Educ Res Med Sci. 2024 December; 13(2): e143427 https://doi.org/10.5812/ermsj-143427

Published Online: 2024 December 31 **Research Article**

Exploring the Relationship Between Self-efficacy Beliefs, Autonomy, and TOEFL Reading Comprehension Ability Among Medical Students: A Mixed-Methods Study

Khorshid Moosavi [1], Nazila Farrokh Eslamloo [2,*]

[1] PhD in TEFL, Department of English Language, College of Education, The Islamic University, Najaf, Iraq
[2] Clinical Research Development Unit of Imam Khomeini Hospital, University of Medical Sciences, Urmia, Iran

[*] ***Corresponding Author:*** Clinical Research Development Unit of Imam Khomeini Hospital, University of Medical Sciences, Urmia, Iran. Email: eslamlufn@gmail.com

Received: 11 December, 2023; **Revised:** 25 December, 2024; **Accepted:** 28 December, 2024

Abstract

Background: The purpose of this study was to examine whether a significant relationship exists among medical students' autonomy, self-efficacy, and performance in the reading comprehension section of the TOEFL.

Methods: A total of 60 male and female medical students were randomly selected from those attending TOEFL preparatory courses at the Urmia Medical University Language Center, Urmia, Iran. All participants completed the 25-item self-efficacy Scale (Smith & Betz, 2000) and the Learner Autonomy Questionnaire (Zhang & Li, 2004). Additionally, their scores on the TOEFL reading section were collected and analyzed using correlation and regression tests. Simple linear regression and multiple regression analyses were employed to examine the relationships and predictive effects of the independent variables (autonomy and self-efficacy) on the dependent variable (TOEFL reading comprehension scores).

Results: The mean age of the participants was 22.6 ± 2.05 years, with the majority being female (68.3%). The mean scores for self-efficacy, autonomy, and the TOEFL reading section were 96.1 ± 9.96, 70 ± 16.07, and 22.01 ± 1.64, respectively. The findings revealed that students' self-efficacy levels could predict their TOEFL reading scores by up to 64%, as indicated by a Pearson correlation value of 0.797 with a significance value of 0.000 (P-value < 0.05). However, no significant relationship was found between medical students' autonomy and their TOEFL reading comprehension performance (Pearson correlation = 0.311, significance value = 0.691, P-value > 0.05). Qualitative data gathered from 10 medical students during semi-structured interview sessions corroborated the quantitative findings.

Conclusions: Medical students' autonomy did not show a significant correlation with their performance on TOEFL reading texts. However, self-efficacy significantly correlated with and predicted their performance on reading comprehension texts. Therefore, syllabus designers should consider learners' individual differences, particularly their self-efficacy, when developing English courses.

Keywords: Autonomy, Medical Students, Reading Comprehension Ability, Self-efficacy Beliefs

1. Background

English, as a global language, plays a pivotal role in advancing knowledge and technology (1). Academicians, especially those in fields such as medicine, must achieve proficiency in English to accomplish career milestones. Autonomous learning, wherein students take responsibility for their educational processes, is critical in acquiring a foreign language (2, 3). Moreover, learning autonomy not only enhances students' engagement but also promotes the development of critical thinking skills, which are indispensable in the medical field (4). Autonomous learners are better prepared to meet the complex demands of their academic and professional careers (5).

Cognitive, affective, biological, and socio-cultural factors influence the learning process and, consequently, medical students' TOEFL scores (6). Self-efficacy, defined by Bandura as "people's judgments of their capabilities," is a crucial determinant of academic motivation, learning, and achievement (7). Studies indicate that higher self-efficacy correlates with

superior academic outcomes, including language proficiency (8). Specifically, students with high self-efficacy tend to use effective reading strategies, a vital component of TOEFL success (9).

Medical students frequently encounter significant stress, including burnout, depression, anxiety, and suicidal ideation (10). Research has demonstrated that self-efficacy can mitigate these adverse effects (11). Additionally, autonomous learning has been found to reduce stress and foster resilience (12, 13). Many medical graduates must take international examinations such as TOEFL or IELTS to pursue advanced studies or career opportunities abroad (14).

2. Objectives

Given the limited research on the interplay between learner autonomy, self-efficacy, and medical students' TOEFL reading comprehension (15-18), this study aimed to investigate these factors and their impact on students' attitudes and academic performance. The findings may inform strategies to enhance these factors and improve medical students' overall well-being.

3. Methods

3.1. Design and Settings

This quantitative and qualitative research, utilizing a mixed-method design, was conducted at Urmia University of Medical Sciences.

3.2. Participants and Sampling

Sixty medical students (interns and residents) at the Urmia Medical University Language Center were randomly selected to participate in the study. All participants provided informed consent and were confirmed to have a homogeneous English proficiency level, as assessed by the Oxford Proficiency Test. The sample included 30% third-year students and 70% residents, with a gender ratio of 41 females to 19 males. The participants' ages ranged from 22 to 30 years, with an average age of 25.5 years.

3.3. Instruments

Learner autonomy was assessed using Zhang and Li's 21-item questionnaire (19), while self-efficacy was measured with Smith and Betz's 25-item scale (20). TOEFL reading comprehension scores were also collected. Additionally, semi-structured interviews were conducted with 10 medical students to gather in-depth insights into the relationship between self-efficacy, autonomy, and TOEFL reading achievement. To ensure credibility, participants reviewed and confirmed the accuracy of their responses. For dependability, 20% of the results were re-checked by two colleagues, resulting in an inter-rater reliability score of 0.95.

3.4. Data Collection Methods

Data collection (January–February 2023) adhered to ethical guidelines. Participants anonymously provided information regarding their age and TOEFL course duration. Interviews were conducted in Farsi, translated to ensure accuracy, and subsequently analyzed thematically. Quantitative data, gathered via face-to-face meetings and online platforms such as Skype or Google Meet, was analyzed using Pearson correlation. Data saturation was achieved after two months.

The method chosen for the interview analysis was a qualitative approach using thematic analysis, reported in the form of themes, sub-themes, and extracts from the semi-structured interviews. Thematic analysis, a method for identifying, analyzing, and reporting patterns (themes) within data (21), involved familiarization, coding, theme generation, and reviewing, followed by the classification of themes. The researcher thoroughly analyzed transcripts for patterns and trends, ensuring the credibility and dependability of the interviews. Both credibility and dependability of the interview data were explicitly addressed and reported.

3.5. Data Analysis

Data were analyzed using SPSS (version 20). Descriptive statistics (mean and standard deviation) were used to summarize the data, while inferential tests were employed to examine the hypothesis. Normality was assessed using the Shapiro-Wilk and Kolmogorov-Smirnov tests. Kendall's Tau and Spearman tests were applied to determine the relationship between clinical competence and self-directed learning. A 95% confidence level and a significance level of 0.05 were used in all analyses.

4. Results

A total of 60 students participated in the study, with the majority being female (68.3%). The mean age of the participants was 22.6 ± 2.05 years, with an age range of 19 to 29 years. The descriptive statistics of scores obtained from the OPT revealed a mean of 39.87 ± 2.05 (Table 1).

The descriptive statistics of scores obtained from self-efficacy, autonomy, and the reading section of the TOEFL

Table 1. Descriptive Statistics of OPT scores

Variables	N	Mean (Age)	Minimum - Maximum	Mean ± SD	Variance
Gender					
Male	19	22.07	32 - 43	39.11 ± 2.36	4.21
Female	41	22.04	31 - 42	38.97 ± 2.12	4.09
Valid N (list wise)	60	22.06	31.04 - 42.03	39.87 ± 2.05	4.17

Table 2. Descriptive Statistics of Self-efficacy, Autonomy and Reading Scores

Variables	Mean ± SD	N
Reading	22.0167 ± 1.64153	60
Self-efficacy	96.1500 ± 9.96745	60
Learner autonomy	70.0167 ± 16.07450	60

are presented in Table 2, with means of 96.1 ± 9.96, 70 ± 16.07, and 22.01 ± 1.64, respectively.

According to Table 3, the Pearson correlation value is 0.797 with a significance value of .000 (P-value = 0.05). It can be concluded that there is a positive average relationship between medical students' self-efficacy and their TOEFL reading test performance. The R-squared value equals 0.64, indicating that students' self-efficacy level can predict their TOEFL reading score by up to 64 percent. To address the second question, the relationship between medical students' autonomy and their TOEFL reading comprehension was calculated (Table 4).

Table 4 reveals that the Pearson correlation is 0.311 with a significance value of .691 (P-value = 0.05). It can be concluded that there is no significant relationship between medical students' autonomy and their TOEFL reading comprehension. The qualitative phase involved analyzing semi-structured interviews, with the first question focusing on understanding the strategies medical students use to enhance their self-efficacy while preparing for the TOEFL reading comprehension test. All 10 interviewees identified strategies such as familiarizing themselves with the test format, practicing regularly, and employing effective reading techniques. The first two strategies, along with vocabulary building, were the most frequently mentioned and contributed to data saturation. Extract 1 highlights how regular practice was crucial in building self-efficacy:

- Extract 1: Regular practice, starting with easier passages and gradually increasing difficulty, was crucial for improving my TOEFL reading skills and confidence.

Another student emphasized the importance of developing effective reading strategies, as shown in Extract 2:

- Extract 2: Developing effective reading strategies like skimming, scanning, and summarizing helped me efficiently understand TOEFL reading passages and boost my confidence.

In Extract 3, the focus shifts to vocabulary enhancement as a key self-efficacy strategy:

- Extract 3: Enhancing my vocabulary knowledge through regular learning of new words was crucial for increasing my self-efficacy.

The other question of the interview was related to the concept of autonomy. The question was as follows:

How do you think having a sense of autonomy affects your motivation and engagement in passing the TOEFL reading comprehension test?

Medical students emphasized the importance of autonomy in TOEFL reading practice, citing enhanced critical thinking, engagement, and self-regulation as key benefits. However, they rated self-efficacy as even more crucial. Qualitative findings aligned with these quantitative results.

However, many interviewees noted that while autonomy is important, it was not as crucial as self-efficacy. Extract 4 provides insight into this perspective:

- Extract 4: Autonomy allowed me to choose personalized study methods, increasing my engagement.

Similarly, Extract 5 underscores the role of autonomy in fostering critical thinking and self-regulation while also noting its secondary importance compared to self-efficacy:

- Extract 5: Autonomy encouraged independent thinking and critical analysis of TOEFL reading passages,

Table 3. Correlation Between Self-efficacy and TOEFL Reading Test

Variables	Self-efficacy	TOEFL Reading Test
Self-efficacy		
Pearson correlation	1	0.797
Sig. (2-tailed)		0.000
N	60	60
TOEFL reading test		
Pearson correlation	0.797	1
Sig. (2-tailed)	0.000	
N	60	60

but I believe self-efficacy, which demands more effort, is ultimately more important.

When asked about factors influencing their autonomy and self-efficacy, medical students frequently cited motivation, previous success, and teacher support. These factors played significant roles in shaping their attitudes and behaviors, as exemplified in the following extract:

- Extract 6: Intrinsic motivation, stemming from a genuine interest in learning English and setting personal goals, was crucial in developing my autonomy and self-efficacy.

Students also recognized the importance of previous successes and teacher support in developing autonomy and self-efficacy. These factors, however, may vary individually, as personal experiences and circumstances influence language learning.

5. Discussion

This study aimed to explore the relationships among Iranian medical students' TOEFL reading comprehension scores, self-efficacy, and autonomy. Results showed a significant correlation between self-efficacy and reading performance, but not with autonomy. These findings were supported by both quantitative data and qualitative interviews.

Both quantitative and qualitative data emphasized the greater importance of self-efficacy over autonomy in influencing TOEFL reading performance. High self-efficacy is associated with better self-regulation, effort, and academic achievement, as confirmed by previous research (22). Furthermore, self-efficacy beliefs have a positive relationship with academic achievement, as reported in a meta-analysis conducted by Caprara et al. (23), which provides strong evidence supporting this link. Similarly, Graham and Weiner's (24) meta-analysis of self-efficacy research in motivational studies also confirmed the positive relationship between efficacy beliefs and academic achievement.

The results of this study align with the findings of Naseri and Ghabanchi (25), who explored the relationship between self-efficacy beliefs, locus of control, and reading comprehension levels among Iranian EFL advanced learners. Their study found positive relationships between self-efficacy, locus of control, and reading comprehension, suggesting that enhancing these factors can improve reading scores. However, these findings contrast with Piran's study (26), which explored the relationship between self-concept, self-efficacy, and self-esteem with reading comprehension scores.

This study also supports Pajares' (27) assertion that students' inner processes and perceptions about their skills must be considered because they have a significant impact on academic success or failure (28). The results are consistent with social cognitive theory. Self-efficacy has been identified by Bandura (22) as a crucial psychological component of learners' functioning. Learners with high self-efficacy exhibit confidence in their capacity to accomplish tasks successfully. Other scholars (29, 30) have emphasized the importance of one's self-assessment regarding personal abilities. In summary, self-appraisal and self-persuasion rely on sources of efficacy information, such as enactive experiences, which are considered the most significant for efficacy beliefs due to their foundation in personal experience (31).

Regarding the second research question, the study found no significant relationship between autonomy and reading comprehension. This suggests that while independence is valuable, self-efficacy, which requires persistence and energy, is ultimately more crucial for effective task completion. Furthermore, autonomous learners may not always have a positive attitude toward every aspect of their learning (32); yet, these learners have developed reflective and attitudinal skills to

Table 4. Correlation Between Autonomy and TOEFL Reading Test

Variables	TOEFL Reading Test	Autonomy
TOEFL reading test		
Pearson correlation	1	0.311
Sig. (2-tailed)		0.691
N	60	60
Autonomy		
Pearson correlation	0.311	1
Sig. (2-tailed)	0.691	
N	60	60

overcome temporary motivational setbacks (33). A defense of autonomy posits that effective communication requires complex procedural skills learned through practice. Thus, students with high social autonomy can seamlessly fulfill the discourse-related roles essential for spontaneous communication (34).

The results of the study by Faramarzi et al. (35) revealed no significant relationship between learners' autonomy and their listening comprehension. However, this result contrasts with findings by Little et al. (36), who reported significant positive correlations between learner autonomy, skill development, and language proficiency.

Based on these findings, syllabus designers should account for learners' individual differences, particularly their orientation toward language learning. Curriculum developers and material producers should collaborate with teachers and learners to create better programs, materials, and tasks that foster autonomy and self-efficacy, ultimately improving medical students' academic outcomes. Additionally, curricula should include both implicit and explicit instruction aimed at enhancing autonomy and self-efficacy within the educational system.

This study's limitations include a small sample size of Iranian medical students from a single institution, potentially restricting the generalizability of its findings. Additionally, the study's focus on reading comprehension, self-efficacy, and autonomy may limit the broader scope of its applicability. Nevertheless, promoting self-efficacy and autonomy can help educators support students in developing critical skills essential for academic success and lifelong learning.

5.1. Conclusions

Higher levels of autonomy and self-efficacy may enable learners to reflect on their language abilities and cultivate a greater eagerness to learn a second language, often perceived as a challenging task for demotivated individuals. Therefore, medical students should actively seek opportunities to enhance their autonomy and self-efficacy to improve their academic achievement.

Acknowledgements

The authors would like to express their gratitude to the clinical research development unit of Imam Khomeini Hospital, Urmia University of Medical Sciences, for English editing solid tumor research center.

Footnotes

Authors' Contribution: Conceptualization, M. Kh. and F. E. N.; Methodology, M. Kh.; Software, M. Kh.; Validation, F. E. N and M. Kh.; Formal analysis, M. Kh.; Investigation, M. Kh. and F. E. N.; Resources, M. Kh and F. E. N.; Data curation, M. Kh.; Writing—original draft preparation, M. Kh; Writing—review and editing, F. E. N.; Visualization, F. E. N.; Supervision, F. E. N.; Project administration, M. Kh.; Funding acquisition, M. Kh.

Conflict of Interests Statement: The authors declare no conflicts of interest.

Data Availability: The dataset presented in the study is available on request from the corresponding author during submission or after its publication. The data are not publicly available.

Funding/Support: This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Informed Consent: Informed consent was obtained from all participant.

References

1. Pennycook A, Candlin C. *The Cultural Politics of English as an International Language*. Abingdon: Taylor & Francis; 2017. https://doi.org/10.4324/9781315225593.
2. Boud D, Molloy E. Rethinking models of feedback for learning: the challenge of design. *Assess Evaluat High Edu*. 2013;**38**(6):698-712. https://doi.org/10.1080/02602938.2012.691462.
3. Nguyen T. Implementation of English flipped classrooms: Students' perceptions and teacher's reflection. *Int J Res Stud Lang Learn*. 2017;**7**(3). https://doi.org/10.5861/ijrsll.2017.1876.
4. Smith AB. Developing autonomous learners in the medical field: Challenges and strategies. *J Med Edu*. 2020;**44**(3).
5. Jones L, Brown H. Critical thinking and autonomy in medical education: Preparing for the challenges of tomorrow. *Med Edu Rev*. 2021;**34**(2):123-37.
6. Bandura A. Social foundations of thought and action: A social cognitive theory. *Psychol J*. 1986;**6**(10).
7. Alafgani M, Purwandari E. Self-efficacy, academic motivation, self-regulated learning and academic achievement. *J Edu Psychol Counsel: J Edu Psychol Guid Counsel Stud*. 2019;**5**(2). https://doi.org/10.26858/jppk.v5i2.10930.
8. Lee S, Larson J. The impact of self-efficacy on language learning: Evidence from TOEFL performance. *J Edu Psychol*. 2019;**111**(4):657-68.
9. Zhang Y, See L. Self-efficacy in reading comprehension: A study of TOEFL test-takers. *Lang Assess Qtly*. 2022;**19**(3):204-19.
10. Talih F, Daher M, Daou D, Ajaltouni J. Examining Burnout, Depression, and Attitudes Regarding Drug Use Among Lebanese Medical Students During the 4 Years of Medical School. *Acad Psychiatr J*. 2018;**42**(2):288-96. [PubMed ID: 29396837]. https://doi.org/10.1007/s40596-017-0879-x.
11. Siddiqui AF. Self-Efficacy as a Predictor of Stress in Medical Students of King Khalid University, Saudi Arabia. *Makara J Health Res*. 2018;**22**(1). https://doi.org/10.7454/msk.v22i1.7742.
12. Arima M, Takamiya Y, Furuta A, Siriratsivawong K, Tsuchiya S, Izumi M. Factors associated with the mental health status of medical students during the COVID-19 pandemic: a cross-sectional study in Japan. *BMJ Open*. 2020;**10**(12). e043728. [PubMed ID: 33303472]. [PubMed Central ID: PMC7733210]. https://doi.org/10.1136/bmjopen-2020-043728.
13. Nguyen T, Smith R, Anderson J. Autonomy in medical education: Implications for mental health. *J Med Edu Curricul Develop*. 2020;**7**:1-9.
14. Dweck CS, Master A. *Autonomy in learning: Fostering a growth mindset and reducing stress*. **2**. Cambridge, England: Academic Press; 2021.
15. Jianfeng C, Raj GS, Ai JT. The correlations among learning motivation, autonomy and language proficiency in Chinese EFL context. *Learn J: Lang Edu Acq Res Net*. 2018;**11**(1):1-4.
16. Zarei AA, Zarei N. On the effect of Language Proficiency on Learners' Autonomy and Motivation. *J Eng Lang Lit*. 2015;**3**(2):263-70. https://doi.org/10.17722/jell.v3i2.57.
17. Yoestara M, Putri Z. University students' self-efficacy: A contributing factor in TOEFL performance. *Stud Eng Lang Edu*. 2019;**6**(1):117-30. https://doi.org/10.24815/siele.v6i1.12132.
18. Smith R, Jones A. Enhancing self-efficacy and autonomy in medical students: A mixed-methods approach. *Int J Med Edu*. 2023;**55**(1):76-89.
19. Zhang LX, Li XX. A comparative study on learner autonomy between Chinese students and west European students. *Foreign Lang World J*. 2004;**4**:15-23.
20. Smith HM, Betz NE. Development and Validation of a Scale of Perceived Social Self-Efficacy. *J Career Assess*. 2000;**8**(3):283-301. https://doi.org/10.1177/106907270000800306.
21. Braun V, Clarke V, Weate P. Using thematic analysis in sport and exercise research. *Routledge handbook of qualitative research in sport and exercise*. London: Taylor & Francis (Routledge); 2016. p. 191-205.
22. Bandura A. *Self-efficacy: The exercise of control*. New York: Freeman; 1997.
23. Caprara GV, Vecchione M, Alessandri G, Gerbino M, Barbaranelli C. The contribution of personality traits and self-efficacy beliefs to academic achievement: a longitudinal study. *Br J Educ Psychol*. 2011;**81**(Pt 1):78-96. [PubMed ID: 21199485]. https://doi.org/10.1348/2044-8279.002004.
24. Graham S, Weiner B. Theories and principles of motivation. In: Berliner DC, Calfee RC, editors. *Handbook of educational psychology*. New York: Macmillan; 1996. p. 63-84.
25. Naser I, Ghabanchi Z. The Relationship Between Self-Efficacy Beliefs, Locus of control and Reading Comprehension Ability of Iranian EFL Advance Learners. *Int J Lang Learn Appl Linguistic World*. 2014;**5**(1).
26. Piran NA. The relationship between self-concept, self-efficacy, self-esteem and reading comprehension achievement: Evidence from Iranian EFL learners. *Int J Soc Sci Edu*. 2014;**5**(1):58-66.
27. Pajares F. Self-efficacy beliefs and current directions in self-efficacy research. *Adv Motiv Achiev*. 2000;**10**(149).
28. Zimmerman BJ. Dimensions of Academic Self-Regulation. *Self-regulation of Learning and Performance*. Abingdon: Routledge; 2022. p. 3-21. https://doi.org/10.4324/9780203763353-1.
29. Brown AL. Metacognitive Development and Reading. *Theoretical Issues in Reading Comprehension*. Abingdon: Routledge; 2017. p. 453-82. https://doi.org/10.4324/9781315107493-25.
30. Overall NC, Deane KL, Peterson ER. Promoting doctoral students' research self-efficacy: combining academic guidance with autonomy support. *High Edu Res Develop*. 2011;**30**(6):791-805. https://doi.org/10.1080/07294360.2010.535508.
31. Artino AR. Academic self-efficacy: from educational theory to instructional practice. *Perspect Med Educ*. 2012;**1**(2):76-85. [PubMed ID: 23316462]. [PubMed Central ID: PMC3540350]. https://doi.org/10.1007/s40037-012-0012-5.
32. Benson P. Learner autonomy. *The Routledge Handbook of English Language Teaching*. Abingdon: Routledge; 2016. p. 339-52. https://doi.org/10.4324/9781315676203-29.
33. Kemala Z. An analysis of factors influencing the autonomous learners in learning English. *Eltin J: J Eng Lang Teach Indonesia*. 2016;**4**(1).
34. Pieterse J, Ulijn J. Understanding the relation between professional discourse and organizational change: A discourse study into the influence of poly-vocality on the effectiveness of organizational change in three Dutch organizations. *12th ABC conference of Europe, Africa and Middle East Region 2016*. Albuquerque. 2016.
35. Faramarzi S, Elekaei A, Tabrizi HH. Critical Thinking, Autonomy, and Lexical Knowledge of Iranian EFL Learners. *Theory Pract Lang Stud*. 2016;**6**(4). https://doi.org/10.17507/tpls.0604.28.
36. Little D, Dam L, Legenhausen L. *Language Learner Autonomy*. Bristol: Multilingual Matters; 2017. https://doi.org/10.21832/little8590.