

The Impact of Admission Criteria and Registration on the Academic Performance of Students in the preparatory Year

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Abstract.

Multiple admission indicators associated as latent factor of academic performance by compared with the admission criteria from year 2019 to 2021. Achievement test was the most important loading then the preparatory year grade point average, Aptitude tests and the secondary school percentage was the lowest loading of academic factor. Which expresses the relative weight of the variable representing the requirements for admission to the university, and it is noted that the relative weight changes every year according to student levels, with regard to the preparatory year grade average. Admission criteria should give more attention to the change of the academic variables weight during admissions processes when determine each relative weight that enable students to join the university. The admission criteria can improve everyone's prospects for higher education. The study concludes that it is important to consider the strategic behaviour found in the admission criteria system when determine the weight given to the secondary school examinations in the admission decision is determined by the universities. To support and increase the level of equal academic opportunities, which promotes improved achievement and academic performance level of students. In addition to finding effective policies of the students acceptance in the appropriate colleges for them. Moreover, supporting in making admission decisions.

Keywords: Admission Criteria; Academic Performance; CFA; Preparatory Year

1. Introduction

University education has become a mainstay in the twenty first century for the development of social and economic factors .The use and analysis of academic data is necessary to improve correct academic decision making and prepare students for a prosperous career (Uddin & Lee. 2016) Therefore, students' knowledge of university admission requirements and the identification of the most important factors that affect it, helps predict academic success at the university. (El Guabassi, et al. 2021) Therefore, higher education constantly needs to develop and improve the educational management process to meet the

changes, in order to reach excellence and graduate high quality students for the fields of work. (Amburgey and J. Yi, 2013).

Admission decisions are among the most important decisions taken to reduce dropout and repetition rates, improve admission practices that greatly affect human resources and shaping career, and support the university's main mission to develop science and technology and increase competitiveness by achieving optimal performance in universities. (Yudianto et.al. 2021). To achieve this goal, the need for strategic planning and educational management appear. The admission management process is one of the important processes in educational administration.

A proper admission management process has the ability to place students in colleges that suit their level and qualifications for the university to reduce student failure during their undergraduate studies. (M. Xia. 2019) And the establishment of an admission system that ensures equality between students in university seats , by visualizing student data to support decision-making, and predictive analyzes of student data for candidates to obtain the best criteria for student selection, supporting strategic planning and improving and developing the university admission process(Sotarar, & Sorawee. 2019). Although the stated criteria for college's admissions differ, there are commonalities, yet universities differ greatly in how they apply these criteria and in the methods used to select students, as methodology and systems should be developed.

There is still dissatisfaction with university admission systems, especially in the most popular colleges, so admission systems must be developed with discriminatory and impartial practices among students. (Parry, et al. 2006), Where the grade of student enrollment in the first year of the university is the strongest academic performance index to courses and explain the large size of the variation in students grades. (Ferrão, & Almeida, 2018), which supports raising success rates and reducing repetition, withdrawal and deprivation rates in academic courses.

2. Literature Review

The need for attention from the use of the average scores of students at the secondary school and weight gain relative to the collection of secondary school as a means to increase acceptance rates and increase Academic ability of students, Which causes the secondary school grades to inflate rather than increase learning, and leads to the use of a false indicator in university admission criteria (Antonovics & Backes. 2014) As it has not proven any effect of changing the relative weight of the secondary school percentage in the policy of student admission to the University of California on the cumulative average in the first year of the university in particular, and the change in the relative weight of the secondary school percentage was not accompanied by any change in the academic ability of students while studying at the University of California. (Fajnzylber et al. 2019).

Assess the credibility of the selection criteria used at Taibah University College of Medical, Almadinah Almunawwarah, Kingdom of Saudi Arabia, for predicting academic performance, in order to determine those that are most reliable. Conducted on the 478

students in the first 4 years of a 6-year program at the between February and April 2012. The variables examined were high-school grades, aptitude test scores, achievement test scores and the balanced percentage. The criterion was the college grade point average of the students at each academic level. By using Pearson correlation coefficient and regression analysis to assess the associations between scores. Found significant positive relation between secondary school grade and achievement test score and the college grade point average, secondary school grade being the most predictive. No significant relation was found with aptitude test score. however, to select those candidates who will make better doctors, a threshold score based on the results of achievement tests and secondary school grades should be coupled with a structured ‘multiple mini-interview’ with emphasis on those elements of importance in the development, provided the interviews remain objective and unbiased and include a clear indication of the keenness of the candidate. (Murshid, 2013). The established practice of using students' score in standardized secondary school examinations branch of study (i.e. sciences or arts emphasis) to be highly predictive of their college cumulative grade point average. Moreover, it was established that students' secondary school scores reflect tellective as well as the nonintellective factors pertaining to students, although these admission standards were never critically studied to ascertain their effectiveness in the selection of appropriate candidates, they continued un- challenged for the period 1966-1980. The basic justification for their continued use seemed to be their widespread use in most of the neighboring Arab Countries in setting their university admission standards, as there is ample evidence supporting the two standards applied by Kuwait University, namely, secondary school score and branch of study as standards proved to be instrumental in predicting students' university performance. (Mohammad & Almahmeed , 1988). And In study to identify the best predictors for student achievements in their first year in an undergraduate nursing program. The data 134 students included final year secondary school percentages (National Certificate of Educational Achievement Grade Point Average, university admission ranking scores, and achievements in first year in the undergraduate nursing program were acquired from the Tracking Project database which is held by the Faculty of Medical and Medical Sciences at the University of Auckland. The regression models suggest that the best predictor for the first year grade was final year secondary school percentages explained 53% of the variation, followed by the admission ranking scores with 40%. Based on these findings, it is suggested that admission model be utilized whereby students could be admitted, which is purely based on the predictability of achievement within the nursing program (Shulruf et al. 2011).

Where many studies have addressed the predictive capability assumed to secondary school grades and academic performance of the students of the university, The result of the study of the relationship between admission grades and academic achievement, points towards the predictive validity of standardized eligibility test for college admissions General Aptitude Test (GAT) and the standard achievement admission test (SAAT) for science and Medical colleges is a matter of debate and controversy. Standardized admission test gained traction due to various reasons. The main reason for this is the heterogeneity of secondary school grade and the inherent drawbacks of the tests. Determining the predictive validity of GAT is important as it is the sole basis for screening prospective students entering the University system. Basis of identifying applicants for the academic scholarships offered by the Government, regardless of their place of residence, social standing or ethnicity. And there are

quite a few evidences to show that secondary school grade is a significant predictor or performance at the graduation level. (Sulfey et al. 2018) And the (Ayyaf and Magzoub . 2014) . And it became clear through the use of advanced techniques for A data set of 2,039 students enrolled in a Computer Science and Information College of a Saudi public university from 2016 to 2019 was used to demonstrate that applicants early university performance can be predicted before admission based on certain pre-admission criteria (secondary school grade average, Scholastic Achievement Admission Test score, and General Aptitude Test score). The results also show that Scholastic Achievement Admission Test score is the pre admission criterion that most accurately predicts future student performance. Therefore, this score should be assigned more weight in admissions systems. (Mengash . 2020). The predictive validity of the General Aptitude Test (GAT) in Saudi Arabia. Data for 27420 students enrolled at Prince Sattam bin Abdulaziz University were analyzed. Of these students, 17565 were male students, and 9855 were female students. Multiple regression, logistic regression, and correlation analyses were conducted. The results show that the best predictor of student success at the university was the combination of secondary school grade and the National Achievement Test, as measured by cumulative. However, the GAT was the best predictor of graduation as a criterion of success. Conclusions and recommendations for future studies are provided. (Alnahdi . 2015). To predict the academic performance of students at the university from the performance in the school, where the progress of learning in the university education tracks depends on the level and competence of the students at the school as a limited indicator of the academic ability and performance of the students at the university. Student's performance varied according to the level, type, and quality of the school. These differences between the types of schools observed at the national level illustrate the differences in performance between universities. (Thiele et al. 2014) and (Sutton Trust 2010). By applying regression techniques in the kingdom of Saudi Arabic (KSA) education community, especially in the secondary and tertiary, there are many arguments about the university admission criteria. Specifically the pre-university exams where in KSA they are GAT and AT. Many students have a very high score in the secondary school, but they did not enter the college they want because of the GAT and AT scores. On datasets of graduate and undergraduate students to find if the pre-university exams have a real effect on the student's college GPA. Found that secondary school grade effects the college GPA more than pre-university exams, and that the enrolled year has an unexpected effect on the college GPA. Also found that the mean of student's college GPA is decreasing by time. (Hassan & AlRazgan. 2016). To empirically evaluates the effects of college admissions policies on secondary school student academic effort. Build a rank-order tournament model where secondary school students decide their level of effort and whether to take the college admissions test, taking into consideration how those decisions may affect their future university admissions chances. Using data for the 2009 college admissions process, found increasing the level of equal college opportunities may boost the amount of academic effort exerted by secondary school students. (Grau. 2018). The outcomes of the selection criteria over an 11-year period. 1174 students who entered the course from secondary school and who enrolled from 1999 through 2009 were studied in relation to specific course outcomes. Regression analyses using entry scores as independent variables were tested for their relative value in predicting subsequent academic performance in the 6-year course. The main outcome measures were assessed by weighted average mark for each academic year level. Found the

previous academic performance the major independent positive predictors of performance in the course. The interview score showed positive predictive power during the latter years of the course. Results support combining prior academic achievement with the assessment of communication skills in a structured interview as selection criteria into this undergraduate medical course. (Mercer & Puddey. 2011) To provide information on the relationship between admission criteria and college performance, Standard tests of bivariate association and multivariate regression models appropriate for continuous and discrete dependent variables were used to examine the relationship between multiple indicators of admission criteria and dental school performance for six recent classes at University of Florida College of dentistry. Multivariate analyses indicated that students with higher undergraduate science grade point average and Admissions Test scores were more likely to achieve higher National Dental Board Examination scores. Students with lower undergraduate science grade point average, Admissions Test academic scores, and Aptitude Test scores were more likely to remediate, to repeat an academic year, or to be dismissed. Although bivariate differences were observed in several admission criteria of students who remediated one or more courses, repeated an academic year, or were dismissed, only the undergraduate science GPA and the Perceptual Motor Aptitude Test score were indicators of programmatic progress in the multivariate analysis. (Pamela et al. 2002). In study to determine which admissions criteria explain academic performance in a three-year pharmacy program. A retrospective regression analysis was performed to model student assessment scores as a function of admissions and demographic factors. Results of Math and Science prerequisite were significant predictors of academic performance in both first-year and second-year classes. Results revealed that admission variables during years 2008, 2009 and 2010, such as mathematics and science prerequisite and prior bachelor's degree, predicted academic performance in the first and second professional years of a three-year Doctor of Pharmacy program. These findings are consistent with previous studies at four-year Doctor of Pharmacy programs. (Unni, et al. 2011).

The performance of students at undergraduate levels has been attributable to several factors, particularly to the university's systems. By analysis the relationship between the quality of students admitted and their performance in the early part of the undergraduate program, the data 149 students at Central University's College of Commerce during the years 2007, 2008, 2009, using Pearson's correlation and concludes that there is a relationship between Core Mathematics grade in secondary school and performance of undergraduate Accounting Students' performance. No correlation was however found between English grade in secondary school and their university level performance. The study recommends that, due consideration be given to the existing admission policy criteria regarding emphasis on performance in Core English, particularly for accounting students seeking to pursue accounting programs, as it may be more harmful than good. (Julius & Philip. 2013).

In a predictive study that included 192 colleges to verify usefulness of secondary school grade and test scores in making college admissions decisions, correlational evidence suggests that secondary school grade is better than admission test scores in predicting first-year college GPA, although test scores have incremental predictive validity. The usefulness of a selection variable in making admission decisions depends in part on its predictive validity, but also on institutions' selectivity and definition of success. In contrast, test scores are more useful than

secondary school grade in situations involving high selectivity and high academic performance. (Sawyer. 2013). Accordingly, the study of the predictive relationship between the previous academic achievement at the secondary school and the current academic performance at the university may encounter some contradictions that are due to the necessity of addressing the previous achievement in the context of the quality of education before joining the university, as it is one of the basic determinants of students competence and their ability to success at the university. (Kumwenda et al. 2017).

3. Materials and Methods

3.1 Research Methods

Research follows a descriptive analytical approach in the presentation of admission requirements and how to determine the weight relative to the variables of acceptance by using structural equation modeling analysis assertive testing factor underlying the model of the academic performance , which is interested in the descriptive study of the phenomenon in fact variables, the amount can be measured , giving the phenomenon a precise description, and clarify their characteristics, He described its amount and size, and the degree of its association with other phenomena. As it actually is. (Sandra. 2020), Where results from the descriptive data can describe phenomena of "why and how" from the perspective of a realistic multivariables, consistent with the structural and monetary theories used interpretive methods to explain natural phenomena and described. (Howitt. 2019).

Structural Equation Modeling (SEM) approach and Confirmatory factor analysis (CFA) models were constructed to define unobservable latent factors using observable indicators, to compare between the observed variables of admission and the latent factor of the academic performance was evaluated using several indices to assess model fit including comparative fit index (Wu et al. 2017). To assess of the CFA model, for all variables and the extent of their loading as a tool for measuring academic performance latent factor, the constructivist model is linked to research hypotheses that indicate the factor relationship between the observed variables and their ability to satiate the latent factor. (LISREL Examples Guide. 2020), and to verify the percentage of loading of achievement variables with the latent factor of students' academic performance, it was assumed that all grades related to secondary school percentage, aptitude test and achievement tests, and the preparatory year grade point average are grouped around a general latent factor of students' academic performance, and the covariance matrix of grades was calculated as bundles of students' academic ability in a manner (high probability) Maximum likelihood In order to find the loading of the attainment grades at the secondary school and the preparatory year in the academic performance of students during the university years 1439 H , 1441 H and 1442 H, the confirmatory factor model for the attainment grades in the secondary stage and in the preparatory year was verified and the loading with the general factor of the students' academic level was verified by finding percentages The participation of achievement degrees in determining the academic level and its change during the university years 1439 H , 1441 H and 1442 H as a result of the change in student admission systems, and then comparing, determining the effectiveness of the admission system in raising the academic performance of students.

3.2 Data collection

The academic student data were aggregated, the secondary school percentage, the aptitude test score, the achievement test score and the preparatory year grade point average to determine the percentage of association with academic performance as the latent factor of the academic performance in the preparatory year, where the total number of preparatory year students at the Shaqra University 1855 students, 68% Medical track and 32% engineering track, classified into three branches 42.4% shaqra branch, and 48.7% Dawadmi branch and 8.9% Al-Quayiah branch. During the three academic years, 17.5% in 1439, 37.5% in 1441, and 45% in 1442.

3.2.1 Secondary school percentage (SCHACH)

The percent calculated by Ministry of Education schools according to the grading scale of courses in regular classes, given points according to the standard scale shown as percent of cumulative weighted.

3.2.2 General aptitude test (GAT)

Measures several aspects that are related to the educational process, such as a student's analytical and deductive skills. The test is composed of two sections, verbal (language-related) and quantitative (mathematic). The weight allocated to GAT as an admission requirement varies from one university to another. It typically ranges between 30% and 40%.

3.2.3 Academic Achievement Test for Scientific Specializations (AATSS)

unified measure for all secondary school graduates; it has been designed to be a fair and accurate standard for all, which helps educational institutions beyond the secondary school stage to choose the highest achieving students in secondary school subjects. Which requires that the academic knowledge of secondary school students qualify them to engage in university education.

3.2.4 The preparatory year grade point average (GPA)

Cumulative GPA is the total points, the student has achieved in all courses he has taken since his enrollment at the University, divided by the total number of credit-hours assigned for these courses during the academic first semester, the second, and summer semester as determined by the decisions of the course Medical and engineering in the first semester Medical and fitness, introduction to physics, English-1, computer skills and the Medical track in the second semester, introduction to biology, academic and life skills, introduction to chemistry, English-2, English for Medical specialties, introduction to mathematics And for the engineering track in the second semester, entrepreneurship, academic and life skills, English2, English for engineering majors, Mathematics2.

Admission and Registration criteria after passing the preparatory year Based on the type of composite and equivalent percentage, the minimum admission score for colleges and tracks in the preparatory year is determined, provided that admission is made according to the college

and specialization in the composite ratio for the Medical, engineering and computer tracks, and the faculties of sciences, arts and humanities with a specialization in computer science with a percentage of $[40\% * (\text{Secondary school percentage}) + 50\% * (\text{Aptitude test score}) + 10\% (\text{Achievement test score})]$ And the equivalent percentage for the scientific and administrative foundation, the faculties of science, literature and human studies specializing in English language, and the faculties of education and society $[60\% * (\text{Secondary school percentage}) + 40\% * (\text{Aptitude test score})]$ And the registration is made after completing the foundational requirements based on the students' wishes competitively according to their cumulative averages in the preparatory year for Medical colleges according to the equivalency $0.4 * (\text{compound percentage}) + 12 * (\text{preparatory year GPA})]$ The minimum should be 80% for medicine and pharmacy faculties and 75% for the rest of the Medical faculties according to the available seats, and choose one of the approved English language tests, provided that the score obtained in the IELTS test or its equivalent is not less than (4.5) for College of medicine, (4) for the Faculty of Pharmacy, (3.5) for faculties of medical sciences, and passing the personal interview after the preparatory year. And to customize Engineering and Computer science faculties according to the equation $[0.4 * (\text{compound percentage}) + 5 * (\text{preparatory year GPA}) + \text{Math course points}]$ the minimum is 80% for engineering majors and 75% for computer majors, according to the available seats.

4. Result and Discussion

4.1 The correlation matrix

The admission and registration variables at the university shows the positive correlation between all variables, The secondary school percentage, the aptitude and achievement tests, and the preparatory year grade point average for a total of 1855 male and female students in the Medical and engineering tracks.

Table 1: The correlation matrix of the admission and registration variables during the university years 1439 H, 1441 H and 1442 H.

Academic performance variables	The secondary school percentage SCHAC H		Aptitude test GAT		Achievement test AATSS	
	r value	p value	r value	p value	r value	p value
Aptitude test GAT	0.021	0.365				
achievement test AATSS	0.027	0.243	0.381*	0.000		
Preparatory year average GPA	0.263*	0.000	0.295*	0.000	0.38*	0.000

* Statistically significant correlation at the 0.05 level of significance.

Pearson's correlation coefficient matrix revealed a positive linear relationship among all variables table 1 despite all the positive correlation coefficients which was highly statistical significant $p < 0.01$ between the preparatory year GPA and the secondary school percentage $r = 0.263$, the positive correlation coefficients between the preparatory year GPA and the aptitude test $r = 0.295$, and the positive correlation coefficients between the preparatory year GPA and the achievement test $r = 0.38$, and there was positive correlation between the abilities test and the achievement test $r = 0.381$. While the correlation coefficients were not statistically

significant at the 0.05 significance level, between the secondary school percentage and each of the aptitude test and the achievement test.

4.2 Structural Equation Models (SEM)

Table 2: The academic performance models fit during the university years 1439 H, 1441 H, 1442 H, and the three years.

Indicators of CFA Models	perfect value	the three years	1439H	1441H	1442H
degrees of freedom DF		2	2	2	2
chi square χ^2		120.93	9.83	29.74	96.03
χ^2 / DF	≤ 3	0.017	0.203	0.067	0.021
Statistical Significance (P value)	> 0.05	0.000	0.006	0.000	0.000
Root Mean Square Error of Approximation (RMSEA)	≤ 0.08	0.190	0.048	0.140	0.240
Comparative Fit Index (CFI)	≥ 0.9	0.860	0.980	0.940	0.710
Tucker-Lewis Index (TLI)	≥ 0.9	0.840	0.920	0.900	0.73
weighted root mean square, residual (WRMSR)	≤ 1.0	0.063	0.042	0.050	0.089

The study recruited a total of 1185 students, the confirmatory factor analysis (CFA) of the first degree of the sample data resulted in an acceptable match with the probability model of Close Fit < 0.01 all loadings were statistically significant, at level less than 0.01 $Pr > |t|$, Chi2 and the indicators were acceptable (Ghazisaeedi, et al. 2021), and fit indices including chi square/df (χ^2/df) was conducted for each model to assess their loading. Several indices were used to assess models fit are reported in Table 2 and showed that the single-factor structure of the academic performance (achievement at the secondary school, aptitude tests, achievement and the preparatory year grade point average) fitted well with the data for three years and for each year 1439 H, 1441 H and 1442 H including comparative fit index (CFI) and Tucker–Lewis index (TLI) > 0.9 ; root mean square error of approximation (RMSEA) < 0.08 ; weighted root mean square, residual (WRMSR) < 1.0 ; and non-significant chi-square (Wu et al. 2017). Factor loadings from the models ranged from 0.11 to 0.82 and were all statistically significant. The following loadings with the latent factor of academic performance during the university years 1439 H, 1441 H, 1442 H and the three years.

Figure 1: Standardized latent factor loadings of the academic performance models during the university years 1439 H, 1441 H, 1442 H and the three years.

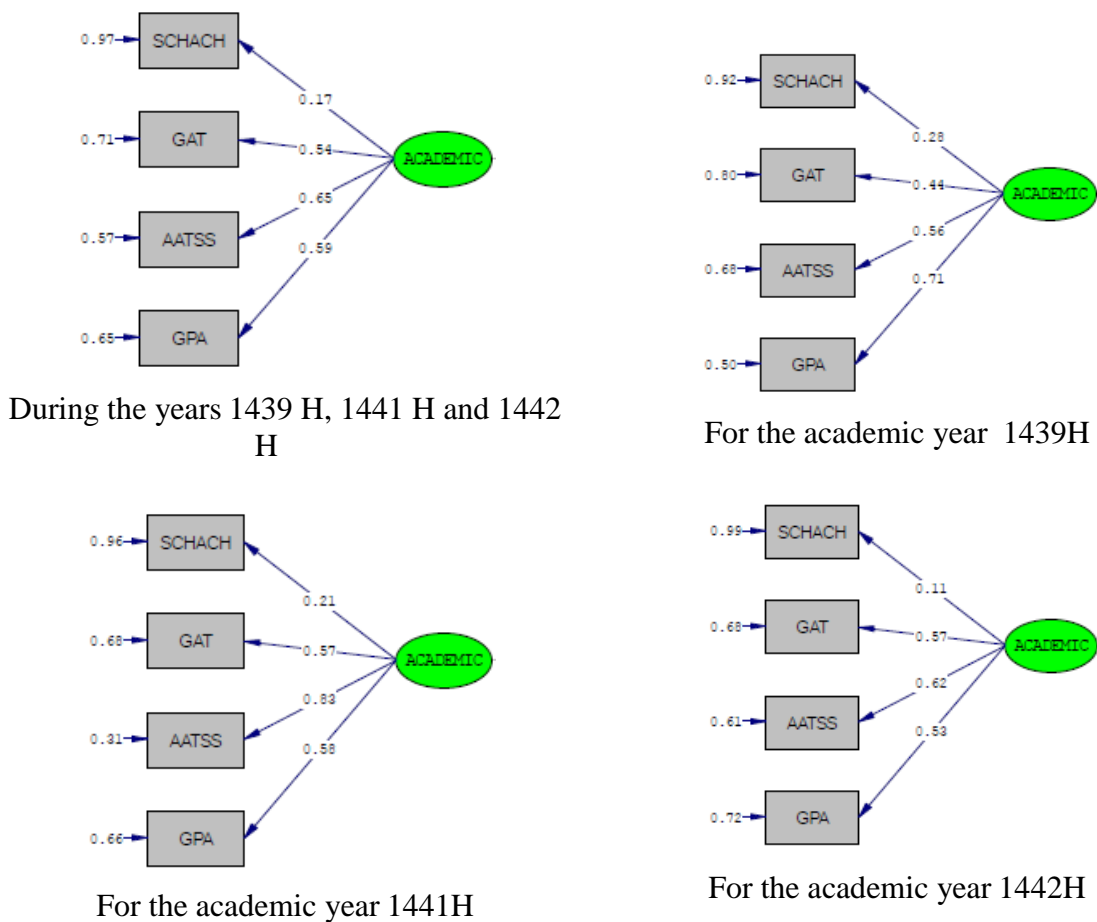


Table 3: Comparison between Admission criteria and latent factor loadings of the academic performance models during the university years 1439 H, 1441 H and 1442 H.

Academic year	Comparison	Preparatory year average	The secondary school percentage SCHACH	Aptitude test GAT	achievement test AATSS
		GPA	40%		
1439	Admission criteria	60%	40%	30%	30%

	Factor loading	0.71	0.28	0.44	0.56
1441	Admission criteria	60%	40%	30%	30%
	Factor loading	0.58	0.21	0.57	0.83
1442	Admission criteria	60%	40%	50%	10%
	Factor loading	0.53	0.11	0.57	0.62
Three Years	Factor loading	0.59	0.17	0.54	0.65

Table 3 represent Admission criteria in compare with factor loadings of the latent factor of the academic performance models (The secondary school percentage, Aptitude tests, Achievement test and the preparatory year grade point average) during the university years 1439 H, 1441 H

and 1442 H, which expresses the relative weight of the variable representing the requirements for admission to the university, and it is noted that the relative weight changes every year according to student levels, with regard to the preparatory year grade point average, found the factor loading in the academic performance model during the three years was 0.59, which is the same relative weight required for the university admission.

The Models of the confirmatory factor analysis resulted with factor loadings during the three years (The secondary school percentage, aptitude test and achievement tests with ratios (0.17 : 0.54 : 0.65), which indicates a weak percentage of representation in secondary school for the aptitude test and achievement test across the three years, while the acceptance criteria were And the admission at the university for the year 1439 H and for the year 1441 H The ratio of each applicant is calculated as follows: 40% of The secondary school percentage, 30% for the General aptitude test and 30% of Academic Achievement Test for Scientific Specializations. (The secondary school percentage : The abilities test: The achievement test was in the ratios (4 : 3 : 3) and for the year 1442 in the ratios (4 : 5 : 1) while the results of the academic performance factor loading indicated the ratios (0.28 : 0.44 : 0.56) for the year 1439 H and with ratios (0.21 : 0.57 : 0.83) for the year 1441 H and with ratios (0.11 : 0.57 : 0.62) for the year 1442 H. Where all results agreed that the percentage of representation of the total grades of students in secondary school was lower than the percentage of representation of the aptitude test and the achievement test, and the achievement test for students was the best percentage to contribute to determining the academic level of students over the three years. While the percentage of its representation in the university admission criteria for the year 1442H decreased from the previous years.

5. Conclusion

The study concludes that multiple admission indicators associated as academic performance factor compared with the admission criteria from year 2019 to 2021. Achievement test is an essential with highly loading then the preparatory year grade point average, aptitude tests and the secondary school percentage was the lowest loading of academic factor. Admission criteria should give more attention to the change of the academic variables weight during admissions processes when determine each percent weight that enable students to join the university.

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References

- Alnahdi, G. H. (2015). Aptitude Tests and Successful College Students: The Predictive Validity of the General Aptitude Test (GAT) in Saudi Arabia. *International Education Studies*, 8(4). doi:10.5539/ies.v8n4p1
- Antonovics, K., and Backes, B. (2014). The Effect of Banning Affirmative Action on College Admissions Policies and Student Quality. *Journal of Human Resources*, 49(2), 295– 322.
- Ayyaf, A. H. M. and Magzoub, M. E. (2014). Admission Criteria as Predictors of Student Academic Performance in the College of Nursing, *Proceedings of the First International Conference on Assessment & Evaluation*, Riyadh: The National Center for Assessment in Higher Education.
- Baez, B. (2006). Leveling the Playing Field: Justice, Politics, and College Admissions. *The Journal of Higher Education*, 77(2), 376–378.
- Balantekin, K., Birch, L., and Savage, J. (2018). Family, friend, and media factors are associated with patterns of weightcontrol behavior among adolescent girls. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity*, 23(2), 215-223.
- El Guabassi, I., Bousalem, Z., Marah, R., Qazdar, A. (2021). A Recommender System for Predicting Students' Admission to a Graduate Program using Machine Learning Algorithms, *learntechlib.org*, iJOE – Vol. 17, No. 02.
- Fajnzylber, E., Lara, B., & León, T. (2019). Increased Learning or GPA Inflation? Evidence from GPA-Based University Admission in Chile. *Economics of Education Review*.
- Ferrão, M., & Almeida, L. (2018). Differential effect of university entrance score on first-year students' academic performance in Portugal. *Assessment & Evaluation in Higher Education*, 1–13.

- Ghazisaeedi, M., Mahmoodi, H., Arpaci, I. et al. (2021). Validity, Reliability, and Optimal Cut-off Scores of the WHO-5, PHQ-9, and PHQ-2 to Screen Depression. *Int J Ment Medical Addiction*.
- Grau, N. (2018). The impact of college admissions policies on the academic effort of secondary school students. *Economics of Education Review*, 65, 58–92. doi:10.1016/j.econedurev.2018.03.002
- Hassan, S. M., & Al-Razgan, M. S. (2016). Pre-University Exams Effect on Students GPA: A Case Study in IT Department. *Procedia Computer Science*, 82, 127–131.
- Howitt D. (2019), *Introduction to Qualitative Methods in Psychology: Putting Theory into Practice*, (4th edition). Harlow: Pearson Education Limited.
- Ivan ,Y. et al. (2021).The Influence of Good University Governance and Intellectual Capital on University Performance in Indonesia, *Academic Journal of Interdisciplinary Studies*, Vol 10 No 1
- Julius A. & Philip A. (2013). The Effect of Entry Grades on Academic Performance of University Accounting Students: A case of Undergraduates of Central University College, *Research Journal of Finance and Accounting*, Vol.4, No.7. ISSN 2222-1697 (Paper) ISSN 2222-2847 (Online)
- Kim, C., Mirusmonov, M., and Lee, I. (2010). An empirical examination of factors influencing the intention to use mobile payment. *Computers In Human Behavior*, 26(3), 310-322.
- Kumwenda, B., Cleland, J. A., Walker, K., Lee, A. J., & Greatrix, R. (2017). The relationship between school type and academic performance at medical school: a national, multicohort study. *BMJ Open*, 7(8), e016291. doi:10.1136/bmjopen-2017-016291
- LISREL Examples Guide (2020): A General Computer Program for Estimating a Linear Structural Equation System Involving Multiple Indicators of Unmeasured Variables, by Scientific Software International, Inc.
- M. Xia. (2019). Visual Analytics of Student Learning Behaviors on K-12 Mathematics Elearning Platforms,” arXiv, pp. 3–4.
- Mengash, H. A. (2020). Using Data Mining Techniques to Predict Student Performance to Support Decision Making in University Admission Systems. *IEEE Access*, 8, 55462–55470. doi:10.1109
- Mercer, A., & Puddey, I. B. (2011). Admission selection criteria as predictors of outcomes in an undergraduate medical course: A prospective study. *Medical Teacher*, 33(12), 997–1004. doi:10.3109/0142159x.2011.577123
- Mohammad, Y. H. J., & Almahmeed, M. A. H. (1988). An evaluation of traditional admission standards in predicting Kuwait University students’ academic performance. *Higher Education*, 17(2), 203–217.

- Murshid, K. R. (2013). The predictive value of individual admission criteria on academic performance in a Saudi medical college. *Journal of Taibah University Medical Sciences*, 8(1), 18–23.
- Pamela L. Sandow et al. (2002). Correlation of Admission Criteria with Dental School Performance and Attrition, *Journal of Dental Education*, Volume 66, No. 3, p.p: 385392.
- Parry, J., Mathers, J., Stevens, A., Parsons, A., Lilford, R., Spurgeon, P., & Thomas, H. (2006). Admissions processes for five year medical courses at English schools: review. *BMJ*, 332(7548), 1005–1009.
- Sandra L. Siedlecki. (2020), *Understanding Descriptive Research Designs and Methods*. Clinical Nurse Specialist, Wolters Kluwer Medical, Inc.
- Sawyer, R. (2013). Beyond Correlations: Usefulness of Secondary school GPA and Test Scores in Making College Admissions Decisions. *Applied Measurement in Education*, 26(2), 89–112. doi:10.1080/08957347.2013.765433
- Shulruf, B., Wang, Y. G., Zhao, Y. J., & Baker, H. (2011). Rethinking the admission criteria to nursing school. *Nurse Education Today*, 31(8), 727–732. doi:10.1016/j.nedt.2010.11.024
- Sotarot, T. & Sorawee, Y. (2019). An Analytical Data Monetization Value Chain for Educational Process Improvement under Thai University Central Admission System. *The 2019 Technology Innovation Management and Engineering Science International Conference (TIMES-iCON2019)*.
- Sulphey, M M, AlKahtani, N.S., Abdul Malik Syed, A.M. 2018. Relationship between admission grades and academic achievement, *Entrepreneurship and Sustainability Issues* 5(3): 648-658.
- Sutton Trust. 2010a. *Comprehensive Pupils Outperform Independent and Grammar Pupils in University Degrees*. London: Sutton Trust.
- Thiele, T., Singleton, A., Pope, D., & Stanistreet, D. (2014). Predicting students' academic performance based on school and socio-demographic characteristics. *Studies in Higher Education*, 41(8), 1424–1446.
- Uddin, M. F., & Lee, J. (2016). Utilizing Relevant Academic and Personality Features from Big Unstructured Data to Identify Good and Bad Fit Students. *Procedia Computer Science*, 95, 383–391. doi:10.1016/j.procs.2016.09.349
- Unni, E. J., Zhang, J., Radhakrishnan, R., Smith, K. P., Bridgen, C. M., DeYoung, M. H., & Metzger, T. G. (2011). Predictors of academic performance of pharmacy students based on admission criteria in a 3-year pharmacy program. *Currents in Pharmacy Teaching and Learning*, 3(3), 192–198. doi:10.1016/j.cptl.2011.04.006
- W. O. D. Amburgey and J. Yi, (2013). Using Business Intelligence in College Admissions, *Int. J. Bus. Intell. Res.*, vol. 2, no. 1, pp. 1–15.
- Wu, T. Y., Lin, C. Y., Årestedt, K., Griffiths, M. D., Broström, A., & Pakpour, A. H. (2017). Psychometric validation of the Persian nine-item Internet Gaming Disorder Scale– Short



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Form: Does gender and hours spent online gaming affect the interpretations of item descriptions? *Journal of Behavioral Addictions*, 6(2), 256–263.