

Self-efficacy: A key predictor of self-regulated learning

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Introduction

It has recently been documented in the second language (L2) acquisition literature (e.g., Onoda, 2013) that the use of self-regulation strategies, which facilitates effective autonomous learning, plays an important role in improving L2 skills. However, predictors of effective self-regulation strategy use are not clearly understood as research findings are somewhat limited in the L2 literature. Suggestions for potential predictors come from the educational psychology literature, which shows that the effective use of self-regulation strategies, which is known to lead to academic success, is attributed to self-efficacy and intrinsic motivation (Bandura, 1986; Deci & Ryan, 2000). A review of studies of self-regulation conducted in a number of academic fields (Pintrich, 2004) reveals that self-efficacy can be one of the predictors of self-regulated learning and suggests that this may also hold true for L2 learning. However, the effects of self-efficacy on self-regulation strategy use have not been conclusively demonstrated. Thus, it is pedagogically important to explore such relationships in L2 learning.

Literature review

Self-regulation in learning

Self-regulated learning is a concept originally developed in educational psychology, which sees it as very similar to autonomous learning or metacognition. This literature describes

learning endeavors in which learners “plan, organize, self-instruct, self-monitor, and self-evaluate” their learning (Zimmerman, 1989, p. 4). This sociocognitive view is explicated by Pintrich (2000), who defines self-regulation as “an active, constructive process whereby learners set goals for their learning and attempt to monitor, regulate, and control their cognition, motivation, and behavior, guided and constructed by their goals and contextual features in the environment” (p. 453). From this perspective, the key concept underpinning self-regulation is how effectively cognition, motivation, and behavior are regulated by the learners until they achieve academic success. In brief, self-regulation in learning consists of the entire learning management initiated, implemented, and completed by the learner, ending with academic achievement (e.g., Pintrich, Smith, García, & McKeachie, 1991).

Although the L2 literature has shown the importance of self-regulation over the past decade (e.g., Tseng, Dörnyei, & Schmitt, 2006), the factors promoting self-regulated L2 learning are not yet clearly understood.

Self-efficacy

The concept of self-efficacy was first introduced and defined by Bandura (1997) as the “beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments” (p. 3). In other words, it denotes one’s judgment or assessment of one’s ability to complete a given task in a specific domain successfully. Bandura postulates that self-efficacious learners are expected to perform a task successfully because they are willing to invest more effort in pursuit of their goals and regulate their determination when facing difficulties, with the reverse being true of low-efficacy learners. This suggests that self-efficacy is a potential predictor of academic achievement. This postulation has been empirically supported by a number of studies. For example, Multon, Brown, and Lent (1991) performed a meta-analysis of research conducted between 1977

and 1988 and reported that learners' beliefs about their own self-efficacy are positively correlated with their academic performance ($r = .38$) and account for nearly 14% of its variance. In a similar vein, Rothman, Baldwin, and Hertel's (2004) study revealed that beliefs about self-efficacy are a crucial factor in determining whether learners initiate and then maintain their learning. They argued that such beliefs enable learners to self-regulate their learning because they help them sustain effort and persevere when faced with difficulties. Thus, it is assumed that self-efficacy has a profound effect on academic learning and in particular on the behaviors learners exhibit in that pursuit.

Self-regulation and self-efficacy

The educational psychology literature indicates that both self-regulation strategy use and self-efficacy are important predictors of academic achievement (Pintrich, Smith, García, & McKeachie, 1991). Of equal importance is the well-documented fact that self-efficacy has a profound impact on self-regulation strategy use. For example, Zimmerman and Martínez-Pons' (1990) study compared the learning behaviors of learners with high degrees of self-efficacy with those of learners with low degrees of self-efficacy and revealed a tendency for the former to be more persistently and deeply engaged in the task at hand, use more cognitive and metacognitive strategies, and demonstrate successful learning outcomes.

Among the few studies that address the factors that promote self-regulated L2 learning, which in turn yields L2 learning achievement, is Onoda's (2013) study, which, using structural equation modeling, demonstrated that self-efficacy predicts self-regulation strategy use, which in turn influences vocabulary skills. Similarly, Wong's (2005) study indicated that learners with a high degrees of self-efficacy employ more effective language learning strategies in the process of task completion than do those with a low degree of self-efficacy. Finally, Wang's (2007) case study of Chinese children studying English also

showed that beliefs about self-efficacy have a profound impact on language learning. Thus, self-efficacy is a strong potential predictor of L2 learning.

Research Question

This study investigates the following research question:
Does self-efficacy predict self-regulation strategy use in L2 learning? If so, to what extent?

Hypothesis

Self-efficacy predicts self-regulation use.

Hypothesized model

In accordance with the above hypothesis, the following model was hypothesized and tested:



Figure 1: Hypothesized model showing the relationship between self-efficacy and self-regulation strategy use

Note: SE: self-efficacy; SRS: self-regulation strategy use

Method

To gain a better understanding of the relationship between self-efficacy and self-regulation strategy use, the study employed a quantitative approach, and the results were analyzed

and interpreted statistically using Rasch measurements and structural equation modeling, which allows researchers to analyze causal relationships between the variables to be tested (Schumacker & Lomax, 2004), in order to examine how well the data fit the hypothesized model.

The participants were 122 second-year English majors (37 males and 85 females) enrolled in six English classes at a private Japanese university in 2014. Their overall English proficiency was measured using TOEFL scores (range: 375 to 545; mean and SD: 465 and 37.5, respectively). Thus, the participants' English proficiency was considered intermediate.

Questionnaire items for self-regulation strategy use and self-efficacy

The questionnaire items were designed to measure self-regulation strategy use and beliefs about self-efficacy based on the educational psychology literature (Pintrich, Smith, García, & McKeachie, 1993) and revised to fit the L2 learning context by the principal researcher and his colleagues, who major in applied linguistics. Following Pintrich's (2000) definition of self-regulation and Bandura's (1986) concept of self-efficacy for learning, metacognitive self-regulation strategy and self-efficacy items were selected. Next, the revised questionnaire items were piloted with a group of 20 English majors who were comparable to the participants in the study proper in terms of English proficiency. The results were analyzed using Rasch measurements for unidimensionality and reliability. Finally, four self-regulation strategy use items and four self-efficacy items with high Rasch reliability estimates (.81 and .85, respectively) were created. An example of a self-regulation strategy use item is: "SRS 1: I usually study the material and then attend the class with the learning goals in mind," while an example of a self-efficacy item is: "SE 1: I am confident that I can learn English effectively in this class." (See all items in Appendices A and B).

Procedure

The self-regulation strategy use and self-efficacy questionnaires were administered to the 122 participants in July 2015. Given that the questionnaire data did not violate the assumptions required for statistical analysis, structural equation modeling was employed using AMOS 7.0J (Arbuckle, 2006) in order to test for causal relationships between the target variables, i.e., self-regulation strategy use and self-efficacy. Results are given in detail below.

Results

The investigation explored the relationship between self-regulation strategy use and self-efficacy. Statistical analyses using structural equation modeling yielded the following results:

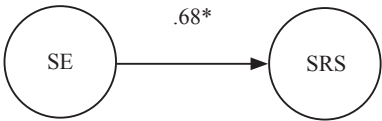


Figure 2. Hypothesized model indicating the relationship between self-regulation strategy use and self-efficacy

Note: SE: self-efficacy; SRS: self-regulation strategy use; * $p < .005$ (2 tailed)

In the hypothesized model, self-efficacy was hypothesized to have an effect on self-regulation strategy use. The results show that self-efficacy was highly correlated with self-regulation strategy use ($r = .701, p < .001$), with the correlation coefficient supporting the hypothesized relationship. The results from the structural equation modeling indicate

that self-efficacy significantly predicted self-regulation strategy use ($\beta = .68, p < .001$). However, it is necessary to examine whether there is a good fit between the hypothesized model and the observed data. The fit indices show that the hypothesized model satisfied the criteria for acceptable model fit ($\chi^2 = 8.31, p = .00$, CFI = .78, RMSEA = .055, SRMR = .057). This judgment was based on the suggestion of Hu and Bentler (1999), whereby both cutoff values approaching .05 for RMSEA and .06 for SRMR should be considered to indicate that the fit is within the acceptable range. Therefore, the model was judged acceptable, and the results can be interpreted as showing that self-efficacy predicts self-regulation strategy use in L2 learning.

Discussion

These results are congruent with what is documented in the educational psychology literature (e.g., Paulsen & Gentry, 1995). In other words, highly self-efficacious learners are likely to use self-regulation strategies in order to achieve their learning goals.

The results can be explained by Social Cognitive Theory, as advocated by Bandura (1986), according to which humans are equipped with a self-management mechanism fueled by self-efficacy that leads them to proactively control their cognition, motivation, and behavior. This type of control helps them regulate and evaluate their behavior in response to their environment. Thus, Social Cognitive Theory postulates that good self-regulators, usually consisting of individuals with a high degree of self-efficacy, can effectively control and regulate their cognition, motivation, and behavior until their goal is achieved. Self-efficacy can thus promote learners' cognitive engagement by facilitating more cognitive and metacognitive strategy use, which in turn leads to greater academic achievement.

Moreover, key strategies designed to improve self-efficacy (Bandura, 1986) may explain

the relationship between self-efficacy and self-regulation strategy use. These are repeated successful experiences, a reduction in anxiety, and observing one's peers as they overcome difficulties and achieve their goals. It follows that learners will tend to choose tasks and actions they believe will lead to successful learning. This could mean that learners with a high degree of self-efficacy will already be familiar with the kinds of effective self-regulation strategies that will enable them to achieve their goals.

Conclusion

This study investigated a hypothesized model of the relationship between self-efficacy and self-regulation strategy use in L2 learning. The results, which are congruent with what educational psychology literature indicates, show that self-efficacy predicts self-regulation strategy use. However, the study and its findings have limitations in that the participants were motivated intermediate-level English majors and metacognitive self-regulation strategies were used for the study. Thus, for the findings to be generalizable, it will be necessary to conduct replication studies involving participants with different levels of proficiency and motivation as well as different ages. Of equal importance and highly pedagogically worthwhile would be an attempt to examine the relationship between self-efficacy and different types of self-regulation strategies from those used in this study, such as effort regulation strategies. If similar results are obtained, this will lend robust support to the findings of this study regarding the relationship between self-efficacy and self-regulation strategy use.

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Appendix A

Self-Regulation Strategy Items

SRS 1: I usually study the material and then attend the class with the learning goals in mind.

SRS 2: I concentrate in class so that I understand the main points.

SRS 3: I review what I have studied in this class and try to remember it.

SRS 4: I discuss what I did not understand during class with my classmates.

Appendix B

Self-Efficacy Items

SE 1: I am confident that I can learn English effectively in this class.

SE 2: I am confident that I can do well in the tests given in this class.

SE 3: I am confident that I can understand most of the important words the teacher uses in this class.

SE 4: Considering the difficulty level of this class, the teacher, and my English ability, I think I can do better than other students.