

Assessing Locus of Control by Gender and Learning Styles in Pre-service Early Childhood Education Students

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This study aims to assess locus of control orientations and learning styles in pre-service early childhood teachers. To collect data, Rotter's Locus of Control Scale and Kolb's Learning Style Inventory were administered to 110 early childhood pre-service teachers. Data analysis indicated that locus of control scores were not significantly differed either by gender or class level. Diverging learning style is the most common learning style in this sample of students. As a result of the examination of the effects of gender and learning style on locus of control orientations, the main effect of gender and combined effect of gender and learning style were found as statistically meaningful. On the other hand, the main effect of learning style on locus of control orientation was not significant.

Keywords: Teacher education, early childhood, locus of control, learning style

Introduction

Early childhood is a critical period of life in which development in social, cognitive, emotional and other developmental areas are in rapid change and progress. Moreover, a very high amount of learning takes place through these early years. Therefore, young children particularly need more stimulating environments and teachers who are capable of providing them with rich formal and informal learning experiences. Teachers' personality and cognitive characteristics are considered crucial in shaping classroom interactions and applications. As an important personality dimension, locus of control is defined as an individual's general expectancy of the outcome of an event as being within the person's control versus being beyond personal control Rotter (1966). The term "learning style" on the other hand, refers to "the concept that individuals differ in regard to what mode of instruction or study is most effective for them" (Pashler et al., 2008, p. 105). Because each individual tend to prefer a different learning style, examination of these differences may be helpful for improving learning experiences in education (Kolb & Kolb, 2005). Literature research reveals several models of learning styles. Coffield et al., (2004) identified 71 models of learning styles as a result of their extensive literature review and categorized 13 of these as major models based on factors like clarity, empirical support, and prominence in the literature. Kolb's theory of experiential learning is listed among those major models which generated a great deal of research since its development in 1970s (Coffield et al., 2014; Manolis et al., 2013).

Locus of Control

The concept of *Locus of control* was introduced by Rotter (1954) and it refers to the extent to which individuals believe they can control outcomes affecting them. Locus of control is viewed as a continuum, ranging from internality to externality. Individuals with internal locus of control believe that outcomes of events are resulted from their own actions whereas those with external locus of control attribute outcomes of events to the external sources like chance, fate and others. The proposed differences between internally oriented individuals and externally oriented individuals have important implications for educational settings. Based on the definition, students or teachers with internal locus of control would take the responsibility of their actions and put more personal effort for achievement. On the other hand, students or teachers with external locus of control would exert less effort to reach out their goals because they perceive outcomes are beyond their control (Hawkes. 1991). In general, these statements were supported by the research data for more than the 30 years. For example, internal locus of control was shown to be correlated with higher levels of academic achievement (Findley & Cooper, 1983; Gifford, Briceno-Perriott and Mianzo, 2006; Sterbin & Rakow, 1996). In addition to academic achievement of students, some studies have been focused on the teachers' locus of control and its implications for their students. Research data shows that teacher locus control influences their pedagogical beliefs and practices. Kesici (2008) found that democratic teacher beliefs were found to be significantly higher in teachers with internal locus of control than those with external locus of control. A similar finding was reported by Cakir (2010) indicating that internality beliefs in preschool teachers were associated with democratic discipline orientations. Becker (1987) compared the pre-service teachers on their locus of control during teaching practicum. Her findings indicated that pre-service teachers with internal locus of control expressed more self-confidence and checked for their students' understanding of concepts more than student teachers with external locus of control.

1.1 Experiential learning theory and learning style

Experiential learning theory (ELT) describes learning as “the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience” (Kolb, 1984, p. 41). ELT encompasses two modes of grasping experience (concrete experience and abstract conceptualization) and two modes of transforming experience (reflective observation and active experimentation) (Kolb & Kolb, 2005). Due to the factors like genes, past experiences and present conditions, individuals tend to use one of those modalities (Joy & Kolb, 2009; Kolb & Kolb, 2012). To assess individual orientations toward learning, the Learning Styles Inventory (LSI) was developed by Kolb (1985). The instrument identifies the dominant learning ability out of four different learning styles: Diverging, Assimilating, Converging, and Accommodating (Kolb & Kolb, 2005; Kolb & Kolb, 2012). Kolb and Kolb (2005, 2012) explain the characteristics of the learners based on their learning styles, as summarized below.

Characteristics of the Four Learning Types

| Diverging | Assimilating | Converging | Accommodating |
|--|---|--|---|
| Dominant learning ability: Concrete experience and observation Learn better in where these are point of views Displays broad interests Tends to be emotional and imaginative and specialize in arts Prefers working in | Dominant learning ability: Abstract conceptualization and reflective observation Less interested in and more interested in ideas and concepts in information and science carriers Prefers readings, exploring analytical models | Dominant learning ability: Abstract conceptualization and active experimentation Focuses on the use of theories and Prefers to deal with technical tasks and problems rather than social issues or interpersonal issues Better in technology related carriers | Dominant learning ability: Concrete experience and active experimentation Learns from practical experience Open to new and challenging May act on feelings than on logical Better in action careers like marketing and sales Prefers to work with others |

Similar to the other constructivist views, experiential learning approach presents a learner-centered and process-oriented point of view as opposed to the much of the current educational practices where learners are passive receivers of the pre-determined and fixed ideas (Kolb & Kolb, 2012). Kolb and Kolb (2012, p.45) propose 6 characteristics of experiential learning: (1) *Learning is best conceived as a process, not in terms of outcomes.* Learning should focus on a process whereby learners are provided with feedbacks on their learning. (2) *All learning is re-learning.* To assist learning process, students' beliefs and ideas on a subject should be explored and examined for the construction of new and more refined ones. (3) *Learning requires the resolution of conflicts between dialectically opposed modes of adaptation to the world.* Conflicts and disagreements are important tools of learning through discussions and reflections. (4) *Learning is a holistic process of adaptation.* In the process of learning not only cognitive characteristic of the learners but their feelings, beliefs and other dimensions are important. (5) *Learning results from synergetic transactions between the person and the environment.* There exists a dyadic relationship between the environment and choices. The choices a person make shape the environment in which she lives, the environment one lives in influences the choices available for this person. (6) *Learning is the process of creating knowledge.* Knowledge is constructed and re-constructed individually. The ELT is recognized as a useful tool for improving teaching and learning in higher education (Kolb & Kolb, 2004) and the LSI was adapted into different languages including Chinese, Russian, Arabic and Swedish (Coffield et al., 2004). As a result, several research has been conducted to explore learning styles especially in college students. Jones, Reichard and Mokhtari (2003) examined if the learning style preferences in college students vary based on their subject area and gender. Their findings indicated no gender differences. However they reported significant differences across subject areas. Kahyaoglu (2011) found that most of the pre-service teachers majoring in science education and primary school education had divergent and accommodator learnings styles. In a study by Ekici (2013) divergent learning style was the dominant learning style whereas assimilator learning style was the least preferred learning style for both females and males in a sample of pre- service teachers.

The current study aims to explore locus of control orientations and learning styles in a group of pre-service early childhood teachers. Exploration of locus of control orientations in pre-service early childhood teachers is potentially important, because, higher levels of internality in teachers are expected to be result in more self-directed classroom practices and in more willingness to put personal effort (Hawkes, 1991). Furthermore, identification of learning styles in pre-service teachers can benefit teachers training programs through a better understanding of their stronger and weaker tendencies in learning processes.

The following research questions are addressed in this study:

1. Are there any significant differences on locus of control scores by gender and class level?
2. What are the learning preferences of early childhood pre-service teachers, based on their gender and grade level?
3. Are scores obtained from the locus of control scale differed by gender and learning style?

2. METHODOLOGY

2.1 Participants

The sample consisted of 110 Turkish pre-service teachers enrolled in an early childhood education program in a public university. Out of the participants, 91 were females and 17 were males. Only freshman and senior students were included in the study. There were 75 freshman students and 31 senior students. The participants were asked to fill out the instruments during their regular class hours.

2.2 Measurement

The participants completed the Learning Styles Inventory and Locus of Control Scale. In addition, they were asked to specify their gender and class level (freshman or senior).

2.2.1 Rotter's Locus of Control Scale (LOC)

Locus of Control scale was developed by Rotter (1966) and consists of 29 force-choiced items, with six filler items. The Cronbach's alpha coefficients of internal consistency ranged from .65 to .79. The scale adapted to Turkish by Dag (1991) and the reported Cronbach's alpha coefficient was .71. The scores obtained from the scale range from 0 to 23, with higher scores are indicative of the greater externality. For the current study, the Cronbach's alpha value was .70.

2.2.2 Kolb's Learning Style Inventory (LSI)

LSI was developed by Kolb (1985) to measure learning styles of adult learners. It consists of 12 sentences each with four options. Based on their preferences, respondents assign a number to each option, ranging from 1 to 4. After adding the numbers in each column, four raw scores are obtained. Those scores are used to determine the prevailing learning style (Concrete experience, Reflective observation, Abstract conceptualization, and Active experimentation) of the individuals. The Cronbach's alpha values for the inventory reported by Kolb were .82 for the Concrete experience, .73 for the Reflective observation, .83 for the Abstract conceptualization and .78 for the Active experimentation. LSI was adapted into Turkish by Askar and Akkoyunlu (1993). The Cronbach's alpha coefficients for the Turkish version of the inventory were ranging from .58 to .71. For the current study, the Cronbach's alpha coefficients were ranging from .58 to .67.

3. Results

Data were analyzed with SPSS version 18.0. Descriptive statistics, including means, standard deviations, and percentages, were calculated. Differences between groups were assessed using t-tests. A Factorial ANOVA analysis was performed to determine whether locus of control scores were differed by gender and learning style.

Table 1
 Descriptive Statistics of Locus of Control Scores

| | N | X | Sd | Min. | Max. |
|----------|----|-------|------|------|------|
| Female | 91 | 12.06 | 3.90 | 1 | 19 |
| Male | 17 | 10.29 | 4.72 | 2 | 18 |
| Freshman | 75 | 12.05 | .73 | 1 | 19 |
| Senior | 31 | 11.12 | .69 | 2 | 18 |

As seen in the Table 1, females (M=12.06, Sd=3.90) displayed more externality than males (M=10.29, Sd=4.72). In addition, freshman students (M=12.05, Sd=.73) had higher average Locus of Control scores than senior students (M=11.12, Sd=.69). However, t-test analyses indicated that those differences were not statistically significant for both gender ($t(180) = 1.91, p = .057$) and class level ($t(180) = .74, p = .45$).

Table 2
 Distribution of the Learning Styles

| | Diverger | | Assimilator | | Converger | | Accommodator | |
|----------|----------|-------|-------------|-------|-----------|-------|--------------|-------|
| | N | % | N | % | N | % | N | % |
| Female | 33 | 42.85 | 10 | 12.98 | 9 | 11.68 | 25 | 32.46 |
| Male | 5 | 50 | 1 | 10 | 2 | 20 | 2 | 20 |
| Freshman | 28 | 40 | 6 | 8.57 | 11 | 15.71 | 25 | 35.71 |
| Senior | 11 | 61.11 | 5 | 27.7 | 0 | 0 | 2 | 11.11 |
| Total | 38 | 43.67 | 11 | 12.64 | 11 | 12.64 | 27 | 31.03 |

Table 2 displays that the majority of the participants (43%) had “diverger” learning style. Both “assimilator” and “converger” were the least used learning styles (12.64%) among the participants. For females and males, “diverger” had the highest ratio. “Diverger” and “assimilator” style were more common in senior students than those of freshman students. In addition, assimilation was the second common learning style in senior students whereas this type is the least preferred learning style in freshman students.

A two-way ANOVA was performed to test the effects of gender and learning style on the change in Locus of control scores. A significant main effect for gender was found, $F(1,76) = 10.67, p < .002$. Post-hoc comparisons using the Tukey HSD test indicated that the mean score for the females (M=12.06, Sd=3.90) was significantly different from the males (M=10.29, Sd=4.72). The strength of this relationship, as indexed by η^2 , was .12. The combined effect of gender and learning style was also significant, $F(2,76) = 4.54, p < .014$. The strength of this relationship, as indexed by η^2 , was

.10. The main effect of learning style on overall LOC scores was non-significant, $F(3,76) = 1.50, p = .152$.

4. Discussion

Findings of this study points out that (1) female students had higher mean scores of external locus of control than their male counterparts and freshman students had higher mean scores of external locus of control than those of senior students, however, those differences were not statistically meaningful; (2) the majority of the participants had “diverging” learning style, and “diverging” style was also the most preferred style in females, males, freshman and senior students; (3) in terms of effects of gender and learning style on locus of control scores, gender and combined effect of gender and learning style had significant influence on those scores. On the other hand, learning style had not a significant effect on locus of control scores. Results of the studies exploring the relationships between gender and locus of control are not conclusive (Sherman, 1997). In some studies, higher internal locus of control in females has been reported (e.g., Cairns et al., 1990). In others, females had significantly higher levels of externality than do males (e.g., Smith, Dugan & Trampenaars, 1997). In addition, some studies are exists reporting no gender differences (e.g., Dag, 2002). Although not significant, younger participants of the current study had higher external locus of control than their older counterparts. However, a longitudinal study would provide a clearer understanding of how locus of control progress throughout teacher training program.

In terms of learning style, similar to the previous research by Ekici (2013) and Kahyaoglu (2011) “diverging” style was prevailing for the sample of this study. Based on this result, participants of this study seemed to prefer learning from concrete experiences and reflective observations. Thus, it is possible to infer that they are imaginative and good at working with others, which amongst the desirable characteristics of early childhood educators. On the other hand, they seem to be less inclined toward analytical thinking and theoretical applications. Therefore, teacher educators who are working with this type of students may be advised to use alternative instructional techniques in addition to lecturing for better acquisition of the theoretical components of the teacher training program.

The sample of this study limited to the students from one public college and only freshman and sophomore students were included in the study. Another important limitation of this study is that, because of the female prevalence in the field of early childhood education, the gender groups were not equally distributed and male students were underrepresented in the sample.

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