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Modelling the Relationship between English Language Learners' Academic Hardiness and Their Online Learning Engagement during the COVID-19 Pandemic

Lin LUAN[ab*], Yanqing YI[a] & Jinjin LIU[a]
[a]*School of Humanities, Beijing University of Posts and Telecommunications, China*
[b]*School of Educational Technology, Beijing Normal University, China*
*luanlin@bupt.edu.cn

Abstract: This study presents a structural relationship model that integrates English language learners' academic hardiness with their online learning engagement. Two questionnaires, Academic Hardiness (OH) and Online English Learning Engagement (OLLE), were developed and administered to 453 Chinese university students. The results indicated that AH is composed of four factors, namely commitment, control-effort, control-affect and challenge. Meanwhile, OLLE consists of four factors: behavioral engagement, cognitive engagement, emotional engagement and social engagement. The path analysis revealed that academic hardiness played a positive role in the different aspects of their online learning engagement. Surprisingly none of the sub-dimensions of academic hardiness could predict emotional engagement. Related pedagogical implications are also discussed.

Keywords: Academic hardiness; online learning engagement; EFL learner; COVID-19; structural equation modelling (SEM)

1. Introduction

The outbreak of COVID-19 pandemic has created profound impact on language education, which has traditionally relied on face-to-face instruction (Zhang et al., 2021). During the COVID-19 pandemic lockdown, the Chinese government has issued a policy known as *Suspending Classes without Stopping Learning* in order to ensure that teaching and learning will continue without disruptions. Despite the great affordance provided by the online courses, some problems and challenges were also triggered the emergency conversion to online language teaching, such as distraction from learning tasks, and superficial interactions (Li, 2021). Therefore, it is vital to optimize online EFL learning during this pandemic lockdown (Luan et al., 2020).

2. Literature Review

2.1 Academic Hardiness

According to Evangelia and Spiridon (2016), hardiness is a positive mentality that combines control of affect, control of effort, commitment, and challenge. Specifically, control of affect represents learners' ability to regulate their emotions when encountered with success, stress, and even academic challenges. Control of effort refers to learners' ability to recognize and activate their behavior to work hard and overcome their academic difficulties. Commitment is indicative of students' willingness to put forth sustained effort and make sacrifices to excel academically. Challenge is defined as students' intent to seek out difficult course work and to view these challenges as experiences that will ultimately contribute to their personal growth of academic performance and achievement (Kevin et al., 2019). In

the EFL setting, academic hardiness plays an important role for outstanding performance and commitment to goals (Lee, 2020).

2.2 Online English Learning Engagement

In the context of online learning, student engagement refers to the time and energy paid by the students in the process of online learning (Ma et al., 2015). Philp and Duchesne (2016) delineated English learning engagement as multidimensional constructs that influenced by emotion, behavior, cognition of individuals and social factors. Behavioral engagement exhibits their specific learning behavior in the autonomous learning, such as whether they read course resources, answer questions, and complete assignments on time. Emotional engagement refers to their experience towards the learning process and outcome, which covers positive feelings (such as passion, happiness, and enthusiasm) and negative feelings (such as anxiety, burnout and boredom) together. Cognitive engagement includes students' use of learning and self-regulated strategies. In the current research, the four-component model proposed by Philp and Duchesne (2016) is adopted to represent online English learning engagement, consisting of cognitive engagement, behavioral engagement, emotional engagement, and social engagement.

2.3 Academic Hardiness and Online Learning Engagement

Strong associations have been found between academic hardiness and learning engagement. For example, Hodge, Wright and Bonnette (2018) revealed that there is a positive relationship between hardiness and engagement. Besides, Katherine et al. (2017) also indicated that academic hardiness is positively associated with behavioral engagement among college school students. Despite a substantial body of research on L2 learners' hardiness and their learning engagement, their specific structural relations still remain inconclusive, particularly considering these two constructs in an online learning environment. Therefore, this study aims to investigate the intricate interplay between online L2 learners' academic hardiness and learning engagement.

2.4 Research Questions and Hypotheses

This study aims to explore the following two research questions:

1) What are the factorial structure of English language learners' academic hardiness and their online learning engagement?

2) What are the structural relations among the factors of English language learners' academic hardiness and online learning engagement?

According to Katherine et al. (2017), hardiness is an intrinsic psychological quality, whereas engagement belongs to the external behavioral types in the autonomous learning, thus academic hardiness and self-management were the prerequisites for the active social interaction, positive emotion, and the development of individual's skills. Based on this finding, this research regarded academic hardiness as the explanatory variable, while online learning engagement is taken as the criterion. First of all, it is assumed that commitment and control of effort may positively predict their online learning engagement. Then it is proposed that control of affect can also positively predict online learning engagement. On the contrary, it is hypothesized that challenge may negatively explain learners' disengaging in the learning process. As shown in Fig.1, the hypothesized relations among the factors of AH and OLE are presented with the dark and dotted lines indicating the positive and negative relations.

3. Methodology

3.1 Research Context

The present study was conducted in an English course at the first author's university during the semester of the academic year of 2020-2021. During the pandemic lockdown, teachers were directed to deliver online teaching through course delivery tools (e.g. Tencent Classroom), video conferencing platforms

(e.g. Tencent Meeting or Zoom) and other social media (e.g. WeChat). A random sample of 453 (74.4% were males) students were involved, ranged from 18 to 23 years' old.

3.2 Instruments

To meet the purposes of this study, we used two instruments: academic hardiness (AH) and online learning engagement (OLE). All the questionnaire items were presented in students' native language, Chinese, on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Each dimension consists of three to five items.

The AH survey was based on the instrument developed by Benishek et al. (2005). The survey included four dimensions: commitment (e.g. *I would cut back on my extracurricular activities in order to improve my grades*); control of effort (e.g. *I get help when I am not getting the grades I want in school*); control of affect (e.g. *When I do poorly on a test I can stay calm so that I can learn from my mistakes*); challenge (e.g. *I prefer not to take classes that I know are an "easy A"*). To measure students' online English learning engagement, 16 items were from the revised learning engagement scale developed by Luan et al. (2020). Four factors were included: cognitive engagement (e.g. *I try to connect when I am learning online to things I have learned before*); behavioral engagement (e.g. *I complete my online homework on time*); emotional engagement (e.g. *I enjoy learning new things online*); social engagement (e.g. *I try to work with those who can help me online*).

3.3 Research Procedure

First, this study conceptualized the two main research constructs with clearly-defined factors based on the precious research frameworks, and then proposed a hypothesized structural model concerning the relationship among all factors. Then, a structural equation modeling approach has been adopted to test the hypothetical model through confirmatory factor analysis (CFA) and path analysis. Finally, the complex inter-relations among all the factors of the two constructs were investigated. The SPSS 22.0 and AMOS 22.0 were employed to conduct the validity and reliability tests of the two instruments.

4. Results

4.1 CFA Analysis of the Academic Hardiness Survey and Online English Learning Engagement Survey

In order to verify the construct of the academic hardiness (AH) survey, confirmatory factors analysis was conducted. The results showed that all factor loadings were higher than the cut-off value of 0.50. All Average Variance Extracted values (AVE) had exceeded 0.60. The Composite Reliability values (CR) ranged from 0.86 to 0.92. Moreover, all alpha values were above 0.7 and the overall Cronbach's value was 0.92. Therefore, the reliability of the questionnaire was established. In addition, its fit statistics were as follows: χ^2/df =1.75, RMR=0.49, GFI=0.91, NFI=0.92, IFI=0.97, CFI=0.97, based on the Chi-square criterion and the fitting statistics of structural equation model, this survey had good structural validity.

Similar research method was applied to the measurement of online English learning engagement (OELE) survey. The results showed that all Average Variance Extracted values (AVE) of components of OELE had exceeded 0.60, the Composite Reliability values (CR) ranged from 0.86 to 0.90, all alpha values were above 0.7 and the overall Cronbach's value was 0.91. Moreover, χ2/df =1.55, RMSEA=0.50, GFI=0.91, NFI=0.93, IFI=0.98, CFI=0.98. Statistics all indicated that OELE survey had a good reliability and structural validity.

4.2 Descriptive Analysis and Correlation Analysis of Academic Hardiness and Online English Learning Engagement

According to the descriptive analysis, the square roots of the Average Variance Extracted values (AVE) for all constructs were greater than the correlations between constructs, thus academic hardiness showed great discriminant validity. Results also suggested that there is a significant positive correlation among hardiness and online English learning engagement. The higher the hardiness, the deeper online English learning engagement will be.

4.3 Path Analysis

The path analysis was conducted to explore the relationship between learners' academic hardiness and their online English learning engagement. The final structure model is displayed in Fig. 1.

First of all, the results of the path model testing revealed a good model fit with acceptable fitting indices ($\chi 2/df=1.81$; CFI=0.90; TLI=0.89 IFI=0.90; RMSEA=0.06). Then a summary of the standardized path coefficients was analyzed, and the associated significance was indicated by asterisks in the figure. As shown in Fig.1, the factor "control-effort" is the most positive factor which significantly predicates three factors of online English learning engagement, with path coefficients ranging from 0.17 to 0.27, all the estimates were statistically significant at $p<0.001$. Learners' challenge can also positively explain the variations in behavioral engagement ($\beta=0.15$, $p<0.001$) and social engagement ($\beta=0.23$, $p<0.001$). Meanwhile, the factor "commitment" has the positive relationships with cognitive engagement and social engagement. Control-affect is a significant factor for behavioral engagement. Surprisingly, academic hardiness failed to predict learners' emotional engagement, since none of the path coefficients is statistically significant.

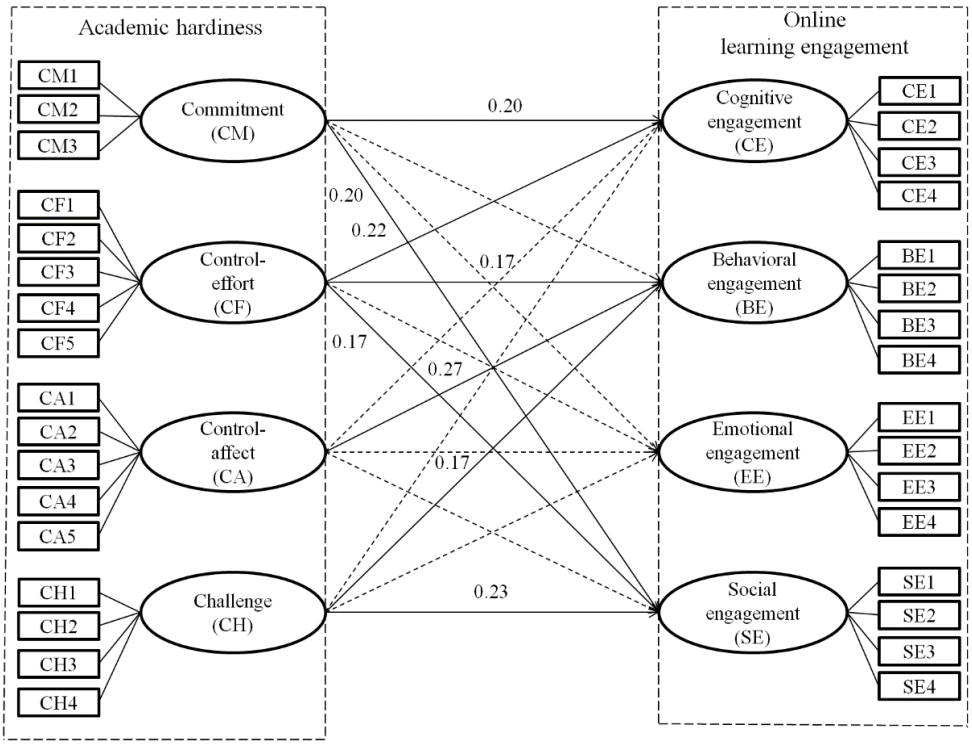

Figure 1. The Final Model of the Structural Relations between the AH and OLE.

5. Discussion and Conclusion

In this study, a proposed model of learners' academic hardiness and learning engagement in English courses was explored in the context of technology-enhanced environment. This research supported the

findings of Hodge et al. (2018) in terms of the positive effects of academic hardiness to engagement and academic outcomes for university students.

First, the results suggested that commitment and control-effort may serve as facilitators to students' cognitive engagement. Students may less likely to use deep learning strategies and cope with difficulties if they do not stay focused. Surprisingly, none of the factors of academic hardiness failed to predict learners' emotional engagement. It is also assumed that emotional engagement is more complicated and could be influenced by other factors, such as the learners' technology acceptance and the design of online courses. Second, the results indicated that control-effort, control-affect, and challenge are positive indicators of online behavioral engagement. These results suggest that the more confidence students felt in the learning process, the more sustained effort they put, the more intent to overcoming obstacles, and the more positive attribution they oriented, the more often they would actively engage in the online learning. Third, commitment, control-effort and challenge are significant contributors to online social engagement. Students, who can do correct attributions, strive to overcome temptations and uncertainties in the learning process could maintain their concentration and enthusiasm conditions. Then positive emotions and enough real involvement of students increased the likelihood to interacting with peers and teachers with appropriate approaches.

This study has several limitations that need to be acknowledged. First, the participants of this study were college students majored in science and technology. Future studies should examine the extent to which the current findings would adapt to participants of other demographic characteristics. Second, as all data were collected from participants' self-reported survey, one reasonable step would be to employ multiple methods, such as learning analytics methods using data retrieved from the learning management system (Luan et al., 2020).

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