

The Relation of Language Learning Strategy use with Self-efficacy, Motivation, and English Language Achievement

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Abstract

Greater emphasis has been placed on learners and the procedure through which L2 learning happens. Hence, this study aims to investigate the effect of English learning strategy use on intermediate students' English achievement. However, in this research strategy use is considered in relation to motivation and self-efficacy, to which less attention has been paid. An adapted version of Gardner's (2001) model was used. 240 EFL students studying at the Iran Language Institute were administered different questionnaires to collect data. Findings of the study using Structural Equation Modeling revealed that the use of strategies directly affected English achievement. However, when strategy use was influenced by self-efficacy and motivation, it had a stronger effect on English achievement. Specifically, strategy use was more dependent on self-efficacy than motivation. Therefore, to enhance the English language achievement of Iranian EFL students, self-efficacy and motivation on which learners' strategy use depends must be given due attention.

Keywords: Learning strategy use, self-efficacy, motivation, English language achievement

1. Introduction

Language learning strategies are "specific actions taken by the learner to make learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations" (Oxford 1990, p. 8). Of the many classifications put forward for language learning strategies (e.g., O'Malley & Chamot 1990, Oxford 1990, Rubin 1981), Oxford's (1990) is considered the most widely used and comprehensive classification of language learning strategies (Chamot 2004). Oxford (1990) classifies language learning strategies into two major groups: direct and indirect strategies. Direct strategies need mental processing of language while indirect strategies "do not directly involve the subject matter itself, but are essential to language learning nonetheless" (Oxford 1990, p. 71). Direct strategies include cognitive, memory, and compensation strategies while indirect strategies encompass metacognitive, social, and affective strategies.

As stated by Oxford and Nyikos (1989), the significance of learning strategies in L2 learning has been emphasized for several reasons. First, there is a strong relationship between learning strategies and successful language achievement. Second, learners who utilize learning strategies become responsible for their own learning through "enhancing learner autonomy, independence, and self-direction" (p. 291). Third, compared with most other learning factors which are not are teachable, learning strategies can be taught.

Early studies on language learning strategies such as those by Rubin (1975), mainly involved the exploration of the strategies utilized by good language learners (Grenfell & Macaro, 2008). However, more recent investigations have tried to examine how such strategies are affected by or associated with other individual factors such as motivation, attitudes, and self-efficacy. Since Iranian EFL learners have shown "poor level of English achievement for the past several years" (Khodadad & Kaur, 2016, p. 111) and Given that L2 learning performance is said to be mediated through the utilization of learning strategies, this study aims to investigate the effect of language learning strategy use on students' English

achievement in an Iranian EFL context where as stated by Domakani, Roohani, and Akbari (2012), more investigations are needed. Although, some studies have examined language learning strategy use in Iran (Cesur, 2011; Yang & Plakans 2012), in the present study English learning strategies are considered in relation to other individual difference factors, namely, motivation and self-efficacy, which may have important effects on strategy use but to which less attention has been paid. Hence, this study aims to examine the relation of learning strategy use to self-efficacy, motivation, and English language achievement in a proposed model based on Gardner's socio-educational model (2001) which is still considered the most dominant and comprehensive model of L2 motivation. Results of this study will contribute in shedding light on the variables that ease the process of learning a foreign language.

1.1 Language Learning Strategy Use, Motivation, Self-efficacy

Effective L2 learning has long been linked with the use of language learning strategies. For example, Lan and Oxford (2003), and Yang and Plakans (2012) examined the influence of language learning strategies on English achievement and all concluded that more proficient learners used more learning strategies than less proficient ones. However, as stated above, examining language learning strategies in association with other individual factors such as motivation and self-efficacy is a more recent development in the field.

In the part labelled 'individual differences' in Gardner's (2001) model on which this study focuses, motivation which is defined as the interdependency of goal, desire to attain the goal, effort, and positive affect, can potentially have an effect on the factor which Gardner (2001) regards as "other non-motivational factors" referring to language learning strategies. Such strategies may influence achievement "by providing schema and techniques to help learn the material and to the extent that they play a role in language learning, it would be expected that they would be used by the motivated individual" (Gardner 2001, p.10), hence the potential direct effect of motivation on language learning strategy use.

Moreover, in their studies, MacIntyre and Noels (1996) showed that L2 learning strategy use is dependent on motivation. Domakani, Roohani and Akbari (2012) also investigated the relation of strategy use with motivation among 152 Iranian EFL university students. Findings of the study revealed that motivation was significantly and positively related to the different types of learning strategies as well as overall utilization of strategies. In a similar study, Banisaeid and Huang (2015) examined the role of motivation in learning strategy use and self-regulation among 49 Chinese EFL students. Results of the study indicated that motivation related significantly to students' learning strategy use and self-regulation.

In addition to having a possible effect on language learning strategy use, motivation in Gardner's (2001) model is shown to have a direct positive impact on English language achievement (Gardner, 2001). Indeed, Gardner (2001, 2007) believed only motivation is considered as the cause of achievement in L2. Such a relationship has also been observed in some other studies such as Bernaus and Gardner (2008), Bernaus, Wilson, and Gardner (2009).

There is another class of variables in Gardner's (2001) model called "other motivational variables" referring to the factors that are shown to have a possible influence on motivation. Gardner (2001) believes that these factors, which encompass all personality traits including self-efficacy, are instrumental variables that can enhance motivation.

Bandura defines self-efficacy as "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (1997, p.3). Students' self-efficacy in L2 learning can significantly determine their effort, perseverance, and learning performance (Bandura and Schunk 1981). The application of the self-efficacy concept to language learning is highly appropriate since learners' motivation and the action required to accomplish a learning goal is affected by the assessment they make of their language skills (Wu 2006). Therefore, self-efficacy can contribute to and predict motivation and language success (Zhang, 1995). The direct positive effect of self-efficacy on motivation in L2 learning has been observed in studies done by Hsieh (2008), and Tuckman and

Abry (1998). Indeed, it is almost impossible to examine academic performance, learning, and motivation without considering self-efficacy beliefs (Pajares & Urdan 2006). Therefore, Bandura (1997) arrived at the conclusion that self-efficacy can predict behavioral outcomes more consistently than other closely related constructs and self-beliefs.

In addition, language learners are supposed to hold various competence-focused judgments dependent upon their previous learning experiences, and such judgments influence how they employ different learning strategies in the learning process (Oxford 1990). Learners who show high self-efficacy often possess increased levels of cognitive processing and employ increased metacognitive strategies (Pintrich & DeGroot 1990). Some researchers have proposed that the way learners employ learning strategies as well as the way they learn a foreign or second language are in fact influenced by their self-efficacy (Wenden 1987).

However, as stated by Dornyei (2005), very limited L2 research has been done on self-efficacy. For instance, Tilfarlioglu and Ciftci (2011) investigated the relationship between self-efficacy and the university students' English language achievement in Turkey. Results of multiple regression analyses revealed that self-efficacy was a significant predictor of students' English achievement. Similar results were obtained by Rahimpour and Nariman-Jahan (2010) who found that learners' self-efficacy predicted their English achievement.

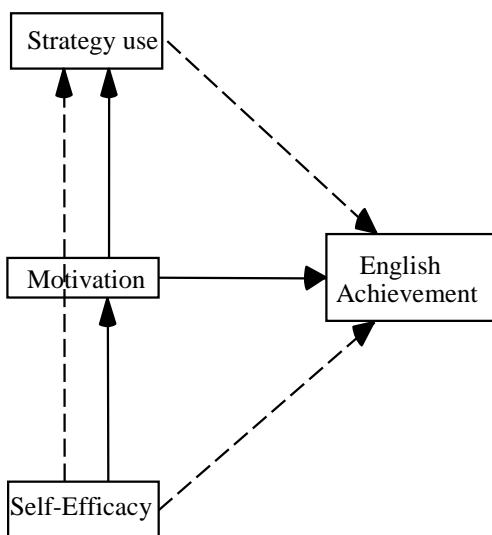
In addition, some studies have observed a strong relation between self-efficacy and language learning strategy use, such as the one conducted by Su and Duo (2012) who examined the influence of self-efficacy on strategy use in reading among English university students in China. Results of the research showed that self-efficacy had a significant positive influence on students' reading strategy use. In another study, Wolters and Pintrich (1998) found that self-efficacy was a significant predictor of American high school students' strategy use.

1.2 The Present Study

The present study intends to investigate the relations between individual difference variables, that is, strategy use, self-efficacy, and motivation, and their

influence on Iranian EFL students' English achievement. The study is based on Gardner's (2001) Socio-Educational model. As shown in figure 1 below, the new paths, shown by dotted lines, have been added to the model based on the literature reviewed above.

Figure 1: Proposed conceptual model



Specifically these research questions are addressed in the present study:

1. What is the relationship between strategy use, self-efficacy, motivation and English achievement in the proposed conceptual model in the Iranian EFL context?
2. Is strategy use affected more by self-efficacy or motivation?

2. Methodology

2.1 Participants

A total of 240 intermediate Iranian EFL learners studying at the Iran Language Institute (ILI), Shiraz branch, participated in this research. This sample comprised 16-20 year old students, of which 98 were male and 142, female. The participants were of different educational levels including university, high school diploma, and high-school. To determine the suitability of the questionnaires used in this

investigation, a separate group consisting of 47 female and 43 male intermediate students, between the ages of 16 and 20, was chosen by systematic random sampling to do a pilot study.

2.2 Data Collection Procedures

To measure the students' strategy use, the Strategy Inventory for Language Learning (SILL), designed by Oxford (1990), was used. It consists of 50 items with five Likert-scale answers for the strategies investigated. The answers range from (1), never or almost never true of me, to (5), always or almost always true of me. Based on their use of the SILL in their research, Magogwe and Oliver (2007), and Oxford and Burry-Stock (1995) reported high validities and reliabilities for the instrument. The alpha coefficient was also estimated for the SILL and reported as .73 that shows the internal consistency of this instrument.

Meanwhile The Attitude Motivation Test Battery (AMTB), designed by Gardner (2004), was used to assess the students' language learning motivation. The AMTB comprises 72 items designed to measure Integrative Motivation. The questionnaire is composed of statements to which the subjects respond according to a 6 point Likert-type scale ranging from (1), strongly disagree, to (6), strongly agree.

Gardner (2005), and Atay and Kurt (2010) support the validity and the reliability of the AMTB. The background profile (e.g., age and gender) of the participants was also gathered through the AMTB for this study. Alpha coefficients were estimated for the subscales of motivation in the AMTB as follows: Attitudes toward learning English, .77, Desire to learn English, .83 and Motivational intensity, .86. The obtained coefficients show the internal consistency of the instrument.

The self-efficacy questionnaire (SEQ) was also distributed to the students to measure their self-efficacy. The questionnaire was developed by Sedighi, Alavi, and Samani (2004) for intermediate Iranian learners learning English as a foreign language, on the basis of Bachman's (1990) framework of language organizational competence. The questionnaire includes 40 items based

on a Likert-type scale (100 points), with 10-point intervals. The scale ranges from (0), no chance, to (100), completely certain. Sedighi et al. (2004) support the reliability and validity of the questionnaire. Moreover, the alpha coefficient was also estimated for the SEQ and reported as .74 that shows the internal consistency of this instrument.

The grades obtained by the participants for their English course over one semester (final course grades) were taken as the measure of their English language achievement.

2.3 Data Analysis

The descriptive and correlational analyses of the factors were estimated. The results met the demands of data for parametric statistical analysis (Kline 2011). The descriptive analysis (see Table 1) showed that the mean scores of the factors under study ranged from 3.52 to 75.57 while the standard deviations ranged from .58 to 15.84. The correlation between all the factors in question, namely, self-efficacy (SE), motivation (MOT), strategy use (STR), and achievement (ACH) were significant at the 0.01 level. To investigate the relations between the factors of the proposed model, SEM (Structural Equation Modelling) method was utilized. As stated by Hair, Anderson, Tatham and Black (1998), SEM examines multiple relations and interrelated dependence in a model, including path coefficients. As a multivariate statistical method, SEM is used to explore the relationships among factors by establishing a theoretical model of the connections involved and this causal modelling gives theoretical explanations for causal connections existing between the factors (Walker and Maddan 2008). Causal modelling also allows for the theoretical soundness and the fit of the model to the sample data (goodness-of-fit) to be determined. In this study, AMOS 5.0.1 was used for SEM. The software is known for its easy user-interface.

Table 1: Minimum and maximum scores, means, and standard deviations for the selected factors

Variable	N	Minimum	Maximum	Mean	Std. Deviation
MOT	240	2.93	5.53	4.35	.64
STR	240	2.10	4.84	3.52	.58
SE	240	22.50	95.25	65.15	15.84
ACH	240	45.00	96.00	75.57	11.35
Valid N (list wise)	240				

MOT = Motivation; STR = Language Learning Strategy; SE = Self-efficacy; ACH = English Achievement

2.4 Fit of the Model

In order to answer the research questions of the study, it is necessary for the model to fit the data sufficiently well. Using AMOS to identify the overall goodness-of-fit, a Chi-square of (3.473) at 4 degrees of freedom ($p = .482$, ratio = .868) was observed. Non significant Chi-square value shows a good fit. Also, a normed Chi-square less than 5 shows appropriate model fit (Hair, Black, Babin and Anderson 2010). Another fit index is the root mean square error of approximation (RMSEA). An RMSEA of .000 was observed in this case. As stated by Hu and Bentler (1999) the value of less than .06 and .08 for this index show a good and acceptable fit, respectively. In addition, other fit indexes like goodness of fit (GFI) = .995, comparative fit index (CFI) = 1.000, Normed fit index (NFI) = .993, adjusted goodness of fit (AGFI) = .974, as well as Tucker-Lewis Index (TLI) = 1.000 all showed that the model fit the data very well. While for GFI, CFI, AGFI, NFI, and TLI indexes, one on 0-1.0 scale indicates a perfect fit (Arbuckle 1997); the threshold of all these indices is larger than .90. Specifically, the values greater than .95 for TLI, GFI, and CFI show that the model fits the data very well.

3. Results and Discussion

SEM research method was utilized to examine the relations between the factors in question, namely, strategy use, self-efficacy, motivation, and English achievement, in the context of EFL students in Iran. Specifically, the study aimed at determining the potential influence of strategy use on English achievement and the effect of self-efficacy and motivation in this regard.

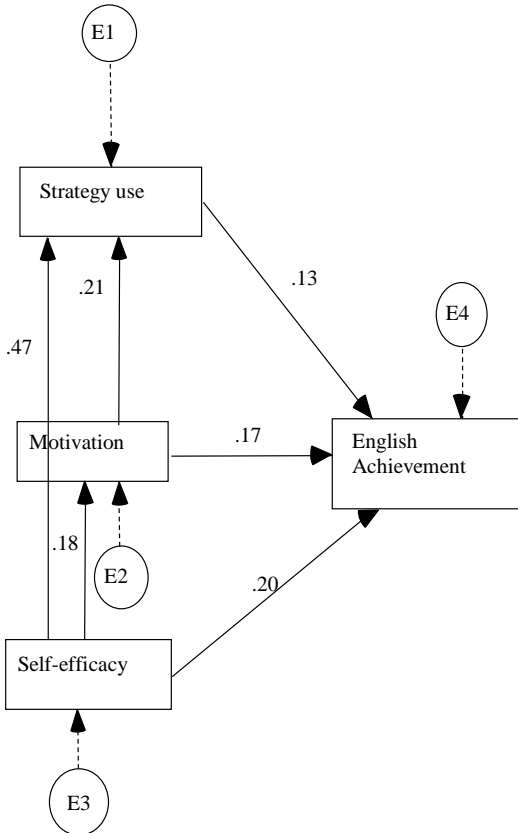
In a typical SEM model of relationships among variables (path relationships or the structural model) causality of a variable towards the other variable is represented in β values (standardized regression weights). Also, some researchers use the critical ratio (C.R.) or z-value which is the parameter estimate or regression weight estimate divided by its standard error (S.E.). When the critical ratio (C.R.) for a parameter estimate is $>\pm 1.96$, it shows that the estimate is statistically significant at the .05 probability level (Byrne, 2010).

Findings of the SEM analysis indicated that the paths of the proposed model showing the interrelations between the factors were supported. Hence, the final model is presented in Figure 2 below.

The results of SEM analysis (see Figure 2 and Table 2 below) showed that learners' strategy use was influenced directly and positively by self-efficacy. The estimate of standardized regression weight from self-efficacy to strategy use is .47, and its C.R. is 8.24 at the .001 level. This means learning strategy use is predicted to improve by .47 standard deviation provided there is a change in self-efficacy of one standard deviation, while other factors are controlled. Such an influence has been observed in studies by Su and Duo (2012), and Wolters and Pintrich (1998) as well. This indicates that the learners who have high judgments about themselves and their abilities are more likely to utilize learning strategies. The relation between self-efficacy and strategy use can be explained according to Oxford's definition of learning strategy use and the subgroups that constitute "strategy use". In other words, it seems reasonable to conclude that the judgment of a person regarding their own abilities could affect the extent to which memory, cognitive, compensation, metacognitive, affective, and social strategies are used. It appears that these strategies are connected to the individual's ability to perform specific actions such as practicing, understanding and so on. Therefore, when individuals report on the extent to which they use strategies, they are actually making judgments about their abilities. The questionnaire on self-efficacy, on the other hand, asks the individuals to make judgments about their capabilities to do various language tasks. Hence, such judgments can be expected to have a causal

relationship with learning strategy use.

Figure 2: The Final Model with standard Estimates



E1-E4= measurements errors

Chi-square= 3.473, p=.482, df=4, ratio=.868, RMSEA=.000, GFI=.995, AGFI=.974, CFI=1.000, NFI=.993, TLI=1.000

Table 2: Standardized estimates

Regression Weights		Standardized Estimate	S.E.	C.R.	P
MOT	← SE	.184	.001	3.731	***
STR	← MOT	.206	.087	3.593	***
STR	← SE	.473	.003	8.235	***
ACH	← MOT	.165	.044	2.247	.025
ACH	← STR	.134	.026	2.015	.044
ACH	← SE	.203	.001	3.040	.002

MOT = Motivation; STR = Language Learning Strategy; SE = Self-efficacy; ACH = English Achievement

The results of the study, as shown in Figure 2 and Table 2, also revealed that self-efficacy had a direct positive impact on motivation. The direct path from self-efficacy to motivation is statistically significant ($\beta = 0.18$, C.R. = 3.73, $p < .001$). Hence, self-efficacy is regarded as an important and positive predictor in determining the students' motivation. The reason for such a role is that for learners to be capable of focusing on learning with maximum effort and determination, they must have a sound view of their abilities in learning (Dornyei, 2001). Therefore, self-efficacy can positively influence an individual's desire for learning, the effort the person expends as well as the enjoyment he feels in the learning process.

As indicated in Figure 2 and Table 2, the results of the analysis also revealed that there is a significant and positive path coefficient ($\beta = 0.21$, C.R. = 3.59, $p < .001$) from motivation to strategy use and hence students' motivation is another important factor that has a direct positive impact on their strategy use. This means strategy use is predicted to improve by .21 standard deviations provided there is a change in motivation of one standard deviation, while other factors are controlled. Some other studies such as those by Banisaeid and Huang (2015) and Bonney, Cortina, Smith-Darden, and Fiori (2008) have also shown that learning strategy use may be influenced by motivation.

This result can be traced back to the items of the AMTB, which by concentrating on effort, desire, and positive effect, seem to positively impact the use of strategies. That is to say that "effort", defined by Gardner (2001) as the attempt individuals make to learn the language, "desire", the strength of their wish to learn, and "positive effect", the enjoyment they experience while learning, are all factors that seem to be prerequisites and contribute to the use of learning strategies. In other words, learners will not use strategies unless they want to learn the language, try hard to learn and enjoy learning it. Furthermore, it is conceivable that the greater the learners' motivation, the more inclined they are to put in the effort and time needed to use strategies, given that strategy use constitutes

behaviours that require effort (MacIntyre and Noels 1996). Hence, the hypothesis of the study related to the direct effect of motivation on strategy use is supported.

Since self-efficacy had a direct positive impact on motivation ($\beta = .18$) which itself had a direct impact on strategy use ($\beta = .21$), then self-efficacy can relate indirectly to strategy use through motivation a finding supported by Yang (1999) as well. The indirect influence of self-efficacy on strategy use through motivation is $.04 (.18 \times .21)$.

With regard to research question 2, however, the findings of the study revealed that strategy use was more dependent on self-efficacy ($\beta = .47$) than motivation ($\beta = .21$). Although motivation has an important effect on strategy use, "students need a sense of efficacy for learning material before they will engage in strategic effort" (Meyer, Turner and Spencer 1997, p. 503) and in both using strategies and self-efficacy, the students are making judgments about their abilities. As such, the relationship between self-efficacy and strategy use is seen to be stronger than the one between motivation and strategy use; it appears that learners with low self-efficacy do not put in as much effort to make use of efficient strategies.

Results of the SEM analysis also revealed that in addition to their direct influence on learning strategy use, the two factors - self-efficacy and motivation - supported the effects of strategy use on Iranian students' English achievement.

As indicated in Figure 2 and Table 2, the estimate of standardized regression weight from strategy use to students' English achievement is $.13$, and its C.R. is 2.02 ($p < .05$). Hence, strategy use had a direct positive effect on their English achievement. In other words, strategy use can be considered as an important and positive predictor in determining students' English achievement. Such a relationship has also been observed in several other studies such as those by Lan and Oxford (2003), and Yang and Plakans (2012). Compared to learners who are less proficient, those with higher language proficiency utilize greater varieties of learning strategies. Therefore, using learning strategies should be encouraged in L2 classes.

Therefore, as shown in Figure 2 and Table 2, Self-efficacy had a direct positive impact on strategy use ($\beta = .47$) and strategy use had a direct positive impact on English achievement ($\beta = .13$) hence, The impact of strategy use on English achievement as supported by self-efficacy or the indirect influence of self-efficacy on English achievement through strategy use is $.06 (.47 \times .13)$ while the effect of strategy use on English achievement as supported by motivation or the indirect influence of motivation on English achievement through strategy use is $.03 (.21 \times .13)$ which reveals that the effect of strategy use on English achievement as supported by self-efficacy was stronger than the one supported by motivation.

The influence of strategy use on English achievement as supported by self-efficacy has also been observed in studies by Pintrich and DeGroot (1990), and Tuckman and Abry (1998). Such a relationship, as Meyer, Tuner, and Spenser (1997) maintain, comes about because students who have a higher self-efficacy level employ more learning strategies which causes them to undertake greater effort, which in turn contributes to better performance and higher achievement.

In addition, the impact of strategy use on Iranian learners' English achievement was also supported by their motivation. Hence, motivation is considered as a predictor for language learning strategy use which in turn helps to promote high levels of second/foreign language achievement (Kam 2006, Oxford and Nyikos 1989). The more motivated L2 learners are, the greater the likelihood that they will put in effort and the time to use relevant strategies that contribute to success in language learning (Domakani, Roohani, and Akbari 2012).

The results also indicated that in addition to strategy use, the factors self-efficacy and motivation had a positive direct effect on students' English achievement. As shown in Figure 2 and Table 2, the direct path from motivation to English achievement ($\beta = 0.17$, C.R. = 2.25, $p < .05$) and the direct path coefficient from self-efficacy to English language achievement ($\beta = .20$, C.R. = 3.04, $p = .002$) are both statistically significant and positive. Thus, motivation and self-efficacy are both considered as significant direct predictors of students' English language achievement.

The direct influence of motivation on English achievement has been noted in studies by Bernaus and Gardner (2008), and Yuanfang (2009). Similarly, the direct impact of self-efficacy on English achievement has been observed by Chiang et al. (2014) and Zimmerman and Bandura (1994).

The results of the present study indicate that the Iranian learners' utilization of learning strategies has greater influence on their English language achievement when the strategy use is supported by motivation and particularly by self-efficacy on which strategy use is more dependent. As such, encouraging and maintaining students' positive judgments about their abilities and motivation can increase the extent to which they employ strategies to learn, which in turn contributes to their English achievement.

4. Conclusion

When learning strategy use combines with the factors self-efficacy and motivation, its role in English language learning and achievement becomes even more significant. The utilization of language learning strategies by Iranian EFL students is dependent on their motivation and to a greater extent on their self-efficacy. Therefore, as also concluded by Lavasani and Faryadres (2011), students' language learning strategy use can be developed if the teacher understands the significance and contribution of students' self-efficacy and motivation in this regard. The results of this study indicate that by enhancing learners' motivation and self-efficacy to increase their strategy use, Iranian English language classes can be transformed into more conducive environments in which English language learning is improved.

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