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Abstract. The purpose of this study was to identify the relationships among teaching presence, learning presence, self-efficacy toward e-Learning, and learning flow, which were influencing learning satisfaction of adult e-Learning learners regarding their learning effectiveness. The participants were adult e-Learning learners who had taken one or more e-Learning course(s) since age 24 and were not included undergraduate and graduate students. A total of 350 valid data were analyzed by using SEM (Structural Equation Modeling), Mplus, and bootstrapping. The results were as follows: First, all the variables considered in this study were statistically significant except the case of self-efficacy (SE) on emotional presence (EP), learning flow (LF), and learning satisfaction (LS), as well as the case of cognitive presence (CP) on LF. Second, CP, EP, and LF mediated between teaching presence (TP) and LS except the case of CP passing through LF. However, CP, EP, and LF had no mediating effect between SE and LS, except the case of CP mediating between them. Third, TP most heavily affected LS.

Keywords: Teaching Presence, Learning Presence, Self-Efficacy toward e-Learning, Learning Satisfaction, Learning Flow, Adult e-Learning Learners

1 Introduction

The knowledge of the factors that influence students learning satisfaction in their distance learning possibly provides teachers important information to design, develop, and finally distribute more effective distance learning courses [1]. From the previous research, it was revealed that the various factors such as learning motivation, self-efficacy, and learning flow, self-regulated learning, and teaching and learning presence influence learning effects such as learning satisfaction and achievement [2, 3]. Reflecting the above results, there have recently been studies on the structural relationships of the factors that influence learning effects in distance learning. However, previous studies have mainly focused on e-Learning learners who have...
taken e-Learning courses in general university settings [4], e-Learning students in cyber universities [3], or e-Learning learners in corporate settings [5].

To solve these problems, this study aims to identify the relationships among teaching presence, learning presence, self-efficacy toward e-learning, and learning flow, which were influencing learning satisfaction of adult e-learning learners regarding their learning effectiveness.

To address the goals of this study, the detailed research questions are as follows:

1. How do adult e-Learning learners’ teaching presence and self-efficacy toward e-Learning influence learning presence, learning flow, and learning satisfaction? Also, what is the degree of the influence?
2. Are the learning presence and learning flow of adult e-Learning learners mediators of the relationships among teaching presence, self-efficacy toward e-Learning, and learning satisfaction?

2 Literature Review

The results of the previous studies on cognitive presence and emotional presence of teaching presence and of learning presence revealed that teaching presence influenced learning flow, learning satisfaction as well as learning presence, and learning presence influenced learning flow and learning satisfaction [5]. For instance, Kim and Kang’s study [5] on the structural relationship among teaching presence, learning presence, and effectiveness of e-learning in the corporate setting showed that teaching presence significantly influenced learning satisfaction mediated by either cognitive presence or emotional presence.

According to previous studies on self-efficacy and the research variables in this study, self-efficacy had a positive effect on learning satisfaction [6]. For example, Park, Joo, & Bong’s study [6] of elementary and middle school students in the cyber home-learning system indicated that learners who have a high self-efficacy had a higher level of satisfaction in their cyber learning in comparison with learners who have a low self-efficacy.

According to previous studies on the relationships among learning flow and the research variables in this study, in addition, learning flow positively influenced learning satisfaction [7]. For example, Ha & Ha [7] revealed that the higher level of learning flow the students were at, the higher level of learning satisfaction they showed.

Figure 1 shows the research model of the study based on preceding studies above.
3 Methods

The participants in this study are only adult e-Learning learners who have taken one or more e-learning course(s) since age 24, not including college or university e-learning students. Online and offline survey questionnaires were used to collect data from adult e-learners for a month, from April 1-30, 2014. A total of 350 valid data were used in the analysis.

The instruments were selected to analyze the research questions by measuring five measurement variables: teaching presence, self-efficacy, learning presence (cognitive presence and emotional presence, not including social presence), learning flow, and learning satisfaction. Each survey questionnaire presented a 5-point Likert scale: Strongly Disagree (1 point)-Strongly Agree (5 points). Learning flow questionnaires were revised, however, as 5-point Likert scales in order to maintain consistency with other questionnaires. The reliabilities of the instruments used in this study were .76-.93.

Data collection from the survey questionnaire was analyzed by using SPSS 21.0. Descriptive statistics, the reliability of each variable, and the correlation among variables were analyzed. AMOS 20.0 was used in order to conduct the SEM (Structural Equation Modeling) analysis and confirmatory factor analysis. The all data analyses were performed under 5% significance level ($p<.05$).

4 Results

To measure sampling adequacy, the Kaiser-Meyer-Olkin (KMO) and Bartlett tests of sphericity were used. In general, if KMO is above .8 and $p$-value of Bartlett test is under .05, the number of variables and cases is adequate for factor analysis. The analyses results showed that KMO scores were .802-.937 and $p$-values of all the
variables were .000, meaning that the sampling adequacy of all the factors turned out

to meet these criteria.

The correlation between the measurement variables was .190~.738 and all the

variables were statistically significant less than \( p < .05 \). Mean scores were 2.87~3.73,

SD scores were .47~.80, Skewness and Kurtosis scores were .08~.31 and .01~.58

absolute value, respectively. In general, if the absolute value of measurement variables

is less than 2 in the case of Skewness and less than 7 in the case of Kurtosis, the

estimate of the statistical results is unlikely to be affected [8]. Therefore, the collected
data meet the assumption of normality to test SEM (Structural Equation Modeling).

TLI was .921, CFI was .936, and RMSEA was .079 in the case of the measurement

model. At the structural model, TLI was .901, CFI was .916, and RMSEA was .080,

meaning that these statistical results highly meet the acceptance criteria of the

adequacy of both research models in this study.

The main findings were as follows:

First, neither the effect of self-efficacy (SE) on emotional presence (EP) \( (\beta = -.05, \quad p = .298) \),

learning flow (LF) \( (\beta = .05, \quad p = .212) \), and learning satisfaction (LS) \( (\beta = .20, \quad p = .630) \),

nor cognitive presence (CP) on LF \( (\beta = .02, \quad p = .705) \) were statistically

significant. However, this study revealed statistical significance among all other

variables.

Second, CP, EP, and LF mediated the relationship between teaching presence (TP)

and LS. In the case of between TP and LS, CP, EP, and LF mediated between TP and

LS except the case of CP passing through LF. However, none of CP, EP, and LF

mediated between SE and LS except the case of CP mediating relations between SE

and LS (See Table 1).

<table>
<thead>
<tr>
<th>Path between the variables</th>
<th>Est./S.E.</th>
<th>( p )</th>
<th>Acceptance</th>
</tr>
</thead>
<tbody>
<tr>
<td>TP → CP → LS</td>
<td>3.28</td>
<td>.001**</td>
<td>O</td>
</tr>
<tr>
<td>TP → EP → LS</td>
<td>-3.36</td>
<td>.001**</td>
<td>O</td>
</tr>
<tr>
<td>TP → LF → LS</td>
<td>3.53</td>
<td>.000***</td>
<td>O</td>
</tr>
<tr>
<td>TP → EP → LF → LS</td>
<td>3.30</td>
<td>.001**</td>
<td>O</td>
</tr>
<tr>
<td>SE → CP → LS</td>
<td>2.47</td>
<td>.013</td>
<td>O</td>
</tr>
<tr>
<td>SE → EP → LS</td>
<td>.55</td>
<td>.581</td>
<td>X</td>
</tr>
<tr>
<td>SE → LF → LS</td>
<td>.60</td>
<td>.548</td>
<td>X</td>
</tr>
<tr>
<td>SE → EP → LF → LS</td>
<td>.74</td>
<td>.459</td>
<td>X</td>
</tr>
<tr>
<td>SE → EP → LF → LS</td>
<td>-.56</td>
<td>.574</td>
<td>X</td>
</tr>
</tbody>
</table>


\* \( p < .05 \), \** \( p < .01 \), \*** \( p < .001 \)

Third, TP had the greatest effect on LS \( (\beta = .740) \), followed by LF \( (\beta = .699) \) and CP

\( (\beta = .245) \). The negative effect of SE on EP.
References