

RELATIONSHIP BETWEEN ACADEMIC SELF-EFFICACY AND LEARNING ENGLISH FOR SPECIFIC PURPOSES IN ENGINEERING STUDENTS

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Abstract: Learning does not occur in a vacuum. It is influenced by internal and external factors that exert reciprocal influence on one another, which is termed reciprocal determinism within the framework of Bandura's social cognitive theory. Academic self-efficacy refers to a belief in one's capability of learning and it is significant due to predicting academic achievement (Woolfolk, 2016). More specifically, students who believe that they are capable of achieving success in any area will most likely put in more effort in mastering the learning content and obtain better results. This also applies to learning English for specific purposes. The aim of this research was to determine how scores on academic self-efficacy scale are connected to students' grades in English for specific purposes and subjective evaluation of their own English language knowledge. Academic self-efficacy was measured using one-dimensional College Academic Self-Efficacy Scale (Owen & Froman, 1988). The sample included 146 respondents, who were first, second, third and fourth year students of Power, Electronic and Telecommunication Engineering at the Faculty of Technical Sciences in Novi Sad. The results of the study indicated that there is a statistically significant medium correlation between academic self-efficacy and the grades obtained in the English language courses. Furthermore, our findings suggested that there is also a positive medium correlation between academic self-efficacy and students' perceived knowledge of English. The obtained results are in accordance with the previous research findings.

Key Words: academic self-efficacy, English for specific purposes, grades, subjective evaluation, engineering students

1. SELF-EFFICACY

Learning does not occur in a vacuum. It is influenced by internal and external factors that exert reciprocal influence on one another, which is termed reciprocal determinism within the framework of Bandura's social cognitive theory. There are three types of forces that affect learning: behavioral, personal and environmental factors. Behavioral factors can be described as student's actions, verbal utterances and choices they make (Woolfolk, 2016). Personal factors refer to personal variables affecting learning, such as outcome expectations, attributions, progress evaluation, self-efficacy, motivation, attitudes, abilities etc. (Woolfolk, 2016). Social factors refer to the environmental impact of forces such as teacher's feedback and instruction, models and classroom climate on learning. All of these factors continually influence one another. For instance, a student who has been encouraged to study hard from an early age by his/her parents or teachers (environmental influence) achieves more and more success at school and in extracurricular activities (behavior), which causes a rise in his/her level of self-efficacy and the student may set higher goals (personal factor), while his/her younger sibling may be encouraged to become more committed to school obligations (environmental influence).

Self-efficacy is defined as a person's set of beliefs concerning his or her »personal competence of effectiveness in a given area« (Woolfolk, 2016: 444). The self-efficacy mechanism has a great role in self-regulation of affective states. If people are confident of their control over the situation they are in, they are less likely to feel depressed or anxious. Consequently, efficacy beliefs affect the nature and intensity of emotional experiences, by exercising personal control over thought, action, and affect (Bandura, 1997). Self efficacy also affects students' achievement, regardless of their study level or content area. Higher self-efficacy is linked to higher grades and higher likelihood of remaining in school (Caprara, Fida, Vecchione, Del Bove, Vecchio, Barbaranelli & Bandura, 2008). Self-efficacy is also a predictor of success and academic perseverance. For example, in a sample of 105 first and second year students Lent & Brown (1986) found that self-efficacy is a significant predictor of grades, persistence and a scope of career alternatives in technical fields, regardless of objective mathematical ability. Furthermore, some other studies conducted on engineering students also confirmed the relationship of self-efficacy and grades and greater perseverance in academic work (Lent, Brown & Larkin, 1984; Lent, Brown & Larkin, 1987 according to Hackett, Betz, Casas & Rocha-Singh, 1992). Moreover, Brown, Lent & Larkin (1989) reported that academic self-efficacy is a predictor of academic persistence and engineering grades and its impact was shown to be particularly significant in explaining the achievement of students of moderate ability. To sum up, self-efficacy has been linked to academic success and achievement and the relationship has proven stronger in cases where self-efficacy was operationalized more specifically.

Some authors make a distinction between specific and general self-efficacy. General self-efficacy could be defined as »the belief in one's competence to cope with a broad range of stressful or challenging demands, whereas specific self-efficacy is constrained to a particular task at hand« (Luszczynska, Scholz & Schwarzer, 2005: 439). Generalized or general self-efficacy refers to a sense of personal competence that does not change and that is applicable in a range of situations or areas in which efficacy assessments are made. General self-efficacy is useful in less specific context in which there is a requirement to conduct several different types of activities at the same time (Luszczynska, Scholz & Schwarzer, 2005). A relationship between general self-efficacy and professional, educational and military achievement has also been confirmed (Sherer, Maddux, Prentice-Dunn, Jacobs & Rogers, 1982). Next, it is better to use specific measures of self-efficacy in unambiguous situations targeting specific behaviors, while general self-efficacy is to be used in situations that are not defined clearly enough.

2. RELATIONSHIP BETWEEN ACADEMIC SELF-EFFICACY AND LEARNING ENGLISH FOR SPECIFIC PURPOSES

Academic self-efficacy refers to a belief in one's capability of learning and it is significant due to predicting academic achievement (Woolfolk, 2016). More specifically, »students who believe that they are not capable of achieving success in any area will most likely put in less effort in mastering the learning content and thereby really obtain unimpressive results that they expected« (Zivlak & Stojanac, 2019). This also applies to learning English for specific purposes.

The focus of the research presented in this paper was to determine how scores on academic self-efficacy scale are connected to students' grades in English for specific purposes and students' subjective evaluation of their own English language knowledge. Using a quantitative explorative research, the aim was to answer the following research questions: Is there a correlation between the score on academic self-efficacy and the marks students get in the English language course and is there a correlation between the students' perceived knowledge of English and the academic self-efficacy score. The following hypotheses were made: H0(1) There are no significant differences between the students' scores on academic self-efficacy in relation to their English course grades and H0(2) There are no significant differences between the students' scores on self-efficacy in relation to their personal evaluation of the English language knowledge.

The sample included 146 respondents who were first, second, third and fourth year students of Power, Electronic and Telecommunication Engineering at the Faculty of Technical Sciences in Novi Sad. 67.1% of the participants were male and 32.9% female. The students' age was in the range from 18 to 33 and the mean age was 19.4, SD=1.5 (see Table 1). The respondents started learning English between the ages of 4 and 18, the average age being 8.1. 77.4% of the respondents were freshmen, followed by 19.2% of sophomores, 1.4% of juniors and 2.1% of seniors. The participants' overall length of learning English varied between 3 and 20 years, M=10.8 years. The majority of students, 54.8% of them, got excellent grades in the English language.

The one-dimensional College Academic Self-Efficacy Scale (Owen & Froman, 1988) was used to measure the level of academic self-efficacy. The value of Chronbach's alpha in this sample was 0.93, which is considered as good reliability. The questionnaire was in the form of a Likert-type scale, ranging from 1 (very little) to 5 (quite a lot) and it measured the level of confidence expressed by students while performing typical in-class behaviors, such as: taking well-organized notes during an English lecture, participating in a class discussion in English, answering a question in a large class etc. The sociodemographic data collected included information on students' gender, age, study year, GPA, overall length of learning English, the age when the students started learning English, personal evaluation of the English language knowledge on a scale from 1 (bad) to 5 (excellent) and the last mark obtained in English. The data were collected during the English language lectures. It took students about five minutes to complete the questionnaires, administered by the author of this study, who was also present to clarify any potential questions of the respondents. The analysis of the data was carried out in the statistical package IBM SPSS Statistics 20 for Windows. Pearson correlation coefficient was used to examine the relations between the aforementioned variables.

Table 1 – Research sample according to age and gender (N=146)

	Age										Total
		18	19	20	21	22	23	24	25	33	
Gender	Male (N)	5	62	24	3	1	1	1	0	1	98
	Female (N)	7	30	8	2	0	0	0	1	0	48
Total		12	92	32	5	11	1	1	1	1	146

Taking into consideration that the aim of the study was to examine how scores on academic self-efficacy scale are connected to the students' grades in English, descriptive statistical data for the dependent variable, academic self-efficacy, was looked into more closely. The highest mean was noticeable in the students' score on the item no. 23 (*"How much confidence do you have about applying English lecture content in practical purposes?"*), M=4.01,

SD=1.04. The students also had high scores on the item no. 13 (*"How much confidence do you have about studying enough to understand the content thoroughly?"*): $M=3.91$, $SD=1.08$. On the other hand, the lowest means were present in the students' scores on the items no.: 7 (*"How much confidence do you have about writing a high quality seminar paper in English?"*), $M=2.85$, $SD=1.19$, on the item no. 20 (*"How much confidence do you have about talking to a professor privately to get to know him/her?"*), $M=2.75$, $SD=1.24$ and on the item no. 22 (*"How much confidence do you have about challenging a professor's opinion in an English class?"*), $M=2.75$, $SD=1.23$.

By using Pearson's correlation coefficient, the relationship between academic self-efficacy and the grades the students got in the English language course was examined. There was a positive low (items: 2, 11, 17, 20, 21 and 25) to positive medium correlation (items: 1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14, 18, 19, 22, 23, 24, 26 and 27) between most items of the CASES scale and English grades, apart from the items no. 15 and 16. The results of the study indicated that there is a significant medium correlation ($r=0.58$, $p=0.00$) between academic self-efficacy and the grades that students got in the English language course (see Table 2). Therefore, the first null hypothesis was rejected, that is, students who scored higher on academic self-efficacy also got higher grades in English. These results are in line with the results of previous research, which proved that high self-efficacy is positively correlated with higher grades (Ersanli, 2015).

By using the Pearson's correlation coefficient, the relationship between academic self-efficacy and the self-evaluation of English knowledge was examined. There was a positive low correlation (items: 13, 20, 21 and 25) to positive medium correlation (items: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 14, 18, 19, 22, 23, 24, 26 and 27) between most items of the CASES scale and the English grades, apart from the items no. 11, 15, 16 and 17. The findings suggested that there is a positive medium correlation between the overall academic self-efficacy and students' perceived knowledge of English ($r=0.66$, $p=0.00$) (see Table 2). Thus, the second null hypothesis was rejected. Consequently, students who had higher scores on self-efficacy also rated their English knowledge higher. These findings are in line with the results of previous studies, which pointed out that self-efficacy is positively correlated with higher subjective evaluation of knowledge (Ames & Archer, 1988).

Table 2 – Correlations between academic self efficacy and English grades and academic self-efficacy and students' perceived knowledge of English (N=146)

		Academic self-efficacy
English grades	r	0.58
	p	0.00
Perceived knowledge of English	r	0.66
	P	0.00

3. CONCLUSION

Self-efficacy was introduced within the framework of Bandura's social cognitive theory. It is related to individual factors in learning that every student can try to improve on his or her own, regardless of the environment and the teacher, which they can only partially influence. The concept of self-efficacy is significant for learning because belief in one's success is necessary for achieving it in all areas, including the academic context.

The main aim of this research was to examine the relationship between the academic self-efficacy of engineering students and learning English as a foreign language. Apart from analyzing descriptive statistical data regarding academic self-efficacy, the relationship between the students' self-evaluation of knowledge of English and academic self-efficacy and the relationship between the English grades and academic self-efficacy were also examined. The highest mean concerning the items of the CASES scale was present in the students' answer to the item no. 23 (*"How much confidence do you have about applying English lecture content in practical purposes?"*). This result could indicate that the students were aware of the practical use of the English language and were particularly confident about using it in such a context. The students also scored quite high on the item no. 13 (*"How much confidence do you have about studying enough to understand content thoroughly?"*), pointing out that the respondents in question were either very ambitious or highly motivated to learn, which is not surprising when taking into account previous high school grades of electrical engineering students. The lowest means were present in the students' scores on the items no.: 7 (*"How much confidence do you have about writing a high quality seminar paper in English?"*), on the item no. 20 (*"How much confidence do you have about talking to a professor privately to get to know him/her?"*) and on the item no. 22 (*"How much confidence do you have about challenging a professor's opinion in an English class?"*). Low scores on the item 7 could be attributed to the fact that the students were generally not required to write seminar papers in English. Low scores on items 20 and 22 could be explained by the students' fear and avoidance of authority figures, unless the contact was absolutely necessary.

The research presented in this paper proved that there is a significant medium correlation between the academic self-efficacy and the English grades that students of engineering got in their English language courses, which means that students who scored higher on academic self-efficacy also got higher grades in English. The

highest correlation is noted for the item no. 24 ("How much confidence do you have about getting good grades in English?"), which was attributed to the fact that its focus was the same as the focus of the variable "grade", i.e. the grade itself. The only items from the CASES scale that were not significantly correlated with the English language grade were the items no. 15 ("How much confidence do you have about attending the English class regularly?") and the item no. 16 ("How much confidence do you have about attending the English class consistently, even if it seems boring?"), both related to the regular attendance of the course. Such results may indicate that the students with higher grades are not as keen on attending the classes.

The study also indicated that there is a positive medium correlation between the academic self-efficacy and self-evaluation of knowledge of the English language. The highest correlation was noted for the item no. 22 ("How much confidence do you have about earning good marks in most English courses?"), which may reflect the students' belief that sound knowledge of English will be reflected in earning good marks. Therefore, it was concluded that academic self-efficacy was related to both objective and subjective measures of mastering English as a foreign language, thereby underlying the significance of developing self-efficacy in one's students and oneself.

The relationship between self-efficacy and learning English as a foreign language could be further examined by adding new variables, such as locus of causality, motivation, concepts from the goal-orientation theory, such as mastery goal orientation or performance goal orientation, etc. Further research could also be conducted in the form of a qualitative study that would clarify the reasons behind the specific answers of respondents.

Due to a small size of the convenience sample, current results are to be taken with caution and further research on a larger sample may give more accurate answer to the research questions.

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