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Ahmed Aldarmahi^{1,2*}

Abdulmohsen Alkushi^{1,2}

Adnan Al Shaikh^{1,2}

Ahmad Subahi^{1,2}

Manal Al Makoshi³

Areej Al Owfi¹

Sajjadllah Al Hawsawi¹

Basim Alamri⁴

Mohamad Ahmad¹

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¹College of Sciences and Health Professions, King Saud bin Abdulaziz University for Health Sciences, Saudi Arabia

²King Abdullah International Medical Research Centre, Ministry of National Guard- Health Affairs, Saudi Arabia

³Authority of People with Disability, Director of International Cooperation, Riyadh, Saudi Arabia

⁴English Language Institute, King Abdulaziz University, Saudi Arabia



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Ahmed Aldarmahi^{1,2*}, Abdulmohsen Alkushi^{1,2}, Adnan Al Shaikh^{1,2}, Ahmad Subahi^{1,2}, Manal Al Makoshi³, Areej Al Owfi¹, Sajjadllah Al Hawsawi¹, Basim Alamri⁴, Mohamad Ahmad¹

¹College of Sciences and Health Professions, King Saud bin Abdulaziz University for Health Sciences, Saudi Arabia

²King Abdullah International Medical Research Centre, Ministry of National Guard- Health Affairs, Saudi Arabia

³Authority of People with Disability, Director of International Cooperation, Riyadh, Saudi Arabia

⁴English Language Institute, King Abdulaziz University, Saudi Arabia

Email: aldarmahia@ksau-hs.edu.sa

*Corresponding author

ABSTRACT

The present study aims to investigate possible correlations between academic achievement of freshman students based on English Proficiency Test (EPT) results and pre-admission criteria, i.e., High School Grade point average (GPA), the General Aptitude Test (GAT), and the Scholastic Achievement Admission Test (SAAT) at King Saud bin Abdulaziz University for Health Sciences (KSAU-HS) in Saudi Arabia. The study involved 528 first-year students enrolled in a pre-professional program in two campuses of the university. Pre- and post-tests of the EPT were conducted along with a demographic survey to gather details about the participants. Descriptive and inferential statistics analysis were applied to test the correlations between variables. The results showed a significant improvement in all components of the EPT in the two campuses. The differences in the scores among the GAT, SAAT, and EPT were significantly and positively correlated with the higher GPA. The analysis also revealed a strong correlation with higher GAT and SAAT results to scoring better in EPT and gaining a higher GPA. The improvement in the EPT results could indicate that the objectives of the English program were achieved. Finally, our study shows that the pre-admission criteria could predict students' academic performance in an English program.

Keywords: academic achievement, admission criteria, English Proficiency Test (EPT), General Aptitude Test (GAT), Scholastic Achievement Admission Test (SAAT)

INTRODUCTION

The teaching of English as a foreign language (EFL) has maintained a presence in Saudi Arabia's education system since it was introduced in the 1930s (Alshahrani, 2016; Ebad, 2014). In 1943, through a fundamental legislation, the Saudi government decided to add English language as a taught subject in the intermediate stages of school, i.e., grades 7-9. Since that time, the teaching of EFL as a formal subject has been expanded in the public-school curricula from grades 4 to 12. At the university level, English language was first taught as a compulsory subject in 1949 and the first English department was established in 1957 at King Saud University (Al-Abed Al-Haq & Smadi, 1996; Faruk, 2013).

In the past decades, Saudi Arabia has expanded the number of universities from eight to thirty government institutions and twenty-seven private (McMullen, 2014; Rahman & Alhaisoni, 2013). During this expansion phase, Saudi Arabia established the preparatory year program, with the English language being a mandatory subject in most degree programs across the country. King Fahad University of Petroleum and Minerals was the first university to establish an English preparatory year in 1964, followed by the founding of similar programs in other universities (Alshahrani, 2016; McMullen, 2014). Nowadays, higher education institutions in Saudi Arabia offer intensive English language programs which play a crucial role as many academic disciplines, particularly in such areas as health and natural sciences, use English as the official medium of instruction (EMI).

The universities, both governmental and private, along with other enterprises are in competition to provide the best and most effective English programs to achieve the future academic goals of the country in light of the Saudi Vision 2030. While primary and secondary schools curricula are carefully managed and implemented by the Ministry of Education, the higher education sector, in both the public and private institutions, has the autonomy to develop and implement their own curricula to suit the needs and goals of their institution (Alrashidi

& Phan, 2015). The higher education sector has responded to this challenge by firmly establishing English curricula with high quality programs to attract students and contribute to the ambitious goal of the country. In this context, King Saud bin Abdulaziz University for Health Sciences (KSAU-HS) has a unique position with regards to its preparatory English program. The curriculum prepares students with necessary English language skills to study and succeed in English medium health science professions. The College of Science and Health Professions (COSHP) provides a mandatory English language program for all freshman year students as part of the University Pre-Professional Program (UPPP) to prepare students to join health science colleges, such as medicine, dentistry, pharmacy, applied medical sciences and nursing at KSAU-HS. The UPPP is a mandatory one-year prerequisite for all students who enroll in the university. One of the main purposes of the UPPP is to foster a smooth transition for students shifting from an Arabic language teaching/learning setting in their secondary schools to a college setting where the medium of instruction is English. The UPPP also aims to provide students with a new and intense student-centered learning environment that improves their overall proficiency level of English. It is an intensive and distinctive program which divides the language courses into four subject areas of required study over a period of three semesters. These subject skills are communication, i.e., listening and speaking, writing, reading, and grammar. The general academic framework in each semester builds upon the other, i.e., from intensive English program to English for medical purposes, to develop the student competence and confidence. For this reason, the English Proficiency Test (EPT) is an essential assessment tool used in the UPPP to establish student's entry level of English and their knowledge gain within and across the KSAU-HS campuses.

Admission criteria for Saudi universities

The admission criteria for Saudi universities, including KSAU-HS, are based on government mandated weight calculations of 30% - 30% - 40% composed of the final High School cumulative score, the General Aptitude Test (GAT) and the Scholastic Achievement Admission Test (SAAT) respectively. The GAT focuses more on students' analytical reasoning skills, irrespective of the specific major they wish to enroll in, while the SAAT focuses on students' understanding of basic science subjects learned throughout their high school years (Althewini & Alkushi, 2020).

While the admission criteria in universities are strict and highly competitive, in reality; there is often a gap between the English language skills of incoming high school students and the actual necessary language skills required to succeed in a university (McMullen, 2014). The UPPP English program was mainly introduced to provide that solid foundation for English language learning and improve the overall English language skills required of these students in their health science courses.

As is commonly practiced in universities where the medium of instruction is English and students are non-native English speakers, an EPT is mandated for all incoming students (Fox, 2009; Kaliyadan et al., 2015). At KSAU-HS, the EPT is used to measure students' English proficiency and allow them to be grouped appropriately based on their EPT scores. English proficiency tests play an important role in facilitating teaching English language through the level of students who share similar needs in English learning (Green & Weir, 2004). Newly admitted students at KSAU-HS take the EPT prior to the start of their first semester in the academic year. The EPT is dynamic and designed to effectively determine and categorize the English proficiency of the new batch of students.

Research Problem

Research on students' academic performance in Saudi Arabia have shown a positive relationship between pre-university criteria and university performance (Al Alwan et al., 2013; Al-Alwan, 2009; Alghamdi & Al-Hattami, 2014; Vista & Alkhadim, 2022). For instance, Al-Alwan (2009) conducted a retrospective study involving 91 male students studying in the pre-professional program at KSAU-HS. The results indicated a good correlation between academic performance and admission criteria to health science colleges on one hand with early academic performance in these colleges on the other hand. Later in a longitudinal cohort study, Al Alwan et al. (2013) assessed the predictive validity of Saudi health sciences and medical school pre-admission selection tools (i.e., High School, Aptitude and Achievement tests) for in-course performance over a three-year period. They reported that these tools predicted students' academic performance in health sciences and medical colleges. Recently, Vista and Alkhadim (2022) carried out a large scale study using a multilevel structural equation modeling approach to investigate pre-university measures and students' university performance. The results supported the role of pre-admission criteria in predicting students' performance. Overall, these studies focused on either predicting students' performance in first-year programs as a whole (e.g., Al-Alwan, 2009), or a three-year period for all students enrolled in the health sciences courses (Al Alwan et al., 2013; Vista & Alkhadim, 2022). However, few studies have investigated medical students' academic performance prediction in an English language program. Also, studies that have used EPT as a tool for predicting students' performance are scarce, especially in the Saudi context. According to Al-Busaidi (2016), the relationship between language proficiency and academic success has been investigated in the literature; however, the findings were not

conclusive. Therefore, such investigation would help policymakers evaluate the outcomes of their English language programs and then make necessary changes to develop English language instructions.

Research Aim and Research Questions

The aim of this study therefore was to evaluate to what extent the learning outcomes of the English language curriculum in the University Pre-Professional Program had been achieved in light of pre-test and post-test results of the EPT. The correlation of the students' EPT results with their admission tests (GAT & SAAT) and GPA were analyzed and correlated.

The present study answered the following research questions:

Does students' English language proficiency increase after completing the University Pre-Professional Program? If yes, in what language aspects?

Do pre-university measures predict students' performance in the English Proficiency Test? If yes, How?

METHODOLOGY

The present study employed pre-test and post-tests research design. Pre- and post-tests are assessment tools defined as before and after assessment to measure whether the expected changes or learning objectives took place in the participants in a program. The primary objective of pre-post test is to assess knowledge that the students have learned during a course or a program.

Participants

The study was carried out in the College of Sciences and Health Professions (COSHP) at King Saud bin Abdulaziz University for Health Sciences (KSAU-HS). The study population included first-year students newly admitted at KSAU-HS in two campuses in Saudi Arabia: Riyadh and Jeddah. All 528 students participated in the study and took the pre and post EPTs. Table 1 presents the demographic information of the participants. For example, the participants were almost equally distributed by gender; male 47.3% and female 52.7%. Of the 528 students, 35.4% were from the Riyadh campus and 64.6% came from Jeddah. 53.8% graduated from government schools, whereas 46.2% graduated from private ones. Finally, only 12.7% of students reported they had a relative working in health-related professions.

Table 1: Demographic information of participants

Variable	N=528	%
Campus		
Riyadh	187	35.4
Jeddah	341	64.6
Gender		
Male	250	47.3
Female	278	52.7
Type of high school		
Governmental	284	53.8
Private	244	46.2
Having relative in Health Profession		
Yes	68	12.7
No	460	87.3

Instruments and Procedures

The study involved two instruments: a demographic survey and an English proficiency test. First, several characteristics and demographic data were collected via a survey to align and correlate them with the EPT score. The survey was provided to students to fill it in with information, such as gender, age, type of high school (governmental or private), high school score, General Aptitude Test (GAT), Scholastic Achievement Admission Test (SAAT), GPA of first semester and whether they had a relative working within the health sector, and number of hours dedicated for reading.

Second, the EPT is considered a well-established proficiency test at the university. The EPT was developed internally by the COSHP faculty members in consultation with international testing experts. It has been used for more than 10 years at KSAU-HS, and it has evolved considerably over these years. The EPT contained 100 multiple-choice questions (MCQs) and composed of four language sections, namely, listening, grammar, vocabulary and reading.

Section I (Listening comprehension) composed of 25 MCQs developed to test the ability of non-native speakers of English to listen to and comprehend audio recordings of one or more people speaking on a topic in English.

Section II (Grammar) composed of 30 MCQs used to test students' competence in the basic- fundamentals of grammar, i.e. English tenses, clauses, adverbs, adjectives, nouns, question formation, passive structure, etc.

Section III (Vocabulary) composed of 25 MCQs used to measure student's knowledge of common, high frequency vocabulary words or phrases used within a sentence or paragraph context. Students were required to select the most meaningful choice that could replace the underlined word or phrase.

Section IV (Reading comprehension) composed of 20 MCQs, divided equally between two reading passages, which tested students critical thinking, inference and interpretation skills, and their ability to identify the main idea and topic.

The study followed the following procedures. First, all freshman students admitted to KSAU-HS had to take the EPT at the entry level of the first semester in the academic year 2019-2020; this test was called pre-test stage. In the first semester, students were required to study intensive English program for 15 weeks with 18 hours per week. According to the program handbook, the first semester comprises three English courses that equip students with a firm grounding, which includes English communication skills, English Grammar 1, and English Reading and Vocabulary. All students are required to pass these subjects so that they move to the next academic level.

Second, after completing the intensive English program, all students were invited to take the EPT again. Students were informed via the consent form that the test was voluntarily and not to be used for their academic or study results and has no link to any course or assignment. This test was referred to as the post-test stage. Then these pre and post-tests results were collected and analyzed. The EPT was easy for students to access and self-register through a university Intranet link. Each student was required to record their details such as, name, national ID, etc. at the start page. On the final page, students received their EPT scores automatically. The authors obtained the Institutional Review Board permission to conduct the study at KSAU-HS. Students' identities remained confidential and anonymous.

Reliability of the instrument

To examine the reliability of the pre- and post- EPT scores, the method of test-retest reliability was conducted. The correlation coefficients were computed for each component of EPT between the pre- and post- test scores. The values of the correlation coefficients were statistically significant, and the reliability value was greater than 0.70.

Data Analysis

The data received from the students were coded and analyzed using SPSS 24.0. The data were analyzed using descriptive and inferential statistical analysis. Descriptive statistics were calculated and include frequencies, percentages, ranges, means, and standard deviations (SD). Paired samples T-test was applied to examine the significant differences between the pre- and post- test scores as well as the differences between campuses and gender. For the correlation between the outcome variable of first semester GPA and the quantitative parameters and characteristics, the Pearson coefficient of correlation was computed. Multiple regression models were used to estimate the quantity of the parameters that significantly correlated and affected the outcome variable. The significance difference for p-value was set to be < 0.05 for all statistical tests.

RESULTS

RQ 1: students' English language proficiency after completing the UPPP

The results of the paired sample t-test indicated statistically significant differences in the means of scores between the pre- and post- tests of EPT. A difference in means was found to be significant for all components of EPT as well as for the overall scores. Table 2 provides a summary of the pre- and post- EPT results for all students in the sample listed by each EPT component. The mean of the pre-test listening section was 15.7 compared to 17.9 for the post-test, while the mean score in the grammar pre-test was calculated at 14.8 compared to 18.5 for the post-test. The vocabulary section pre-test had a mean of 12.1 in contrast to 14.9 for the corresponding post-test, while the mean score of the reading section was 9.7 and 11.7 for the pre- and post-tests respectively. Overall, the mean of the pre-test of all students in the study was 56.9 which increased to 66.7 in the post-test. The p values of the t-test confirmed the significant increase in mean scores in the post-test compared to the pre-test for all components and the overall score as well.

Table 2: Differences in EPT between Pre- and Post- Test (N=528)

Component	Pre-Test		Post-Test		P value
	Mean	SD	Mean	SD	
Listening	15.7	6.2	17.9	5.9	0.000
Grammar	14.8	6.7	18.5	5.9	0.000
Vocabulary	12.1	5.5	14.9	5.8	0.000
Reading	9.7	4.7	11.7	5.4	0.000
Overall	56.9	20.3	66.7	18.7	0.000

Further analysis was conducted to measure potential differences based on gender and participants' location, i.e., campus. The results showed no significant difference among the male and female students with the exception of the reading component which showed that male students scored higher than female students. In terms of location, there was no significant difference in the means, based on P value, between Riyadh campus (10.7) and Jeddah campus (10.9). This can be used as additional evidence of the consistent curriculum delivery among the campuses.

The study also examined whether students who graduated from governmental schools versus those from private/international high schools scored higher in the EPT. The results revealed a significant difference in favor of students who studied in private schools. The mean score difference among private schools' students was 12.3 compared to 9.7 for students graduating from governmental schools with P value 0.046 (Table 3).

Table 3: Overall Pre - Post EPT differences by type of high school

Type	Diff Mean	Diff SD	P value
Governmental	9.7	9.5	0.046
Private	12.3	9.6	

RQ 2: pre-university measures prediction of students' performance in the EPT

In order to analyze the correlation between the first semester GPA of the students and other parameters such as type of high school, having a relative working in health sectors and number of reading hours, further analysis was performed. As can be seen in Table 4, the findings revealed that there was a significant difference in GPA in relation to type of high school. In fact, students who graduated from private schools gained higher GPAs compared to students graduating from governmental schools. Additionally, students who had relatives working in health-related professions were more likely to achieve a higher GPA. In terms of time spent in reading, no significant difference in GPA was found based solely on the number of reading hours.

Table 4: GPA by selected student characteristics

Variable	Mean	SD	P value
Type of high school			
Governmental	4.61	0.49	0.000
Private	4.86	0.22	
Having relative in health Profession			
Yes	4.87	0.28	0.016
No	4.59	0.44	
Reading hours			
1	4.61	0.29	0.451
2	4.68	0.44	
3+	4.77	0.33	

The correlation analysis of GPA with the academic indicators is summarized in Table 5. It was found that the differences in scores between the GAT, SAAT and EPT were significantly and positively correlated with students' first semester GPA. That is, students scores who scored higher in GAT, SAAT and EPT were associated with higher scores in GPA; however, no such significant correlation was found with students' high school cumulative scores.

Table 5: GPA correlation with academic indicators

Indicator	r	P value
School GPA	0.171	0.242
GAT	0.532	0.001
SAAT	0.443	0.008
EPT diff	0.321	0.041

Multivariate regression model analysis of the first semester GPA as a dependent variable and significant factors are presented in Table 6. The overall model was statistically significant as indicated by F ratio. The variation in independent variables included in the regression model explains 67.1% of the variation of student's GPA as shown by the value of R². The variables in the model fit well with the dependent variable. Four variables were found to have significant effect on the dependent variable GPA. It was concluded by the coefficient of GAT that by increasing GAT by one score would lead to a 3.5% increase in student's GPA, while one score increase in SAAT would yield in a 6.1% increase in GPA. The coefficient of type of schools' variable indicated that the

mean difference in GPA between governmental and private school students was 6% holding constant with other factors.

Table 6: Multiple regression model of GPA correlates

Variable	B	P value	F ratio	R ²
GAT	0.035	0.001	87.1	0.671
SAAT	0.061	0.000		
EPT diff	0.011	0.048		
Relative in Health Profession	0.026	0.215		
Type of school	0.060	0.000		

DISCUSSION

Students' English language proficiency after completing the UPPP

The current study aimed at investigating to what extent English language proficiency predicted academic achievement at KSAU-HS. In this study, the scores of the EPT were used as a pre-test (baseline) to compare with the students' post-test scores. In all EPT sections and in overall scores, the students (male and female) in both campuses showed an improvement in their performance in the English language skills. This clearly supports that the quality of teaching on both campuses is similar and the criteria of faculty recruitments are appropriate. In addition, the variation in English performance between students was minimized in the post-test as indicated by the lower values of range. It can also be confirmed that the UPPP English curriculum is beneficial and accomplishing its goals. Interestingly, the findings showed a distinctive improvement occurred among weaker students. Nonetheless, the UPPP continually strives for improvement with new approaches and strategies to enrich the current English curricula and practices.

Researchers suggested that in order to evaluate a program and its alternatives, the relative strengths and weaknesses should be explored under different conditions to determine under which each may be successful (Tucker & Cziko, 1978). At COSHP, highly qualified English faculty members with experience are annually recruited after an intensive process of selection. In addition, the KSAU-HS strives to provide modern facilities and amenities such as well-designed classrooms, high-tech audio and visual systems, well-equipped computer laboratories, and an up-to-date library with access to printers, photocopier and online access to most high index scientific journals. These services and others are key for a successful English program at KSAU-HS. Academically, students are also provided with "remedial classes", a scheme developed to support weaker students who may be struggling within the intensive English program. This approach is in alignment with Kiely and Rea-Dickins' (2005) argument that in order to show the value of a program's accountability and development, the relationship between its components, process and outcomes must be evaluated. Since several studies have shown a need for focusing on using evaluation for improving language programs and teaching practices (Harris & Lloyd, 2011; Norris, 2009), the evaluations procedures in the UPP program are periodically carried out during and after each semester. In addition, the increased demand for evaluation results in greater emphasis on accountability which provides an opportunity for increased awareness of evaluation for developmental purposes (Sullivan & Arthur, 2006). In a similar study, Kelly et al (2013) examined the relationship of communication and clinical skills by pre-determined predicted test. They found that there is no strong predictor that can be established.

Pre-university measures prediction of students' performance in the EPT

As shown from the study's results, a student's GAT, SAAT, school type and EPT (multivariate analysis) respectively could be considered as key admission criteria that influence the university GPA. The results have shown that students with higher GAT scores following by SAAT scores achieved better in the EPT and scored higher GPAs. These findings are supported by similar results from recent studies (Al Alwan et al., 2013; Althewini & Alkushi, 2020; Vista & Alkhadim, 2022). The admission criteria could be used to support the selection of students to the health science colleges and predict their academic performance after completing their freshman year.

Interestingly, students' high school scores were not a significant factor in the improvement of English language skills or EPT results. Based on similar studies, the current findings confirm that the results may be generalized to some extent to other campuses and universities. Al-Alwan (2009) conducted a similar study but for ongoing students within KSAU-HS. He found a strong correlation between academic performance and the Aptitude Exam, the Achievement Exam and high school final grade. The Achievement Exam showed the most significant correlation.

The analysis of the pre- and post- EPT results was carried out to add an additional indicator of the significance of the UPPP English program in COSHP. In order to gain a deeper understanding of a foreign language program

and its effects, students' perceptions should also be included in a program's evaluation procedures (Arnold, 2009; Brown, 2008). Future avenues could investigate students' perceptions towards the English proficiency test as well as the intensive English language program.

CONCLUSION AND IMPLICATIONS

The study's results showed a clear evidence for the significance of the UPPP English program in COSHP in achieving its aims. There were no differences among the students on both campuses in their EPT improvement which reflects appropriate academic standards and recruitment criteria among campuses, including faculty and students. There was a strong correlation between higher GAT and SAAT results and scoring better in the EPT and achieving a higher GPA at the university. Policymakers could use these results of English proficiency test, especially when it is used as pre-post-tests, to assess strength and weaknesses in the English language programs in their universities. The UPPP continues to periodically evaluate its program in order to ensure the highest quality of education for its students. Additionally, this study fills a gap in the literature available on preparatory English programs in Saudi Arabia and the links found in students' academic achievement in light of pre-admission criteria.

The study had some limitations. Although the present study showed that English language proficiency and pre-admission criteria could predict academic achievement, other factors could play important roles in predicting students' academic performance such as the cognitive skills. Therefore, future studies could investigate students or teachers' related factors. In addition, the study used only quantitative approach. It could be interesting to include another layer of analysis by adding qualitative analysis. A qualitative approach such as interviews would offer more in-depth details about predicting students' achievement.

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