

Review

An examination of the relationship of gender, marital status, and prior educational attainment and learner autonomy

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The development of a conceptual model that provides a theoretical framework for understanding the conative factors of desire, resourcefulness, initiative, and persistence in autonomous learning considered the related variables of gender, education level, age, and marital status. The relevance of these demographic variables is based on prior research in the area of self-directed learning that suggested additional consideration in the development of autonomous learning. The Learner Autonomy Profile (LAP), currently used to assess an individual's level of personal autonomy, continues to accrue data on the identified demographic variables. This purpose of this paper is to present the finding of an analysis of the demographic data with the factors of autonomous learning (LAP scores) and discuss the implications for future research in adult learning theory.

Key words: Autonomous learning, adult learning, self-directed learning.

INTRODUCTION

The study of self-directed learning has been conceptualized along several themes: a process, a goal, or a personal learner characteristic. This conceptual ambiguity has provided for considerable research into the environmental, social, and psychological constructs associated with adult learning. Long, (1989) asserts that self-directed learning can be conceptualized under four major paradigms: sociological, teaching technique, methodological and psychological. Long, (1989) additionally asserts that "psychological conceptualization is both necessary and sufficient to explain self-directed learning". One aspect of this dimension is the personal attributes and characteristics of the individual learner. Thus, autonomy can be placed within the framework of personal attributes and qualities of the learner. Autonomous learning has been defined as the manifestation of desire, resourcefulness, initiative, and persistence in learning; and, learner autonomy is the characteristic of the individual

to exhibit agency (i.e., acts done intentionally) (Bandura, 2001) or intentional behavior with respect to their learning (Confessore, 1992; Ponton, 1999; Carr, 1999, Derrick, 2001; Meyer, 2001). The delineation of self-directed learning and autonomous learning has provided a mechanism to explore aspects and dimensions of learning from different perspectives. Research in autonomous learning has focused on the cognitive and psychological aspects of learning, and specifically, the conative aspects associated with behavioral intentions and intentional action associated with learning. This distinction is important in that autonomous learning is concerned with attitudes associated with learning rather than the exhibition of those behaviors.

BACKGROUND

Confessore, (1992) established that notion that "self-directed [autonomous] learning manifests itself in people who feel a need to learn something". His additionally asserts that success is ultimately dependent upon the individual's personal desire, initiative, resourcefulness,

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and persistence. This foundation became the underpinning for the identification and learning in spite of the presence of impediments, active-approach to problem solving is indicative of a learner that explanation of the specific conates associated with desire, resourcefulness, initiative and persistence in autonomous learning identified respectively by Meyer, (2001); Carr, (1999); Ponton, (1999) and Derrick, (2001).

Meyer, (2001) developed the Inventory of Learner Desire (ILD) in an attempt to measure the degree to which an agent (individual) can act intentionally. Desire is defined by Meyer, (2001) as the precursor to the formation of intentions; the extent an individual feels able to act intentionally. Meyer, (2001) asserts that desire is the ability of the learner to exercise influence in their personal life through the processes associated with freedom, power, and change. The ILD is a seven factor construct around basic freedoms (understanding of circumstances and issues of expression), power management (group identify, growth and balance), and change skills (communication skills and change behaviors). After revision and subsequent validation, the Cronbach Alpha for ILD is 9022. It is important to note that Meyer's instrument is not contextualized with adult autonomous learning and assesses the *extent* to which one feels able to develop intentions. Subsequent path analysis (Ponton et al., 2004) has shown the connection to desire exists through the process of self-efficacy, a construct that has been shown to mediate all theories of cognitive motivation (Bandura, 1997). As Park and Confessore, (2002) assert, "[Meyer's] work on desire to learn has been treated as an effort to understand the *precursors* to the development of intentions related to learning"

Carr, (1999) developed the Inventory of Learner Resourcefulness (ILR) to assess self-control skills associated with the stress that may accompany learning. Carr identified four behaviors indicative of learner autonomy: (a) prioritizing learning activities over non-learning activities; (b) choosing to engage in learning activities as opposed to non-learning activities; (c) looking to the future benefits of present learning; and (d) solving problems that interfere with learning activities. Problem solving includes the ability to plan learning activities, evaluate different learning activities, and anticipate the consequences of different activities. After revision and subsequent validation, the Cronbach Alpha for the ILR is 9234.

The Inventory of Learner Initiative (ILI) was developed and validated by Ponton (1999). The ILI measures the following five behavioral intentions in an adult autonomous learner: (a) goal-directedness; (b) action-orientation; (c) persistence in overcoming obstacles; (d) active-approach to problem solving; and (e) self-startedness. Goal-directedness refers to the creation of learning goals and working toward their accomplishment, action-orientation refers to quickly moving from an intention to learn to actual learning, persistence in overcoming obstacles refers to continued pursuit of develops solution strategies

to deal with impediments without waiting on someone else to develop such strategies, and self-startedness refers to being able to self-start learning activities and their associated processes (e.g., goal setting and planning) (Ponton et al., 2004). After revision and subsequent validation, the Cronbach Alpha for the ILI is 9689.

Derrick, (2001) developed and validated the Inventory of Learner Persistence (ILP) to assess persistence in auto-nomous learning. Derrick, (2002) conceptualized persistence as the sustained maintenance of three behaviors: volition, self-regulation, and goal-directedness. Volition represents the motivation to sustain an intended behavior while self-regulation refers to maintaining activities that coincide with one have integrated self (accomplished primarily through self-reflective judgment) (Ponton et al., 2004). Finally, Ponton (1999) includes goal-directedness as a behavior of personal initiative, Derrick provides the added criterion of perseverance toward goal accomplishment to differentiate this subscale from his (Ponton et al., 2004). After revision and subsequent validation, the Cronbach Alpha for the ILP is 9632.

Instruments were developed to assess each specific factor associated with learner autonomy including the Inventory of Learner Desire (Meyer, 2001); Inventory of Learner Initiative (Ponton, 1999); the Inventory of Learner Resourcefulness (ILR, Carr, 1999), and the Inventory of Learner Persistence (Derrick, 2001). The individual appraisals produced a single instrument, the Learner Autonomy Profile (LAP) that assesses an individual's autonomy with regard to learning. The LAP has subsequently been validated through revised iterations producing a single reliable and valid instrument.

The LAP continues to accrue data on selected demographic variables including gender, age, educational attainment, and marital status. These demographic variables were identified from the literature and research in self-directed learning as a component of the literature review associated with understanding what specific behaviors of why and how adults learn independently and autonomously. The review of the literature associated with adult self-directed learning suggests that these demographic characteristics (i.e., gender, age, educational attainment, and marital status) may be relevant to learner autonomy. The initial results were conflicting and subsequent analysis of data is warranted. Based upon a DIALOG search of all dissertation abstracts related to adult self-directed learning conducted within the 1990s, the research suggests that the demographic characteristics of gender, age, marital status, and educational status may be relevant to learner autonomy. The search was conducted on the topic "self-directed learning" because of its close relationship to autonomous learning and the abundance of research conducted within this field. The Self-Directed Learning Readiness Scale (SDLRS) (Guglielmino, 1977) and the Oddi Continuing Learning Inventory (Oddi, 1986) have in the field of self-directed learning

and have provided insight into adult learning theory and the role of selected demographic variables. The demographic factors (gender, age, marital status, and educational status) were included in the initial instrument development to determine their importance and relationship in autonomous learning.

Relevance of Gender

The research of Morris, (1995) on 157 past/current students of business from a nontraditional graduate institution indicates a relationship between self-directed learner readiness as assessed by the SDLRS, and gender (men's scores are lower). Shulman's (1994) research on 216 medical students also shows a significant relationship between learner self-directedness, as assessed using the Oddi Continuing Learning Inventory (OCLI), and gender (men's scores are again lower). Durr, (1992) studied 607 employees at a single company and found the SDLRS scores of the males in his sample to be significantly higher than the scores of the females. Dixon's (1992) study of 228 adult inmates also supports the notion that gender is related to self-directed learner readiness.

Descriptive data from earlier research in autonomous learning by Ponton, (1999); Carr, (1999) and Derrick, (2001) in general were 63.4 % female and 36.6 % male (Derrick, 2001), 84% female and 16% male (Carr, 1999), and 52% female and 48% male (Ponton, 1999) from diverse backgrounds including K-12 administrators, individuals in the aerospace and travel related industries, and others from diverse setting. Their analysis of the relevance of gender was inconclusive.

Relevance of Age

The research of Dixon, (1992); Eyer, (1993); Morris, (1995) and Fontaine (1996) indicates a relationship between learner self-directedness and age. Eyer assessed 135 baccalaureate nursing students using the OCLI, Morris used the SDLRS for his research on graduate business students, and Fontaine studied 90 older adults and assessed learner self-directedness via frequency of participation in autonomous learning activities. Frisby, (1991) conducted a study of medical students that also shows a relationship between SDLRS scores and age. However, Durr (1992) does not indicate a relationship between SDLRS scores and age. In addition, the work of Hanfold (1991) with 53 registered nurses shows no significant relationship between SDLRS scores and age. Alspach's (1991) research of 357 senior nursing students and 86 nursing faculty members indicates a positive relationship between the students' faculty members' SDLRS scores and age.

Relevance of Educational Level

Freed's (1997) study of 390 women between 55 and 96 years of age indicates that years of education affects

SDLRS scores. The research of Fontaine (1996) also indicates that educational attainment is a predictor of an older adult's propensity to participate in a self-directed learning activity. Dixon's (1992) study of adult inmates indicates a significant relationship between self-directed learner readiness and one's level of formal education. Durr (1992) found that SDLRS scores are positively related to the education level of his sample of employees. The research of Martin (1992) with 575 adults from the ages 22 to 93 shows that persons with a low educational level are less likely to be a self-directed learner, as measured by the OCLI. However, the investigation of Uhland (1995) shows that low-literate adults actively engage in learning activities and Padberg (1991) also indicates that adults with little formal education are active and independent learners.

Relevance of Marital Status

Eyer's (1993) study shows no significant relationship between OCLI scores and marital status for baccalaureate nursing students. Fontaine (1996) indicates however, that marital status is a predictor of an older adult's frequency of participating in self-directed learning activities.

Relevance of Race/Ethnicity

The research of Morris (1995) on graduate business students indicated no significant association between SDLRS scores and ethnicity. Eyer's (1993) study of nursing students also indicated no relationship between OCLI scores and race/ethnicity. Ogazon (1995) reports no significant differences between SDLRS scores of White and Hispanic college students at the junior level. Race/ethnicity had not been suggested as being a related factor at that time although current research indicates that culture and ethnicity may be associated with learning characteristics and warrants additional review.

Past research in self-directed learning indicates that the four demographic characteristics of gender (Durr, 1992; Dixon, 1992; Morris, 1995; Shulman, 1994), age (Alspach, 1991; Dixon, 1992; Eyer, 1993; Fontaine, 1996; Frisby, 1991; Morris, 1995), marital status (Fontaine, 1996), and level of education (Dixon, 1992; Durr, 1992; Fontaine, 1996; Freed, 1997; Martin, 1992; Padberg, 1991; Uhland, 1995) may affect a learners' self-directedness.

Results from Earlier Studies in Learner Autonomy

The research conducted by Ponton, (1999); Carr (1999); Derrick, (2001) and Meyer (2001) found conflicting significance on the selected demographic variables of gender, age, marital status, and educational level. Derrick, (2001) found no significance with the factor of persistence concerning gender, education, or marital status but did find that age may be a significant variable associated with persistence in learning. Ponton, (1999) found that gender, age, marital status, and educational level were not

Table 1. Descriptive Statistics for Dependent Measures by Educational Level, Marital Status, and Gender.

Variable	HS (<i>n</i> = 1,008)		Bachelor (<i>n</i> = 534)		Graduate (<i>n</i> = 735)	
	M	SD	M	SD	M	SD
Single (<i>n</i> = 1,256)						
Desire	256.81	39.49	248.46	38.98	257.89	40.55
Resourcefulness	402.37	66.19	384.19	61.56	399.46	63.48
Initiative	327.37	56.98	314.52	54.33	325.63	57.50
Persistence	272.25	46.17	258.01	45.70	265.24	46.79
Female (<i>n</i> = 1,486)						
Desire	252.13	39.19	255.36	36.69	255.25	34.20
Resourcefulness	406.08	67.11	398.39	60.84	406.32	56.58
Initiative	325.66	60.86	321.75	53.81	330.20	47.12
Persistence	272.76	47.44	265.55	42.54	270.49	37.49
Female (<i>n</i> = 1,486)						
Desire	253.27	39.00	251.77	37.31	256.43	38.50
Resourcefulness	405.77	67.39	393.05	62.47	408.00	62.58
Initiative	327.33	59.87	318.17	55.81	331.42	53.95
Persistence	272.46	47.54	260.90	45.87	270.72	43.22
Male (<i>n</i> = 791)						
Desire	259.23	40.20	250.47	40.07	256.47	35.71
Resourcefulness	398.98	64.25	383.75	59.31	397.53	56.07
Initiative	325.13	55.02	316.23	50.48	324.23	49.64
Persistence	272.42	44.43	261.82	41.43	265.01	40.41

Note: Scores for each measure can range from a low of 0 to a high of 330 for Desire, 0 to 530 for Resourcefulness, 0 to 440 for Initiative, and 0 to 340 for Persistence.

demographically independent with initiative scores. Meyer (2001) found no relationship between the selected demographic variables and desire. Phillips, (2004) found the demographic variables to be independent with learner autonomy. Wilson (2004) found correlations of persistence with gender and marital status; resourcefulness and all of the demographic variables; and desire with marital status and educational level. Park (2003) found correlations with marital status and LAP scores. Ponton and Hall, (2003) found females displayed higher levels of autonomous learning than their male counterparts; however, females were at a lower educational level. As a result of the numerous studies using the LAP and the selected demographic variables, additional analysis is warranted in this area to determine what demographics are important variables to consider in the development of autonomous learning.

RESULTS

The LAP database is sufficiently large to examine the demographic variables with the individual factors of desire, resourcefulness, initiative, and persistence to determine which, if any, demographic variables are important aspects to consider in autonomous learning. Each inventory uses a 10 point Likert scale of values from 0 (Never) to 10 (Always) for each item. To calculate a total score for

each factor, the sum of the individual subfactors (items) is calculated. For example, the ILD consists of 33 items therefore, the lowest score one could attain conceivably could be zero, and the highest score could be 330. The ILR consists of 53 items with a score range from 0 to 530. The ILI consists of 44 items with a range from 0 to 440. The ILP consists of 34 items with a range from 0 to 340. It is possible to analyze the data by individual sub-factors for additional assessment however; that is not the intent of this analysis. The total LAP score is calculated by adding the four main factors (ILD + ILR + ILI + ILP = Total LAP). The range of the total score is 0 to 1640.

The data analysis includes the results of descriptive data processing of the demographic variables and multivariate analysis. Means with standard deviations in parentheses for pooled data (*N* = 2,277) are as follows: desire, 254.61 (38.45); resourcefulness, 400.42 (63.53); initiative, 325.02 (55.63); and persistence, 268.40 (44.90).

Table 1 displays the descriptive statistics for each variable disaggregated by educational level, marital status, and gender. The age of participants ranged from 16 to 88 (*M* = 32.98, *SD* = 11.48).

Table 2 is a correlation matrix showing all Pearson product-moment bivariate correlations for the dependent measures.

A 3 x 2 x 2 between-subjects MANOVA was conducted to determine how the four dependent measures differed

Table 2. Correlation Matrix

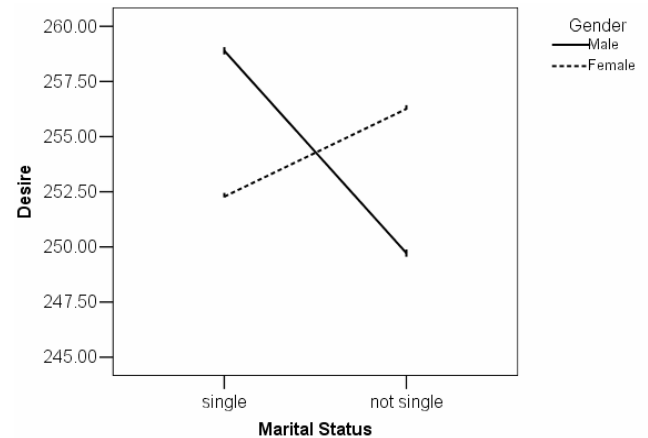
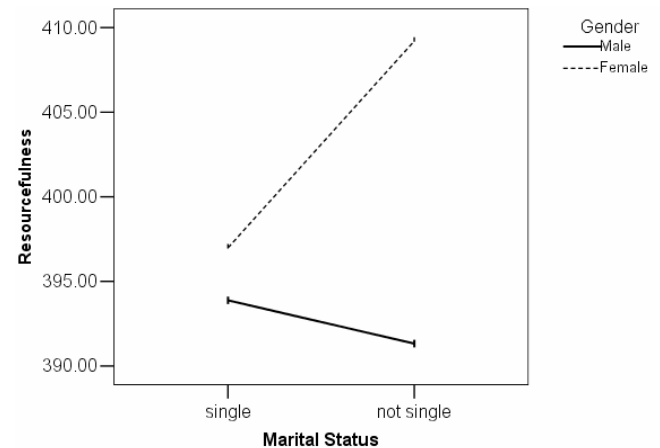
Variable	1	2	3	4
Desire	–	.62	.59	.60
Resourcefulness		–	.86	.85
Initiative			–	.88
Persistence				1

Note: $p < .01$.

by educational level, marital status, and gender. Data screening revealed the presence of an extremely low outlier consisting of a single graduate-level female, age 54. Her scores for desire, resourcefulness, initiative, and persistence were 0, 60, 50, and 10 respectively. This case was deleted from the dataset. Further evaluation of normality, linearity, singularity, and multicollinearity were satisfactory. The multivariate assumption of equality of covariance matrices was not tenable based on the results of Box's M test. Consequently, Pillai's Trace, instead of Wilks' Λ , was used to evaluate multivariate significance because it is more robust to violations of this assumption. The multivariate test showed all main effects were significant: educational level, Pillai's Trace = .023, $F(8, 4524) = 6.51$, $p < .001$, partial $\eta^2 = .011$, marital status, Pillai's Trace = .009, $F(4, 2261) = 4.99$, $p = .001$, partial $\eta^2 = .009$, and gender, Pillai's Trace = .012, $F(4, 2261) = 6.95$, $p < .001$, partial $\eta^2 = .012$. Effect sizes as measured by η^2 were very small for marital status and small for educational level and gender. Out of the four interaction effects tested, only the marital status x gender interaction was significant, Pillai's Trace = .007, $F(4, 2261) = 3.77$, $p = .005$, partial $\eta^2 = .007$. Effect size was very small. These findings are consistent with the prior research of Park, (2003) and Wilson, (2004).

Post hoc tests of between-subjects univariate effects using the F -test and the Dunnett C multiple comparison test to adjust for unequal variances showed that for the educational level main effect, all four measures were significant with very low effect sizes. For desire, the graduate group ($M = 256.80$, $SD = 36.02$) scored significantly higher than the bachelor group ($M = 251.37$, $SD = 38.15$). For resourcefulness, both the high school group ($M = 403.82$, $SD = 66.54$) and the graduate group ($M = 403.67$, $SD = 58.55$) scored significantly higher than the bachelor group ($M = 390.17$, $SD = 61.60$). For initiative, the results were the same as for resourcefulness as both the high school group ($M = 326.70$, $SD = 58.51$) and the graduate group ($M = 328.51$, $SD = 51.12$) scored significantly higher than the bachelor group ($M = 317.57$, $SD = 54.18$). Finally, for persistence, as with the preceding two measures, both the high school group ($M = 272.45$, $SD = 46.65$) and the graduate group ($M = 268.45$, $SD = 40.96$) scored significantly higher than the bachelor group ($M = 261.19$, $SD = 44.51$).

Post hoc tests for the marital status main effect revealed that all four measures failed to reach statistical

**Figure 1.** Marital status x gender interaction effect for desire.**Figure 2.** Marital status x gender interaction effect for resourcefulness.

significance. For the gender main effect, significant differences were only noted for resourcefulness and initiative. For resourcefulness, females ($M = 403.44$, $SD = 64.56$) scored higher than males ($M = 395.19$, $SD = 60.06$). Similarly, for initiative, females ($M = 326.34$, $SD = 57.08$) scored higher than males ($M = 322.89$, $SD = 51.89$). In each case the effect size was very small, $\eta^2 < .01$.

For the significant marital status x gender interaction effect, all four measures were significant, each with a very small effect size Figures 1 through 4 graphically depict the interaction effect for each of the dependent measures.

DISCUSSION

The results of the data analysis indicate significance ($p < .001$.) with regard to main effects tested (gender, educational level, and marital status). However, the effect size was small for each main effect. According to Creswell

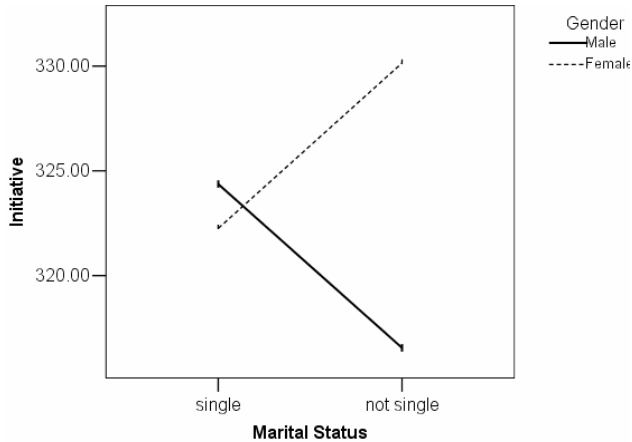


Figure 3. Marital status x gender interaction effect for initiative.

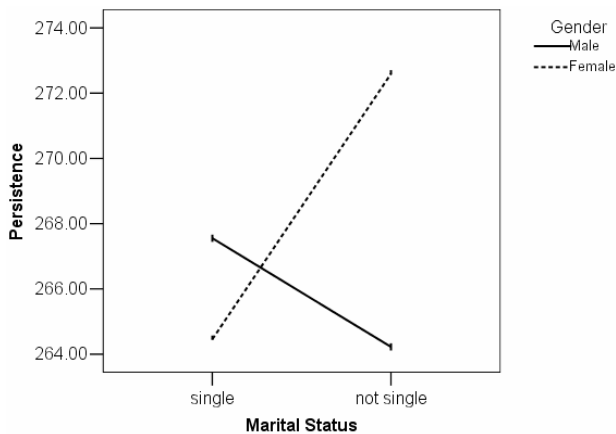


Figure 4. Marital status x gender interaction effect for persistence.

(2005) “It is important to not only know whether the statistical test was significant (though p values), but also to quantify the strength of a conclusions from a significance test”. Based on the data analysis there seems to be little evidence that the demographic variables have a significant effect on each other or with the factors of autonomous learning. The strength of the various relationships was very small to small. It appears that the demographic variables are important but not statistically significant in terms of effect size. As the Learner Autonomy Profile continues to accrue data, additional analysis should confirm more definitely the role of gender, marital status, and prior educational attainment upon autonomous learning. The exploration into online and face-to-face differences may provide assumptions that examine these differences in multiple learning contexts. Future research may explore the relationship of the demographic variables with each factor with an in-depth analysis. For example, an analysis of the factors of persistence (volition, self-regulation, and goal-directedness)

with gender, marital status, and prior educational attainment could add to the growing body of literature that examines adult learning within the context of autonomous learning. The role of culture has not been overtly examined and future research could explore how culture influences the development of autonomous learning.

Autonomous learning is defined as an agentic process in which the intentional behavior associated with desire, resourcefulness, initiative, and persistence in learning is manifest. Additionally, the construct of autonomous learning includes the aspect that the factors are co-occurring behaviors; a behavioral syndrome in which all of the manifestations are evident to some degree. While this definition provides a theoretical base that is explanatory it does not provide a sufficient clarification of how other variables such as age, gender, educational level, and marital status impact autonomous learning. The analysis of the current LAP data ($N=2277$) offers insight into the effects of gender with resourcefulness and initiative, and marital status and gender in autonomous learning. Despite the small effect size, this analysis does not explain why those differences exist. There are other mediating variables that need to be uncovered and explored with regard to gender.

Ponton et al. (2004) suggested that self-efficacy in autonomous learning was an important variable in the development of autonomous behaviors. As a result, the Appraisal of Learner Autonomy (ALA) was developed to ascertain the relationship between self-efficacy and autonomous learning. Self-efficacy has been purported to provide an important mediating role in the development of autonomous learning. That is, the relationship between motivation and the agent (i.e., the individual) is contingent upon the agent’s belief in capability for success. The central feature of agency resides within the individual in whom personal influence is exercised rather than being simply a subject of the environment (Bandura, 2001). According to Bussey and Bandura, (1999) gender conceptions and roles is the product of a broad network of social influences operating interdependently in a variety of societal subsystems. They also assert that gender development continues throughout the life course rather than just a phenomenon of early childhood. Gender and marital orientations are products of social, cognitive, affective, and motivational processes. The social and cultural dimensions of gender identity should be explored to further explain their relationship with autonomous learning. The demographic variables have not been analyzed in concert with the self-efficacy appraisal. Additional analysis should offer additional insight into how gender and marital status are related to self-efficacy beliefs and autonomous learning.

Brookfield (1995) asserts that a “strong case can be made as we examine learning across the lifespan the variables of culture, ethnicity, personality and political ethos assumes far greater significance in explaining how learning occurs and is experienced than does the varia-

ble of chronological age". As social, cultural, and technological forces continue to influence cognitive aspects of learning, differences will continue to be an area of interest along with other motivational aspects of individual development. Understanding the complex interaction of variables associated with autonomous learning will continue to provide knowledge and awareness in the development of lifelong learners.

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