participation. Yet, older workers remained *less* likely to attend the training. Thus, rather than a change in goal type, there may be changes in the evaluation of training opportunities in general. According to Kanfer and Ackerman (2004), the evaluation of the utility of expended effort at work changes with age, such that older workers tend to perceive fewer performance gains associated with increased effort expenditure. This effort-utility ratio is likely to be more dramatic in high Gc jobs, given that developmental gains serve to maintain and increase performance (Kanfer & Ackerman, 2004). Thus, the differences in the observed training motivation in high Gc jobs may be a function of age-related changes in the perceived utility of training for job performance, rather than general goal orientations.

In addition, there may be broader theoretical implications for understanding age-related differences in work motivation. The unique characteristics of the current sample highlight the need to consider the role of the context as an important influence on how age at work is experienced. For example, the apparent similarities between decision policies and goal orientations of the older and younger workers in the current study suggest that the meaning of age within the knowledge worker industry may be qualitatively different than the meaning of age in other industries (e.g., manufacturing, service). Industries themselves are further situated within historical time. Arguably, how individuals navigate aging at work is greatly influenced by the broader environmental demands of the time. For example, in the current study, the preference for technology training may reflect the current needs of workers in the information age. Thus, in the current study, training decisions were nested within individuals that were nested within age groups; however, those age groups were further nested within an organization, an industry, an economic system, a social system, and a historical time. The integration of adult development theories and work motivation theories necessitates a multilevel theoretical approach. As eloquently stated by Molloy, Ployhart, and Wright (2011), "Any level within a hierarchical system cannot be understood in isolation because it is shaped by—and in turn shapes—other system levels," (p. 582).

The results of the study may also inform organizational practices with regards to instructional design and training and development. The lack of age-related differences in training decision policies suggests that there may be fewer differences between age-groups than may be expected based on theory alone. Thus, rather than targeting older workers with different features of training, organizations may benefit from understanding

the future time perspective, generativity, and goal orientations of all workers, regardless of age. Such considerations may enhance current audience analyses conducted during organizational training needs assessments (Van Rooij, 2012). In addition to the consideration of the changing needs of older workers, organizations may also benefit from the consideration of the job demands. Based on Kanfer and Ackerman's (2004) age-related effort-utility function, older workers in high Gc jobs may require a more compelling explanation of the utility of training to justify their attendance (i.e., increased effort). Finally, in light of the broader theoretical implications, the results of any study focusing on only one part of the hierarchical system must be applied with caution. Sound evidence-based management practices are best derived from multilevel, whole system approaches and considerations (Molloy, et al., 2011).

Limitations and Directions for Future Research

The current study has several limitations related to the sample, method, and theory. The use of an academic sample had advantages and disadvantages. In addition to the unique characteristics described above, the sample was also selected because faculty are experienced judges when it comes to voluntary training invitations. Faculty receive frequent invitations to attend training throughout the academic year. This results in myriad experiences with deciding[14] to participate in training. However, the experience of an older worker in academia may not generalize to other occupations. In particular, the high degrees of complexity, autonomy, and job security associated with an academic career may limit the generalizability of the current findings to similar occupations. Furthermore, older workers within academia are more likely to benefit from positive

[14] During the pilot study, one participant commented that they opt not to attend training because they ignore the emails. One could argue that this is a passive decision-making process, rather than the active, information-weighing process explored in the current study.

stereotypes of aging (e.g., wisdom) because of the expectation and value placed upon expertise within one's discipline. The experience of workers in contexts with more negative views of aging may be quite different than that of workers in academia.

Older and younger workers were defined based on chronological age. Although this choice reflected theoretical and empirical considerations, the use of chronological age may obfuscate the relationship of age with work outcomes, such as training motivation (Cleveland & Shore, 1992). In addition to chronological age, the literature examining age draws upon four other commonly used definitions of age (Hedge, et al., 2006): 1) *functional age*, sometimes also referred to as biological age or physiological age (denotes physical and psychological capacities and capabilities); 2) *social age* (based on normative life experiences, such as marriage and childbearing); 3) *relative age* (incorporates the age of the immediate social or workgroup—an individual who is 35 may be "old" when their workgroup consists of 16-year-olds, or "young" when their workgroup consists of 50-year-olds); and 4) *organizational age* (tenure-based age, such as tenure in position, tenure with supervisor, or, most commonly, tenure with an organization). The use of alternate definitions of age may provide a clearer picture of the explanatory mechanisms underlying age group differences in training. For example, future research that defines age with relative age may capture more of the hierarchical system described earlier. That is, organizations and even industries vary with regards to the age composition of their workers. Relative age places age into context, and may reveal differential effects on training motivation depending upon whether the workgroup is age diverse, age homogeneous, and age truncated (i.e., representing only part of the range of working age adults).

Based on pilot study feedback, the current study manipulated three scenario cues, which resulted in sixteen training scenarios. The analyses indicated that approximately 45% of the variance in the training decisions was *not* accounted for by the set of scenario cues. Therefore, future research should include more levels of the identified scenario cues, as well as additional scenario cues, to better represent the decision context. With regards to additional cue levels, training structure could be expanded to include one-on-one training, which may be preferable for older workers that perceive significant challenges in their ability to learn[15]. In addition, the training topic could be expanded to reflect low-, medium-, and high-generativity topics. In the current study, participants rated the instructional technologies topic as less generative; however, on average, there was less than a one point difference in the ratings. Thus, the instructional technologies topic may represent a medium-generativity manipulation. A low-generativity manipulation may involve training that focuses more explicitly on individual benefits. For example, in a faculty sample, a training course on the topic of how to grade writing assignments more efficiently may have been perceived as a low-generativity topic. Whereas both service learning and instructional technologies directly impact students in the classroom, efficient grading techniques have more of a direct impact on the faculty member outside of the classroom. One important additional cue may be the presence and degree of training incentives. According to Kanfer and Ackerman (2004), incentives are an important, age-related factor in work motivation[16].

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[15] In the current sample, participants may not have perceived challenges to their ability to learn. Thus, the inclusion of this cue may be more relevant in different industries or occupational contexts.

[16] The inclusion of all of the proposed additional cue levels and cues described would result in a minimum of 72 scenarios, assuming that training incentives had only two levels. If training incentives had three levels, then there would be 108 scenarios. This might necessitate the use of a fractional design (Aiman-Smith, et al., 2002), in which a subset of the scenarios is presented.

For each of the training scenarios, participants were provided with one, specific outcome: the likelihood of attending training. The training decision was the focus of the current research; however, this may have resulted in statistical and theoretical limitations. First, the response format for the decision on each scenario provided only four options. The response format was selected for its realism—the four options provided are the common responses that individuals make when presented with a voluntary training opportunity. However, there are psychometric concerns that four response options may not have produced enough variability in responses (Lozano, García-Cueto, & Muñiz, 2008). Second, the use of a single outcome variable limited the scope of the theoretical interpretation of the results. Future research should include direct measures of the perceptions of valence, instrumentality, and expectancy. Potentially, these direct measures would illuminate how the scenario cues influence the motivational processes underlying the training decision as well as the actual training decision. That is, researchers could directly examine to what extent generativity-based topics, goal orientations, and training structure factor into perceptions of valence, instrumentality, and expectancy, and whether such perceptions are age-dependent.

As described previously, a policy-capturing design has an advantage over other experimental designs attempting to model decision-making because of the ability to present participants with multiple, decision-relevant cues. However, a policy-capturing design cannot adequately capture the cumulative nature of real-world decision-making. The current study chose the receipt of a training invitation as the moment of decision. However, the decision-making process may have begun well before the email invite. Thus, the decision stage itself can be further decomposed into a series of mini-stages,

each of which may be differentially impacted by the changing values, goals, and abilities associated with age. Rather than making a decision at a single point in time, decisions may unfold over time. Thus, longitudinal research is needed to examine the unfolding, complex nature of decision-making.

Finally, the current study examined older workers as a homogeneous group. The life course theoretical framework may be useful for understanding the heterogeneity of older workers. In particular, one aspect of life course theory focuses on the influence of social connections (e.g., family, friends, etc.) on the aging process (Elder, 1985). For example, family demands such as childcare and eldercare may result in added stress and strain for older workers (Marshall & Bengston, 2011). The psychological and temporal resources necessary to provide both forms of care giving may deter the drive to pursue continuous learning opportunities, especially for training and development that occurs outside of the typical workday structure (e.g., weekend retreats or conferences). Although care giving is an issue for workers of all ages, recent data from the Pew Research Center (2013) indicated that 71% of the 'sandwich' generation—adults providing both child and elder care—are between the ages of 40 and 59. Thus, older workers may be more likely to encounter additional stress and strain from concurrent care giving, which may influence their decisions and priorities at work. In addition to added demands, older workers may also experience differing levels of resources from their social connections. For example, Maurer et al. (2003) found that older workers received less non-work (i.e., family and friends) support for pursuing training and development. These findings suggest that future studies should consider non-work influences and

demands as potentially important factors in older workers' decisions to participate in training and development activities.

CONCLUSION

The changing demographics of the workforce present theoretical, empirical, and practical challenges and opportunities for scientists and practitioners in the field of organizational science. The current study sought to add to the existing empirical evidence of age differences in training motivation. In general, older workers were found to be less likely to participate in training than younger workers; however, the relationship between the age-related features of training and training decisions were not found to be age-dependent. Thus, the question of *why* this age group training participation difference occurs remains a fruitful area for future investigation. The integration of adult development theories with work motivation theories is an underexplored domain within organizational research. The results of the current study suggest a need for further consideration of multilevel, interdisciplinary theories to explicate the role that age and age-related factors play in work motivation.

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TABLE 1: Results of Pilot Study 1

Scenario Cue	% of Participants Indicating the Hypothetical Example Reflected the Definition	Perceived Importance Mean*(SD)*
Mastery-avoidance	92%	2.21*(1.19)*
Performance-avoidance	50%	2.50*(1.51)*
Performance-approach	64%	2.57*(1.02)*
Mastery-approach	57%	4.36*(.63)*
Conventional training	100%	3.14*(.86)*
Self-paced training	57%	3.57*(.85)*
Familiar workgroup	100%	2.71*(.73)*
Unfamiliar workgroup	79%	2.64*(.93)*

Note: n=13.

TABLE 2: Dummy code values for scenario variables and age group

Variable	Dummy Code Values
Topic[a]	Service learning = 0; Technology = 1
Structure[a]	Self-paced = 0; Conventional = 1
Goal (direction)[a]	Avoidance = 0; Approach = 1
Goal (referent)[a]	Mastery = 0; Performance = 1
Age group[b]	25-39 years old = 0; 55+ years old = 1

Note: [a]Level 1 predictor. [b]Level 2 predictor.

TABLE 3: Demographic characteristics of younger and older workers

	25-39 Age Group *n*=29		55+ Age Group *n*=52	
	M	*SD*	*M*	*SD*
Age	34.13	3.20	63.27	5.52
Organizational Tenure	3.29	2.77	17.11	13.24
Position Tenure	1.56	1.29	13.04	10.51
Gender	.76	--	.50	--
Position				
Adjunct	.28	--	.21	--
Visiting Professor	.00	--	.02	--
Lecturer	.28	--	.14	--
Senior Lecturer	.00	--	.04	--
Assistant Professor	.31	--	.00	--
Associate Professor	.07	--	.15	--
Full Professor	.00	--	.35	--
Professor Emeritus	.00	--	.06	--
Other	.07	--	.04	--

Note: Organizational and position tenure were open-ended items and indicate the number of years of service. Gender indicates the proportion of female participants. Position values represent proportions.

TABLE 4: Descriptive statistics and zero-order correlations

	Mean	SD	1	2	3	4	5	6	7	8	9
Level 1											
1 Decision	2.55	.66	(.80‡)[a]								
Level 2											
2 Age Group	.64	--	-.28*	--							
3 Position Ten	8.88	10.07	-.21	.55‡	--						
4 Org Tenure	12.08	12.58	-.25*	.53‡	.74‡	--					
5 Generativity	3.82	.61	-.04	.32**	.15	.21	(.91)				
6 FTP	2.77	.74	.28*	-.65‡	-.43‡	-.44‡	.02	(.74)			
7 P-A Goal	3.67	1.06	.21	-.11	-.22	-.07	.03	.04	--		
8 P-Av Goal	3.01	1.23	.08	-.23*	-.16	-.13	-.33**	.16	.19	--	
9 M-A Goal	4.50	.62	.40‡	-.28*	-.15	-.10	.06	.31**	.14	.09	--
10 M-Av Goal	3.62	1.23	.23*	-.30**	-.14	-.27*	-.28*	.30**	.01	.61‡	.13

Note: Values in parentheses are Cronbach's alpha. Age group, 25-39 years old, *n*=29; 55+ years old *n*=52. Position Ten=position tenure; Org Tenure=organizational tenure; FTP=future time perspective; M-A Goal = mastery-approach goal; M-Av Goal = mastery-avoidance goal; P-A Goal=performance-approach goal; P-Av Goal=performance-avoidance goal; *n*s for correlations range from 74-81; [a]correlation between the original and repeated scenario; *p<.05; **p<.01; ‡p<.001

TABLE 5: Level 2 analysis: Relationship between age group and training decisions

Intercepts-as-Outcomes Model	Coefficients			Variance Components	
	γ_{00}	γ_{01}	γ_{02}	σ^2	τ_{00}
L1: $\text{Decision}_{ij} = \beta_{0j} + \beta_{1j} + r_{ij}$					
Model 1 – Regression of Decision on Age Group	2.79	-.38**		.32	.37
L2: $\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{Age Group}) + U_0$					

Note. L1= Level 1, N = 1283; L2 = Level 2, N=81; γ_{00} = intercept of Level 2 regression predicting $\beta_0 j$; γ_{01} = regression coefficient for L2 predictor in Level 2 regression predicting $\beta_0 j$; σ^2 = variance in Level 1 residual (i.e., variance in *rij*); τ_{oo} = variance in Level 2 residual for models predicting $\beta 0j$ (i.e., variance in U_0). ** indicates $p < .01$.

TABLE 6: Level 1 analysis: Relationships between the scenario cues and the training decisions

Variable	β[a]	SE[b]	*t*	Variance Component
Intercept, β_0	2.40‡	.09	26.05	.64‡
Topic, β_1	.19**	.06	3.02	.29‡
Structure, β_2	.08	.05	1.55	.17‡
Goal (direction), β_3	.11**	.04	2.85	.08‡
Goal (referent), β_4	-.08*	.03	-2.57	.04**
Pseudo-R^2 (%)[d]				54.11

Note: Level 2 *N*=81; average cluster size=15.84. Topic=generativity-based (service learning), non-generativity-based (instructional technologies); Structure=self-paced, conventional; Goal(direction)=approach, avoidance; Goal(referent)=mastery, performance. β[a] =unstandardized regression coefficient; [b]=standard error. *p<.05; **p<.01; ‡p<.001

TABLE 7: Multilevel cross-level interaction models and results

Cross-Level Interaction Models	Coefficients			Variance Components		
	γ_{00}	γ_{10}	γ_{11}	σ^2	τ_{oo}	τ_{11}
Model 1 – Age Group x Topic Cue	2.79	.01	.28*	.23	.44	.25
L1: $\text{Decision}_{ij} = \beta_{0j} + \beta_{1j}(\text{Topic}_{ij}) + r_{ij}$						
L2: $\beta_{0j} = \gamma_{00} + U_0$						
L2: $\beta_{1j} = \gamma_{10} + \gamma_{11}(\text{Age Group}) + U_1$						
Model 2 – Age Group x Structure Cue	2.75	.08	-.01	.28	.41	.13
L1: $\text{Decision}_{ij} = \beta_{0j} + \beta_{1j}(\text{Structure}_{ij}) + r_{ij}$						
L2: $\beta_{0j} = \gamma_{00} + U_0$						
L2: $\beta_{1j} = \gamma_{10} + \gamma_{11}(\text{Age Group}) + U_1$						
Model 3 – Age Group x A-Av Goal Cue	2.75	.09	.03	.30	.42	.04
L1: $\text{Decision}_{ij} = \beta_{0j} + \beta_{1j}(\text{A-Av Goal}_{ij}) + r_{ij}$						
L2: $\beta_{0j} = \gamma_{00} + U_0$						
L2: $\beta_{1j} = \gamma_{10} + \gamma_{11}(\text{Age Group}) + U_1$						
Model 4 – Age Group x M-P Goal Cue	2.84	-.10	.03	.31	.38	.01
L1: $\text{Decision}_{ij} = \beta_{0j} + \beta_{1j}(\text{Topic}_{ij}) + r_{ij}$						
L2: $\beta_{0j} = \gamma_{00} + U_0$						
L2: $\beta_{1j} = \gamma_{10} + \gamma_{11}(\text{Age Group}) + U_1$						

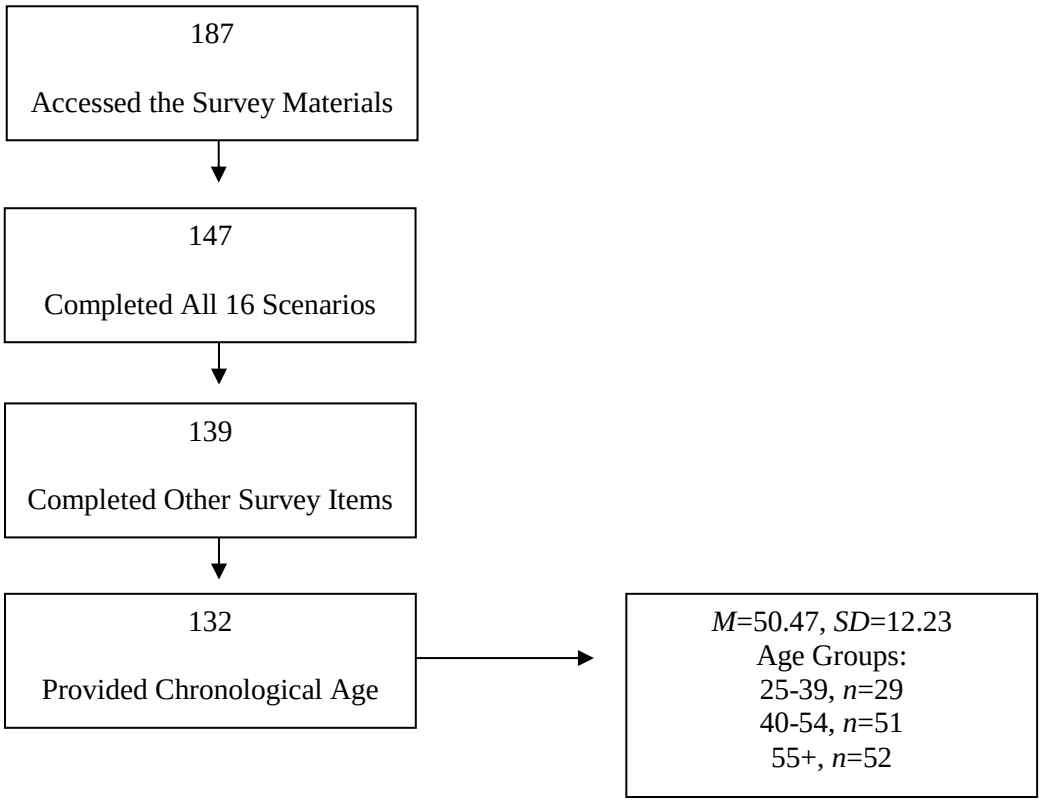
Note: L1=Level 1, *N*=1283; L2=Level 2, *N*=81 (younger workers *N*=29; older workers *N*=52); average cluster size=15.84. Topic=generativity-based (service learning), non-generativity based (instructional technologies); A-Av=approach-avoidance goal cue; M-P=mastery-performance goal cue; γ_{00} = intercept of Level 2 regression predicting $\beta 0j$; γ_{10} = intercept of Level 2 regression predicting $\beta 1j$ (pooled Level 1 slopes); γ_{11} = regression coefficient for Scenario Cues in Level 2 regression predicting $\beta 1j$; σ^2 = variance in Level 1 residual (i.e., variance in *rij*); τ_{00} = variance in Level 2 residual for models predicting $\beta 0j$ (i.e., variance in *U*0); τ_{11} = variance in Level 2 residual for models predicting $\beta 1j$ (i.e., variance in *U*1). *p<.05.

TABLE 8: Level 2 analysis: Relationship between individual difference predictors and training decisions

Intercepts-as-Outcomes Models[a]	Coefficients		Variance Components	
	γ_{00}	γ_{01}	σ^2	τ_{00}
L1: Decision$_{ij}$ = β_{0j} + β_{1j} + r_{ij}				
Model 1 – Regression of Decision on Generativity L2: $\beta_{0j} = \gamma_{00} + \gamma_{01}$(Generativity)+$U_0$	2.55	-.04	.32	.41
Model 2 – Regression of Decision on FTP L2: $\beta_{0j} = \gamma_{00} + \gamma_{01}$(FTP)+$U_0$	2.55	.25**	.32	.37
Model 3 – Regression of Decision on M-A Goal L2: $\beta_{0j} = \gamma_{00} + \gamma_{01}$(M-A Goal)+$U_0$	2.56	.42ǂ	.32	.33
Model 4 – Regression of Decision on M-Av Goal L2: $\beta_{0j} = \gamma_{00} + \gamma_{01}$(M-Av Goal)+$U_0$	2.56	.12*	.32	.38
Model 5 – Regression of Decision on P-A Goal L2: $\beta_{0j} = \gamma_{00} + \gamma_{01}$(P-A Goal)+$U_0$	2.56	.13[b]	.32	.38
Model 6 – Regression of Decision on P-Av Goal L2: $\beta_{0j} = \gamma_{00} + \gamma_{01}$(P-Av)+$U_0$	2.56	.04	.32	.40

Note. L1= Level 1, N = 1267; L2 = Level 2, N=80; FTP = future time perspective; M-A Goal = mastery-approach goal; M-Av Goal = mastery-avoidance goal; P-A Goal=performance-approach goal; P-Av Goal=performance-avoidance goal; γ_{00} = intercept of Level 2 regression predicting $\beta_0 j$; γ_{01} = regression coefficient for L2 predictor in Level 2 regression predicting $\beta_0 j$; σ^2 = variance in Level 1 residual (i.e., variance in *rij*); τ_{oo} = variance in Level 2 residual for models predicting $\beta 0j$ (i.e., variance in U_0). * indicates $p < .05$. ** indicates $p < .01$. ǂ indicates $p<.001$. [a]Level 2 predictors were entered into separate intercepts-as-outcomes models. [b]p=.06.

FIGURE 1: Overview of survey access and participation



Note: The analyses comparing older and younger workers utilized the 25-39 age group and the 55+ age group with a combined *n*=81. The 40-54 age group was excluded from all analyses.

FIGURE 2: Study hypotheses

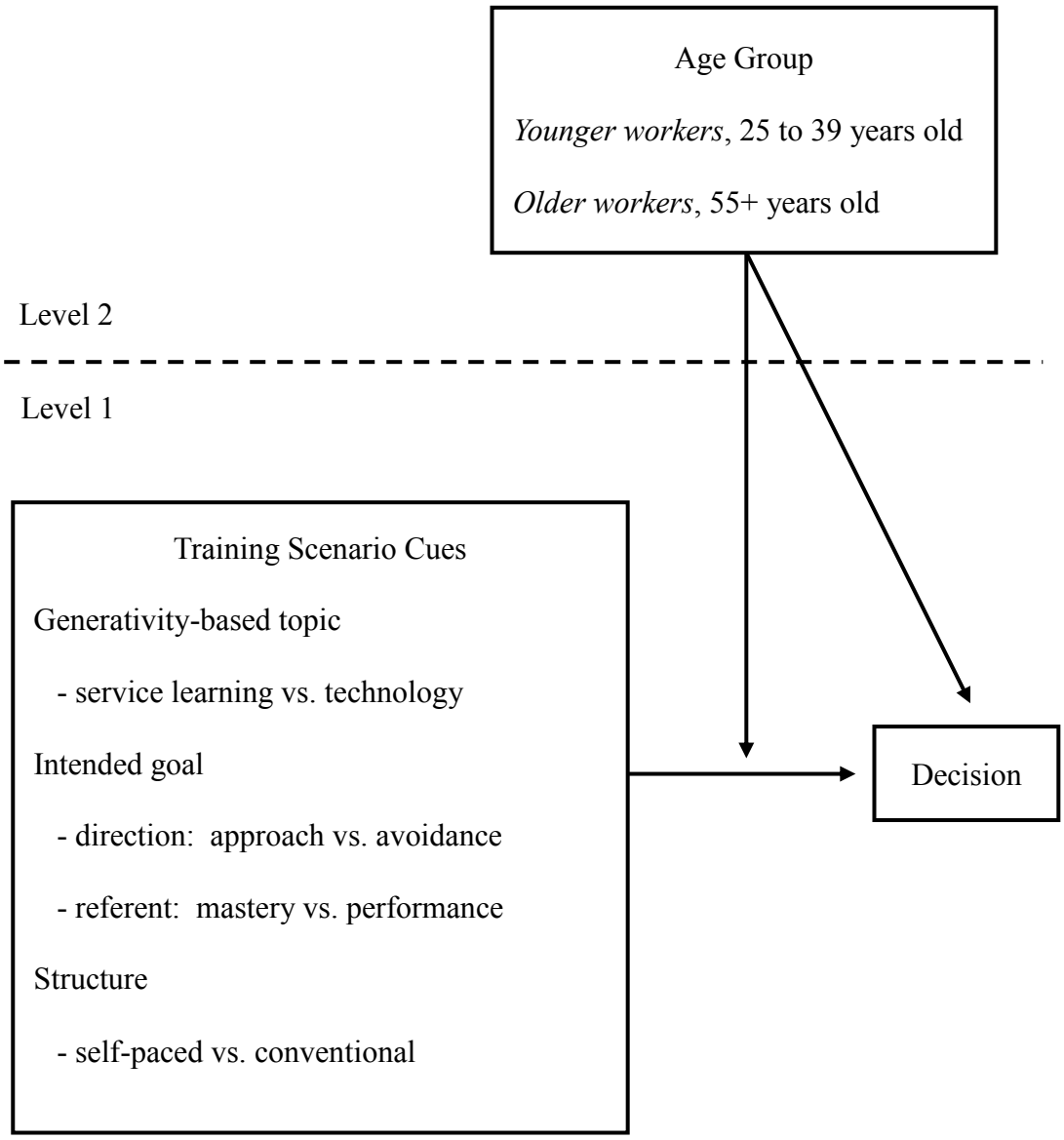
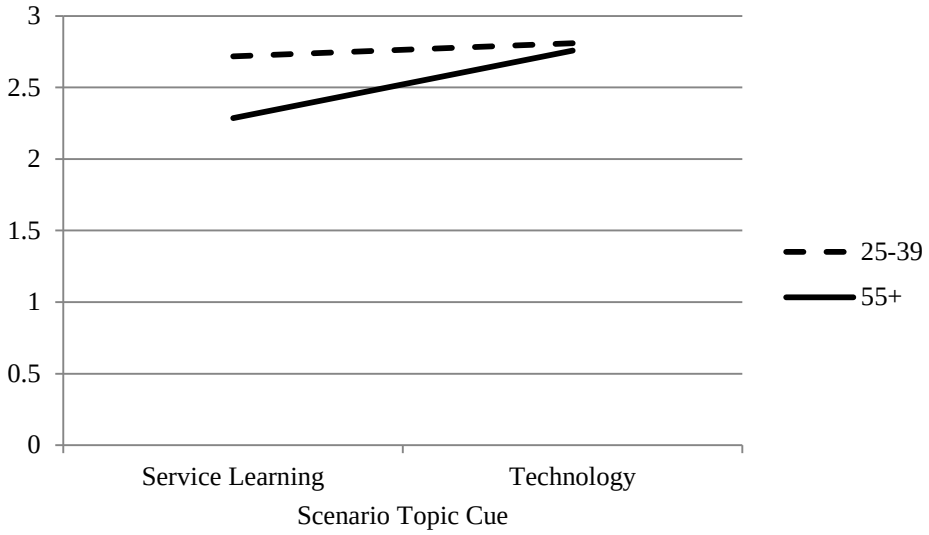


FIGURE 3: Age group differences in training decisions by topic cue



Note: The service learning topic represented the generativity-based training; the technology training topic represented the non-generativity-based training.

APPENDIX A: PILOT STUDY 1 CUE DESCRIPTIONS

Mastery-Approach Goal: The intended outcome of the training is to help you to do better than YOUR own prior performance on a specified task.

Hypothetical Example: The goal of the training is to help you fulfill your personal goals for improved student engagement in your upcoming courses.

Mastery-Avoidance Goal: The intended outcome of the training is to help you perform to the same level as YOUR own prior performance on a specified task.

Hypothetical Example: The goal of the training is to help you to maintain student engagement at the same level as you have previously achieved in your other courses.

Performance-Approach Goal: The intended outcome of the training is to help you to perform better than OTHER PEOPLE on a specified task.

Hypothetical Example: The goal of the training is to help improve your course evaluations in order to exceed your department's standards for performance.

Performance-Avoidance Goal: The intended outcome of the training is to help you perform to the same level as OTHERS on a specified task.

Hypothetical Example: The goal of the training is to help you to maintain your course evaluations in order to meet your department's standards for performance.

Conventional Training: Training that is delivered at a scheduled time for a pre-specified duration, such that all learners receive instruction at the same pace.

Hypothetical Example: The training sessions will be scheduled once a week all next month, and will be an hour and a half in length.

APPENDIX A: PILOT STUDY 1 CUE DESCRIPTIONS (CONTINUED)

Self-paced Training: Training that allows the learner to progress at their own speed through the training materials.

Hypothetical Example: The training will be delivered via a pre-recorded webinar. Participants will be able to post their questions and comments to the online forum at their convenience.

Familiar Workgroup: The make-up of the group receiving training consists of individuals with whom you interact on a regular basis.

Hypothetical Example: The training will be provided to small groups from the same department. Departmental members are encouraged to sign up together.

Unfamiliar Workgroup: The make-up of the group receiving training consists of individuals that you likely do not know.

Hypothetical Example: The training will be provided to small groups representing various departments across the campus.

APPENDIX B: SAMPLE POLICY-CAPTURING SCENARIOS

Please imagine that your Department Chair has forwarded you the following email about a training opportunity. Please also imagine that you have not previously attended the advertised training and you can carve out a window of time in your schedule to participate. Please read the scenario carefully, and rate your likelihood of participating in the training on the scale provided. Each scenario will be different. Please pay close attention despite their apparent similarity.

Thank you for your time and effort.

From: Office of Academic Affairs
To: faculty@listserv.edu
Subject: Faculty Professional Development

The Office of Academic Affairs sends the following message on behalf of the Center for Teaching and Learning.

To: University Faculty
From: Center for Teaching and Learning
Re: Faculty Professional Development

Professional Development Opportunities from CTL

Training Topic: Engaging Students By Integrating Service Learning Into your Course(s)

Service learning is a method of teaching that combines formal instruction with a related service in the community. Research has shown that service learning can have a positive impact on many student learning outcomes, including academic performance and retention. It also provides a valuable service to the larger community, thereby promoting the university's community engagement mission and the broader social good. Service learning is surprisingly versatile and applicable to any discipline and level. This workshop covers the what, why, and how of integrating service learning into any course.

Training Structure: Self-paced instructional materials, with an interactive, online group forum

Training Goal: To help individuals who are seeking to improve their teaching performance relative to their own prior performance

Imagine that you indeed could carve out a window of time in your schedule to participate if you wanted. What is the likelihood that you would participate in this training opportunity?

1	2	3	4
Definitely would NOT participate	Probably would NOT participate	Probably would participate	Definitely would participate

APPENDIX B: SAMPLE POLICY-CAPTURING SCENARIOS (CONTINUED)

From: Office of Academic Affairs
To: faculty@listserv.edu
Subject: Faculty Professional Development

The Office of Academic Affairs sends the following message on behalf of the Center for Teaching and Learning.

To: University Faculty
From: Center for Teaching and Learning
Re: Faculty Professional Development

Professional Development Opportunities from CTL

Training Topic: Engaging Students with Web 2.0 Technologies

In this session, attendees will examine how popular instructional technologies such as blogs, wikis, and social software can enhance interaction between instructor, students, and course content. Research has shown that use of instructional technologies increases active participation, enhances communication and collaboration, provides opportunities for active feedback, and makes learning more engaging. Instructional technologies are remarkably versatile, and are applicable to any discipline and level.

Training Structure: Self-paced instructional materials, with an interactive, online group forum

Training Goal: To help individuals who are seeking to improve their teaching performance relative to their own prior performance

Imagine that you indeed could carve out a window of time in your schedule to participate if you wanted. What is the likelihood that you would participate in this training opportunity?

1	2	3	4
Definitely would NOT participate	Probably would NOT participate	Probably would participate	Definitely would participate

APPENDIX C: SURVEY ITEMS

Loyola Generativity Scale (McAdams et al., 1992)

To what extent do the following statements apply to you?

1. I try to pass along the knowledge I have gained through my experiences.
2. I feel that other people need me.
3. I feel as though I have made a difference to many people.
4. I volunteer to work for a charity.
5. I have made and created things that have had an impact on other people.
6. I try to be creative in most things that I do.
7. I think that I will be remembered for a long time after I die.
8. I believe that society can be responsible for providing food and shelter for homeless people.
9. Others would say that I have made unique contributions to society.
10. I have important skills that I try to teach others.*
11. I feel that I have done something that will survive after I die.
12. In general, my actions have a positive effect on others.
13. I feel as though I have done something of worth to contribute to others.
14. I have made many commitments to many different kinds of people, groups, and activities in my life.
15. Other people say that I am a very productive person.
16. I have a responsibility to improve the neighborhood in which I live.
17. People come to me for advice.
18. I feel as though my contributions will exist after I die.

Note: *Item omitted. Response options: 1=*does not apply at all*; 2=*applies a little*; 3=*applies to some extent*; 4=*applies moderately*; 5=*applies completely*.

APPENDIX C: SURVEY ITEMS (CONTINUED)

Future Occupational Time Perspective (Zacher & Frese, 2009)

Please describe your perceptions for each of the following items. Indicate your responses on the scale provided.

1. Most of my occupational life lies ahead of me.
2. My occupational future seems infinite to me.
3. As I get older, I begin to experience time in my occupational future as limited. (R)

Note: (R) indicates a reverse-scored item. Response options: *1 = does not apply; 2 = applies a little; 3= applies to some extent; 4= applies moderately; 5 =applies completely.*

Achievement Goal Orientation (van Yperen & Orehek, 2013)

In my work, my goal is…

1. …to do *better* than others
2. …*not* to do *worse* than others
3. …to do *better* than I did before
4. …*not* to do *worse* than I did before

Note: Statements are rated on a scale of 1(*definitely not*) to 7(*definitely*). Each statement refers to a goal achievement dimension: 1) performance-approach; 2) performance-avoidance; 3) mastery-approach; and, 4) mastery-avoidance.

APPENDIX C: SURVEY ITEMS (CONTINUED)

Occupational Rank

Please indicate your position title:

a. Adjunct faculty
b. Lecturer
c. Senior Lecturer
d. Assistant Professor
e. Associate Professor
f. Full Professor
g. Emeritus Professor
h. Other (please describe) _____

Position tenure

How long have you held the above position rank? (in years)

Organizational tenure

How long have you been employed at UNC-Charlotte? (in years)

Gender

Please indicate your gender. (Female, Male)

Chronological Age

Please indicate your age (in years).