

Identifying at-risk English learners: Resource management strategies as predictors of achievement

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Many universities in Japan have been concerned about the growing number of students who are academically “at-risk”—students lacking skills to successfully complete their program. Research linking resource management strategies to academic achievement may help identify and assist at-risk learners. The following paper analyzes resource management strategies as measured by the Motivated Strategies for Learning Questionnaire (MSLQ) to predict achievement among 113 undergraduates majoring in English Communication at a Japanese university. Academic achievement was measured by scores on a standardized English proficiency test and the number of classes students failed in the previous year. High achievers reported using significantly more resource management strategies than low achievers. In addition, resource management strategies have a significant predictive effect on failure rate. The results indicate that resource management strategies adopted from the MSLQ can be an effective tool to analyze some measures of achievement in an English language program.

日本の大学の多くが“アットリスク”と呼ばれる学力の危機に面している学生、すなわちプログラムを終えるのに必要とされる学力を有していない学生の数が増加している事を懸念している。リソースマネジメントストラテジーと学力とを関連づける研究はアットリスクである学生を見極めアシストすることに役立つであろうと考えられる。この論文は、ある日本の大学の英語コミュニケーション専攻の学生113人の学力を予測する為のMotivated Strategies for Learning (MSLQ) で示されたリソースマネジメントストラテジーを分析している。学力は標準化された英語能力テストのスコアと前年度学生が単位取得できなかったクラスの数から測定された。結果、低学力の生徒に比べ高学力の生徒はリソースマネジメントストラテジーをより意義深く利用しており、更にリソースマネジメントストラテジーが落第率に重要な予測効果があることがわかった。つまり、英語のプログラムにおいてMSLQを採用したリソースマネジメントストラテジーは学力予測分析として効果的なツールになり得ることを示している。

A 2008 SURVEY conducted by Japan’s Ministry of Education reported that more than 65% of the colleges and universities in Japan have been offering high school-level supplementary lessons and other special measures to cope with academic deficiencies for incoming college freshmen (“65% of universities,” 2010). In addition, the most recent data from the Ministry of Education, Culture, Sports, Science and Technology (2009) indicates that the percentage of Japanese university students who graduate in four years has been decreasing—down from 92.5% in 1995 to 88% in 2005. Although this percentage is still high, it signifies a trend that a growing number of students are at-risk of failure.



There is evidence that a major cause of low achievement is the inability of students to self-regulate their time and surroundings effectively (Krouse & Krouse, 1981). Poor management and study habits such as procrastinating, poor planning, and particularly cramming for exams, can fossilize over the years and become a part of one's learning process. Although some students can change and become effective learners later in life, many do not. These learners never develop the essential study skills (time management, classroom note taking and test preparation) to be successful in school (Zimmerman, Bonner, & Kovach, 2002).

The impetus for conducting the following study originated from the authors' concerns about at-risk students at their university. Currently, both authors are teaching an English Study Support class designed to help at-risk students study more effectively and graduate. The course is administered on a pass/fail basis and is limited to a maximum of 15 students to ensure that opportunities exist for individual attention and assessment. Most of the time in class is spent on enhancing study skills, reviewing fundamental English skills, and building confidence.

The focus of this investigation was to identify if common factors associated with self-regulated learning are found among low-achieving students in the English language program in the hope that more appropriate and effective activities could be designed for at-risk students in the English Study Support classes. In addition, research examining this issue can help program coordinators to identify at-risk students at an earlier stage to provide assistance.

Resource Management Strategies and the MSLQ Background

The concept of self-regulation refers to the use of motivational and learning strategies for the purpose of becoming motivation-

ally, meta-cognitively, and behaviorally active participants in their own learning process (Zimmerman, 1989; Pintrich, 1995). In the last two decades a significant amount of research has linked self-regulated learning to academic performance and achievement. For example, studies by Pintrich and DeGroot (1990) and VanZile-Tamson and Livingston (1999) indicate that high-achieving students reported using more self-regulated learning strategies than low-achieving students. Additional research has shown that learners who utilize self-regulated learning strategies are more efficient, resourceful, and study in a much more facilitated manner than those who do not (Zimmerman & Martinez-Pons, 1986; Pintrich & De Groot, 1990; Schunk & Zimmerman, 1994).

Resource management

A common instrument to analyze self-regulated strategies is the *Motivated Strategies for Learning Questionnaire* (MSLQ), an 81-item, self-report questionnaire consisting of six motivation subscales and nine learning strategy subscales, developed by Pintrich, Smith, Garcia, and McKeachie (1991). The learning strategies section consists of three components: cognitive processes, metacognitive processes, and resource management. The third component, resource management, includes regulatory strategies to manage resources other than cognition. These strategies are utilized by learners to self-regulate both personal and environmental resources to complete academic tasks (Paulsen & Gentry, 1995). Resource management includes the following four strategies:

Time and study environment

Strategies students use to schedule, plan and manage their time to study effectively. Studies have shown that high-achieving students are more likely to restructure their physical environment



to complete tasks (Zimmerman & Martinez-Pons, 1986) and regulate their study time than low-achieving students (Zimmerman, Greenberg, & Weinstein, 1994).

Effort Regulation

A self-regulatory strategy students employ to overcome difficulties or distractions to complete their academic commitments. Research by Doljanac (1994) found effort regulation to be a strong predictor of achievement.

Peer learning

A strategy learners use to manage the level of collaboration with their peers in order to gain a better understanding of assignments and course materials. The ability to engage in dialogue and the value placed on working with one's peers to resolve issues has been thoroughly linked to academic achievement in previous research.

Help seeking

To facilitate achievement learners often seek assistance from those around them. Research by Rebovick, Brooks and Peterson (1998) revealed a positive relationship between help-seeking and academic achievement. In addition, Karabenick and Knapp (1991) provide evidence that autonomous and motivated students are more likely to seek assistance from others.

Implications for the study

The MSLQ, either in its entirety or its subscales, has been used extensively to measure the impact self-regulated learning strategies have on achievement in specific courses (Hammann & Stevens, 1998; McClendon, 1996; Chen, 2002), and in various

countries (Yamauchi, Kumagai, & Kawasaki, 1999; Roa, Moely, & Sachs, 2000). However, while most studies have shown positive signs that self-regulation is linked with achievement, the findings are less than conclusive. For example effort regulation was effective in a biology course (Doljanac, 1994) but not in a distance-learning course (Hsu, 1997), leading Chen (2002) to conclude that the "strategies included in the MSLQ are general learning strategies, and effective learning strategies might be discipline specific" (p. 20). In addition, other than a study conducted by Kosnin (2007), little is known of the impact self-regulated learning has on achievement in a general curriculum.

Although there are many factors associated with academic achievement, this research hypothesized that students' failure to integrate resource management strategies into their learning process could be one of the major causes of poor achievement. A myriad of other factors such as socioeconomic status and family background have been linked to student achievement; however, many of these factors cannot be addressed in educational policies and materials. In fact, an additional reason for investigating resource management strategies is that they are teachable—teachers can design classroom activities that encourage self-regulation (Coppola, 1995; McCombs, 1989). Therefore, this research limited its examination to two main variables, namely, students' use of resource management strategies and academic achievement.

Based on previous findings, resource management strategies, as measured by the MSLQ, were expected to be a reliable measure to predict university students' academic achievement. On the other hand, it was unclear how effective the use of resource management strategies would be in identifying at-risk students in a Japanese university's English program. This study also compared differences between high and low achievers in their use of resource management strategies. Results from this study can be valuable in understanding the suitability of MSLQ



resource management strategies for intervention purposes in similar universities.

Research questions

1. Do significant differences exist in the use of resource management strategies between high-achieving students and low-achieving students?
2. Does the use of resource management strategies predict achievement in second-year Japanese English-language learners?

Methods

Participants

The participants in this study were 113 second-year English majors studying at a private Japanese university. At the time the study was conducted, the participants were enrolled in the first semester. Nearly all (95%) of the second-year students in the English department participated in the study. Of the 113 respondents, 51 (45%) were male and 62 (55%) were female with an average age of 19.24 years ($SD = .50$). All of the participants were Japanese. Students were administered a modified version of the MSLQ questionnaire in their tutorial classes.

Materials

Resource management strategies questions from the MSLQ were adapted for the purpose of this research. Several of the original items were altered to enable measurement of the strategies at the general curriculum level. The modification was done with the intent to minimally alter the items to assure a close resemblance to the original MSLQ. For instance, all items referring to a “course” were altered to fit a broader context of “English courses.” For

example, “I make good use of my time for this course” was altered to “I make good use of my time in my English courses.” The questionnaire had nineteen items and all the items were rated on a 5-point scale ranging from “not at all true of me” (1) to “very true of me” (5). The internal consistency reliability indices for the four sub-scales of resource management strategies ranged from 0.52 to 0.76 (Pintrich et al., 1991). The questionnaire was translated into Japanese to avoid any misinterpretation.

Unlike most studies that have used the MSLQ to examine self-regulated learning, academic achievement was not measured on the basis of students’ grade point average (GPA); it was determined by the number of classes a student failed in the previous year and by TOEIC score. While GPA may be a major factor in measuring academic success in many Western countries, it is generally not the case in Japan. In fact, GPA (or class rank) is not one of the primary factors in acquiring a job; other factors have taken precedence such as graduating from a prestigious university, personality, scores on company-administered tests, and recommendations from professors (Firkola, 2008). Thus, many students may not have a high motivation for getting good grades—just receiving a passing grade is seen as achievement. The TOEIC was also used as a measure of academic achievement because it is the primary language proficiency tool that students and companies use to monitor and measure success in learning English. An estimated 3,500 companies in Japan utilize the exam for hiring and judging their employees’ English language skills (Pacific Bridge, Inc, 2003) as well as determining overseas assignments and promotions (“TOEIC® history and status,” n. d.). Students are required to take the TOEIC test twice a year, so scores were readily accessible.

Procedures

The questionnaire was administered to second-year students in their tutorial classes during the first few weeks of the spring se-



mester. Students had recently received their TOEIC scores from the test administered shortly before the end of their freshman year. Participants were given instructions to think of their English classes in general when responding to the statements. The underlying assumptions of the questionnaire were not revealed. After the questionnaires were collected, responses to negatively stated items ($n = 6$) were reversed so that the highest score was indicative of a positive rating. The first purpose of this study was to investigate if significant differences exist in the use of resource management strategies between high-achieving students and low-achieving students. To answer this question the data were split into two levels of achievement to determine high achievers and low achievers. This was performed by splitting TOEIC scores at the 400 mark, which created 53 students over 400 points and 60 below 400 points, and the number of failed classes at two, which resulted in 45 high achievers and 68 low achievers. Mean values for the resource management strategies and the two measurements of achievement were calculated for each group of achievers. This procedure was followed by t-tests.

The second research question focuses on the predictive effect that resource management strategies had on achievement. To accomplish this investigation, a Pearson correlation test was performed to determine the strength and direction of the relationships between all the variables. A multiple regression analysis was then applied to analyze the relationship between each dependent variable (TOEIC score and number of failed classes) and the four independent variables (the resource management sub-scales). This statistical procedure is used to determine how the typical value of the dependent variable changes when any one of the independent variables is varied, while the other independent variables are held fixed.

Analysis/Results

Table 1 illustrates the descriptive statistics for all of the variables; no outliers or other abnormalities were found. Students averaged almost two failures each year, $M = 1.97$, $SD = 2.73$. Students reported using time and study environment the most ($M = 3.49$, $SD = .54$) and peer learning the least ($M = 2.91$, $SD = .75$).

Table 1. Descriptive statistics for all measured variables

Variable	Observations	Mean	Std. deviation
TOEIC scores	113	392.504	90.497
Failed classes	113	1.965	2.732
Time/study environment	113	3.489	0.539
Effort Regulation	113	3.115	0.689
Peer Learning	113	2.912	0.752
Help Seeking	113	3.239	0.564

The results of the correlation analysis, which was applied to determine the proportion of common variance between each set of variables, are displayed in Table 2. Although most of the correlations between the MSLQ sub-scales and achievement are moderate or relatively weak, some are statistically significant. As one might expect, many of the significant correlations appear between the MSLQ sub-scales themselves (four of six correlations) with peer learning and help seeking having the strongest correlation, $r(111) = .534$, $p < .05$. The correlation between both measures of achievement is also significant, $r(111) = -.233$, $p < .05$ but the strength of the relationship is less than .7 which is not considered to be convincingly strong.



Table 2. Correlations matrix of the measured variables

Variable	TOEIC score	Failed classes	Time/study environment	Effort regulation	Peer learning	Help seeking
TOEIC score	-	-.233*	.172	.142	.112	.196*
Failed classes		-	-.302*	-.214*	-.073	-.151
Time/study environment			-	.353*	.267*	.323*
Effort regulation				-	.181	.150
Peer learning					-	.534*
Help seeking						-

Note: * $p < .05$

The results presented in Table 3 reveal that the mean values on the reported use of each resource management strategy is higher for the high-achievement group as opposed to the low-achievement group. For achievement by TOEIC score, statistically significant differences were observed between the two groups in effort regulation ($t = 2.42, p < .05$) and help seeking (t

$= 2.01, p < .05$). Achievement measured by the number of failed classes showed statistical differences in time and study environment ($t = 4.06, p < .05$) and effort regulation ($t = 2.10, p < .05$) between the groups.

When all variables were entered into the multiple regression analysis for TOEIC score, results showed a non-significant predictive value ($R^2 = .242, F(4, 108) = 1.67, p < .05$). As indicated in Table 4, no resource management strategies were statistically significant in predicting TOEIC score. A second multiple regression analysis was applied to the number of classes students failed. The analysis yielded a significant value ($R^2 = .331, F(4, 108) = 3.33, p < .05$), which suggests that the resource management subscale explains a significant proportion of variance in the number of classes students are failing. Table 4 lists the regression coefficients from the multiple regression analysis. The data also shows that only the time and study environment subscale reached significance in predicting the number of failed classes in students ($\beta = -1.25, t(108) = -2.42, p < .05$). To evaluate if both regression analysis models met the assumptions of normality, a residual analysis was used. Results indicated that both analyses show linear relationships, which meet the assumption of normality.

Table 3. T-tests comparing high achievers and low achievers

Variables	TOEIC Score mean (SD)		t value	Failed classes mean (SD)		t value
	High Achievers n=53	Low Achievers n=60		High Achievers n=45	Low Achievers n=68	
Time/study environment	3.56 (.48)	3.43 (.58)	1.26	3.72 (.54)	3.33 (.47)	4.06*
Effort regulation	3.29 (.68)	2.98 (.68)	2.42*	3.28 (.64)	3.01 (.69)	2.10*
Peer learning	3.02 (.74)	2.80 (.75)	1.57	2.98 (.74)	2.87 (.76)	.80
Help seeking	3.36 (.55)	3.14 (.56)	2.01*	3.33 (.63)	3.18 (.51)	1.45

Note: * $p < .05$



Table 4. Multiple regression analysis on measures of achievement

Variable	By TOEIC score				By failed classes			
	β	Std. Error	t value	Sig.	β	Std. Error	t value	Sig.
Time/study environment	15.54	17.58	.088	.37	-1.25	.051	-2.42	.017*
Effort regulation	11.56	13.17	.87	.38	-.49	.38	-1.28	.20
Peer learning	-1.82	13.43	-.13	.89	.22	.39	.56	.57
Help seeking	25.86	18.15	1.42	.15	-.41	.53	-.78	.43

Note: * $p < .05$

Discussion/Conclusion

This study examined the impact of resource management strategies as predictors of achievement in an English departmental program at a Japanese university, and investigated differences in the use of these strategies between high achievers and low achievers. Previous research concerning the MSLQ and its subscales has been limited to examining specific courses with GPA as a measure of achievement. However, the assumption in this study is that other variables may be more appropriate to assess academic achievement, and that learning strategies are not limited to situational contexts. Rather, students display general patterns of strategy use within a program of study.

With respect to the data from the correlations, TOEIC score was significantly related to only one resource management strategy—time and study environment. This finding implies that TOEIC success is more likely related to other variables such as an individual's English language exposure, knowledge of test-taking strategies, and motivation as opposed to peer collaboration or help seeking. Resource management strategies may have been more positively correlated with TOEIC score if the examination included productive skills since students can get relatively good scores by consulting TOEIC test guides and reviewing test-taking strategies rather than working with peers or teachers

to practice writing or speaking skills. The results also reveal the significant relationship that time and study environment has on all other variables. It seems logical that time and study environment would be significantly correlated with the other subscales because students need to manage their time and environment effectively in order to seek out help, learn from peers, and exert the proper amount of effort to achieve their goals.

Turning to the first research question, the findings indicate that high achievers on the TOEIC reported using significantly more effort regulation and help seeking strategies than low achievers. In addition, significant differences were found in the use of time and study environment and effort regulation between the two achievement groups. These findings support the claim that high achievers are likely to use certain resource management strategies more than low achievers, but this is not evidence that these strategies are a significant factor of achievement. The fact that effort regulation was the only resource management strategy that significantly differed between the groups of high achievers and low achievers illustrates the prevalence of this strategy on academic success. Nevertheless, educational institutions have been neglecting teaching these skills. For example, Trawick and Corno (1995) found that many universities do not provide learning opportunities for students who lack

skills in effort regulation because it is assumed that they already possess these skills.

Concerning the predictive value of resource management strategies on achievement in a general English language curriculum, the results from the multiple regression analysis reveal that the subscale did predict a significant amount of variance in students' failure rate. The time and study environment, in particular, had a significant predictive effect on the number of failed classes. The coefficient reported indicates that a one point increase on the 5-point scale for time and study environment would mean a decrease in the number of classes students fail of 1.25. Resource management strategies, on the other hand, had no predictive value in assessing achievement in TOEIC score. In hindsight, measuring TOEIC improvement, as opposed to TOEIC score may have led to stronger correlations with resource management strategies, and allowed for a significant predictive effect. The results from this study illustrate the importance of certain resource management strategies in predicting student failure. The study also found a number of resource management strategies low achievers lacked when compared to high achievers. More research on similar student populations and contexts may lead to broader substantive conclusions to help university programs offer support to at-risk students.

Bio data

John Peloghitis is presently teaching in the Foreign Language Center at Tokai University in Japan. He has been teaching English in Japan for over 9 years, and has taught and designed support skills courses. He is an active member of Japan Association of Language Teachers and Japan Association of College English Teachers and is interested second language writing, learner strategies and motivation, syllabus design, and discourse analysis. <jpeloghitis@hotmail.com>

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