

# THE EFFECTS OF SELF-DETERMINATION ON LEARNING OUTCOMES IN A BLENDED LEARNING

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## ABSTRACT

The purpose of the paper is to examine whether the sub-constructs of self-determination, that is, learners' perceived level of autonomy, competence, and relatedness, predict learning flow, persistence, and achievement in a blended learning context. Participants are 102 adult learners who voluntarily registered for a Chinese language learning seminar, which consisted of weekly offline meetings and supplementary online activities for 24 weeks. A series of regression analysis revealed that autonomy, competence, and relatedness significantly predicted learning flow, which significantly predicted persistence. Also, competence and relatedness, and learning flow predicted achievement.

## KEYWORDS

Self-determination; learning flow; persistence; blended learning

## 1. INTRODUCTION

Adult learners initiate and maintain behaviors to the extent that they believe the behaviors will result in desired outcomes. Self-determination theory, according to Deci and Ryan (1980, 2000), is related to this human motivation, concerned with supporting intrinsic tendencies to behave in effective way. Self-determination addresses three psychological needs: autonomy, competence, and relatedness. Autonomy is a tendency toward self-organization and self-regulation. Without autonomy, learners may experience failure since they hardly recognize what they want or should do. Competence is a psychological construct seeking to control the outcome and experience mastery. It is important because it is necessary for the enjoyment of the activity. While autonomy and competence are essential for intrinsic motivation and interest, relatedness adds another value to the perspective of motivation. Relatedness means a desire to interact and be connected to others. All these sub-constructs of self-determination are influential to learning process as well as outcome, according to previous studies (e.g. Deci & Vansteenkiste, 2004; Ryan, Kuhl, Deci, 1997). Especially when online learning component is added on, learners are given more flexibility in organizing learning path, scope and interaction, which might increase the importance of self-determination.

Based on the literature review, this study selected learning flow, persistence, and perceived level of achievement as outcome variables, since flow and persistence are theoretically relevant to self-determination. Learning flow has been reported as a construct that predicts the effectiveness of learning. According to Csikszentmihalyi (1996), learning flow is the optimal experience of a mental concentration. When a task is demanding enough to be interesting, but not too difficult to cause frustration, it offers the possibility for a positive experience of being fully engaged in an activity. Persistence is intent-to-persist, and has been considered a noteworthy variable for evaluation of success in learning (Martinez, 2003). Prior studies reported that autonomy and relatedness affects flow (Evelein, Korthagen, & Brekelmans, 2008; Fu, Su, & Yu, 2009), while the relationship between competence and flow has not been consistent (Zhao et al., 2011). Also, self-determination consistently affected persistence and achievement.

However, most of the previous studies were conducted in K-12 or formal education settings. Hence, the researchers aimed to investigate the effects of self-determination on flow, persistence, and achievement of adult learners who voluntarily participate in and self-regulate their learning process and outcome in a blended learning environment. Research questions are as follows: (RQ 1) Does perceived level of self-determination (autonomy, competence, and relatedness) predict learning flow? (RQ 2) Does perceived level of

self-determination (autonomy, competence, and relatedness) and learning flow predict learner persistence? (RQ 3) Does perceived level of self-determination (autonomy, competence, and relatedness) and learning flow predict learners' perceived level of achievement?

## 2. METHODOLOGY

Participants are 102 adult learners who voluntarily registered for a 24 week-long Chinese language learning seminar, consisting of weekly offline meetings and supplementary online activities. The topic of the seminar is Chinese grammar, vocabulary, and speaking, while the online community provided resources, q & a, and discussions among learners. Initially there were 106 learners, but 4 of them provided incomplete responses.

All of the research variables were measured by survey questionnaires. A Work-related Basic Need Satisfaction Scale developed by Broeck, Vansteenkiste, Witte, Soenens and Lens (2010) was used to measure the self-determination variables. The instrument had 7, 6, and 10 items for each sub-category, and the Cronbach's  $\alpha$  from the study data were .65, .70, and .88, respectively. The Short Flow State Scale developed by Martin and Jackson (2008) was used, and the scale had 9 items. Cronbach's  $\alpha$  from the study data was .77. For learning persistence, 6 item instrument developed by Shin (2003) was used, with the Cronbach's  $\alpha$  of .87. Lastly, perceived level of achievement was measured using the instrument by Korean National Institute for Lifelong Learning (2010). 13 items were used and Cronbach's  $\alpha$  from the study data was .93. The survey questionnaires were reviewed and validated by academic and field experts.

A series of multiple regressions was used for the analysis.

## 3. RESULTS

Descriptive analysis indicated there were significant correlations among all the variables at the significance level of .05, and the correlation coefficients ranged from .23 to .71. Also, the assumptions of normal distribution and multicollinearity were met. Table 1 presents the regression analysis results.

Table 1. Multiple regression analysis results

Criterion variables	Predicting variables	Unstandardized		Standardized	<i>t</i>	<i>p</i>	VIF
		<i>B</i>	Std. Error	$\beta$			
Learning Flow (RQ1)	Autonomy	.25	.08	.23	2.98*	.00	1.31
	Competence	.36	.06	.49	6.24*	.00	1.35
	Relatedness	.14	.06	.19	2.37*	.02	1.34
	(Constant)	1.03	.28		3.64	.00	
R <sup>2</sup> (adj. R <sup>2</sup> )=.55(.53), F=39.12, p=.00							
Persistence (RQ2)	Autonomy	.22	.12	.18	1.85	.07	1.43
	Competence	.03	.09	.03	.26	.79	1.89
	Relatedness	-.06	.08	-.07	-.73	.47	1.42
	Learning flow	.63	.14	.54	4.57*	.00	2.20
(Constant)	1.17	.41		2.87	.01		
R <sup>2</sup> (adj. R <sup>2</sup> )=.40(.37), F=15.82, p=.00							
Achievement (RQ3)	Autonomy	.05	.09	.04	.54	.59	1.43
	Competence	.19	.08	.21	2.50*	.01	1.89
	Relatedness	.27	.07	.31	4.14*	.00	1.42
	Learning flow	.47	.11	.40	4.31*	.00	2.20
(Constant)	.17	.33		.51	.61		
R <sup>2</sup> (adj. R <sup>2</sup> )=.63(.61), F=40.38, p=.00							

\*  $p < .05$

As illustrated above, regression analysis results indicated that autonomy, competence, and relatedness significantly predicted learning flow with  $R^2$  of .55, regarding the research question 1. On the other hand, only the learning flow was a significant predictor for persistence with  $R^2$  of .40. Lastly, competence relatedness, and learning flow predicted the perceived level of achievement with  $R^2$  of .63.

#### 4. CONCLUSION

The researchers aimed to apply self-determination theory to adult learners who participated in a language learning seminar program delivered in a blended learning mode. Especially, competence and relatedness predicted both flow and perceived level of achievement. However, all of the self-determination variables failed to directly predict persistence, partly because of the research context, that is, the characteristics of seminar program and participants. During the poster presentation, detailed descriptions on the research context and blended learning intervention will be provided in order to draw meaningful interpretation and implications from the results. Suggestions for further study will also be discussed.

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