

Assessment of admission criteria for predicting hotel management students' academic performance.

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Abstract:

With the growth in the number of Hospitality and Tourism programs, admission committees have become increasingly attentive to the most efficient means of selecting students with the best potential for academic and professional success. Many higher education institutions in Asia employ a standard entrance exam system to select potential students. This study used the National Kao-Hsiung Hospitality College as a case study to examine whether entrance exams, when used as the sole admission criterion, were able to predict students' academic, professional, and overall performance. The results indicated that entrance exams were limited in predicting student performance. An admission portfolio approach including entrance exams, high school ranking, leadership abilities, work experience, and references was recommended instead of exams alone.

Keywords: entrance exams | admission criteria | academic performance | professional performance | hotel management | hospitality industry | management education

Article:

INTRODUCTION

As two- and four-year degree undergraduate education becomes more vital in a complex global economy and as more students move through institutions of higher education, universities and colleges have increased their calls to maintain higher standards. One phenomenon of this move is the development and implementation of effective admission standards to select students with the best potential academic and professional success. Evaluation of their validity and reliability becomes critical to achieve that goal. Are these admission criteria useful in predicting academic performance? Should certain variables be added to or excluded from such admission criteria to ensure the selection of the best candidates?

With the growth in the number of hospitality and tourism programs (CHRIE, 1993), admissions committees have become increasingly attentive to the most efficient means of admission. The

purpose of this study was to assess the predictive ability of college entrance exams on students' academic and professional performance through a case study of the National Kaohsiung Hospitality College (NKHC) of Taiwan. The results should interest the admission offices of hospitality programs in Taiwan and serve as a reference for other hotel schools worldwide to develop admission criteria and standards. Information in this study can also be useful in helping parents, students, educators, administrators, and policymakers evaluate the entire college admission process.

The continuing rising number of tourists has boosted the development of the tourism industry in Taiwan. According to the Tourism Bureau Ministry of Transportation and Communications, Republic of China (2005), 2,950,432 travelers visited Taiwan in 2004, a growth of 31.24% compared with the previous year. As tourist growth has resulted in a higher demand of professionals working in hotels and restaurants, the Ministry of Education in Taiwan established the National Kaohsiung Hospitality College in 1995. It is the first professional school devoted exclusively to training professionals for the hospitality and tourism industry. When the school opened in 1995, it offered two-year associate degree programs in hotel management, food and beverage management, Chinese culinary arts, Western culinary arts, and tourism management. To prepare students to succeed in their careers, the curriculum was structured to integrate classroom theory and practical applications with internships. The students spent the first semester on campus taking courses, the second semester in hotel and restaurant internships, the third semester resuming coursework on campus, and the last semester continuing their internships. In the fall of 2000, the four-year bachelor's degree program was initiated.

Admission policy was set during this period in an intense competitive landscape where the college aimed to attract high-achieving students to its campus. In December 1995, 2,000 candidates took the first entrance exams offered by the NKHC. Of the five programs, admission to the Department of Hotel Management was the most competitive with only 50 students accepted in spring 1996, accounting for 9.4% of the 533 applicants. Table 1 shows the intense competition continued for the following four semesters with admission rates ranging between 9.4 and 11.6% for the Department of Hotel Management.

To select the candidates with the highest potentials for academic success and career advancement in the hospitality industry, the NKHC employed an entrance exam system as its admission policy between 1995 and 1998, an admission practice that many higher education institutions in Asia had adopted. The entrance exams consisted of four general education tests in Chinese, English, Computer Concepts, and Political Science, and four core tests whose subjects differed among the five programs. For example, the core tests for the Department of Hotel Management included Hotel Management, Food and Beverage (F&B) Management, Hospitality English, and Hospitality Japanese. Applicants were allowed to take the tests as many times as they wanted to. As the total score of the eight tests was the only criterion used for admission, 45% of the applicants admitted to the Department of Hotel Management between 1995 and 1998 took the entrance exams more than once. The cost-effectiveness of the admission system was

questionable, as it not only created a financial burden for the applicants but also required the college to allocate extra resources to administer and grade the tests. More importantly, scant evidence is available to demonstrate the validity of these exams in predicting students' academic and professional performance. This study used the NKHC as a case study to examine whether entrance exams, when used as the sole admission criterion, were able to predict students' academic, professional, and overall performance.

TABLE 1. Admission Rate to the Hotel Management Program

| Semester | No. of Applicants | No. of Students Admitted | Admission Rate |
|-----------|-------------------|--------------------------|----------------|
| Dec 1995 | 533 | 50 | 9.4% |
| July 1996 | 517 | 50 | 9.7% |
| Dec 1996 | 533 | 50 | 9.4% |
| July 1997 | 432 | 50 | 11.6% |
| Dec 1997 | 450 | 50 | 11.1% |

LITERATURE REVIEW

Researcher interest in admission criteria started in the 1970s after the dramatic enrollment increase in business schools (Hoefler & Gould, 2000). A significant number of studies have been conducted on admission policies, practices, and procedures, particularly in the fields of business, nursing, medical, and agriculture (Deckro & Woundenberg, 1977; Garton, Dyer, & King, 2000; Kelman, 1982; Kirchner, Stone, & Holm, 2000). These admission criteria were categorized into objective and subjective factors. The most frequently used objective factors included high school grade point average (GPA) and standardized test scores, such as the Scholastic Aptitude Test (SAT) and the American College Test (ACT). Subjective factors were related to applicants' qualities, such as leadership, motivation, work experience, and interpersonal skills (Confer, Turnwald, & Wollenburg, 1995). These qualities are more difficult to measure and have generally been judged through evaluating of the non-academic information revealed in personal statements, interviews, and letters of recommendation (Reichel & Milman, 1996).

Between 1600 and 1800, American college admission criteria were objective and institution specific. During the 1700s, college presidents interviewed each applicant and tested the candidate's general knowledge, familiarity with specific readings, and moral character (Lim, 1993). The SAT and ACT grew rapidly as a reliable and inexpensive method to assess an applicant's potential of academic success beginning in the mid-20th century. However, these objective tests were criticized for their limitations in measuring applicant competencies in critical thinking, problem solving, and communication (Cabrera & Burkum, 2001). Subjective factors

were introduced into college and university admissions as a complement to objective evaluation (Lim, 1993).

Higher education in the U.S. has experienced a significant enrollment increase in the past two decades. The U.S. Department of Education reported a 31% increase in enrollment at degree granting, two- and four year postsecondary institutions since 1979 (Breland, Maxey, Gernand, Cumming, & Trapani, 2002). Accompanying this increase in enrollment has been a more concerted focus on standards in higher education. Currently most American colleges and universities employ multiple admission criteria to screen their applicant pools. According to the annual surveys by the National Association for College Admission Counseling (NACAC), colleges and universities utilize at least 12 criteria such as test scores, high school grades, class rank, writing samples, interviews, and letters of recommendation from counselors and teachers, and evidence of exceptional leadership skills (Hawkins & Lautz, 2005).

The College Board and other major education associations have been jointly conducting a series of nationwide studies of 1,644 institutions in the U.S. to examine virtually every facet of college admissions in two and four-year postsecondary institutions (Breland et al., 2002). The rating of admission factors by admissions officers in four-year institutions revealed that the most important factor was high school GPA or rank. Second in importance were admissions test scores like the ACT or SAT I. Third was the pattern of high school coursework. Following these top three factors, college-level work in high school, letters of recommendation, essays (personal statements), and interviews were emphasized. Interestingly, subject-specific achievement tests scores like those from the SAT II or subject-specific tests developed at the local college level were not ranked very important for admission. It was noted that over time GPA or rank has shifted away from being the single most important to only a very important admission factor (Breland et al.).

Besides GPA and SAT or ACT scores, the admission committees for hospitality programs in U.S. universities and colleges also consider field. These subjective factors include applicant leadership abilities, motivation, interpersonal skills, communication skills, and job experience in the industry as evaluated by review of application forms, applicant statements of purpose, and letters of recommendation, and personal interviews (CHRIE, 1993).

Traditionally in the U.K., the admission decision has been exercised by the university's academic staff in a framework provided by academic criteria and expectations concerning the qualities that produce a successful college student (McClaran, 2002). The former criteria were predominately the results of the high school exit examination, while the latter qualities were measured by non-academic information revealed in a student's application and less commonly in recent years, personal interviews (McClaran). Undergraduate admission criteria for hotel and catering management programs in the U.K. include the applicant academic record, appearance, personality, motivation, and work experience along with the head teacher's reports (Ineson, 1996). The applicant's motivation to study as well as personal characteristics such as confidence,

appearance, and communication skills were also important factors when making admission decisions (Ineson&Kempa, 1997), because these factors represent essential qualities required for successful hospitality professionals (Jayawardena, 2000). Hence, in addition to considering applicant academic success, success in employment is also a factor in the selection process (Bosselman, 1996; Ineson, 1996; Jayawardena, 2001).

Reichel and Milman (1996) examined the objective and subjective admission criteria used by the Department of Hotel and Tourism Management at Ben-Gurion University in Israel. To complement the objective admission criteria of three exams, personal interviews were also conducted to collect information regarding applicant personal information, appearance, interpersonal skills, listening and verbal ability, selfconfidence, knowledge of foreign languages, and knowledge of the hospitality industry. The results showed that there were no statistically significant correlations between admission scores and the personal interview. This finding indicated that interviewing was a complementary activity in the decision process of hospitality management program admissions. Both interviews and the objective admission tests were essential in evaluating different skills and abilities.

Development and evaluation of college admission criteria and procedures in Asia is still in its infancy. Objective factors of examinations still dominate the manner in which students are admitted. China and Japan both employ standard entrance examinations that are administered by the Department of Education and the National Center for University Entrance Examinations, respectively, to assess applicant potential and knowledge. In some other Asian countries, such as India and Thailand, individual institutions administer their own entrance examinations to select potential students (IGHRM, 2003). However, some higher education experts have considered broadening admission criteria to include not only examination scores, but also project work, performance in reasoning tests similar to the SAT, and participation in extracurricular activities (Tan, 1999).

METHODOLOGY

The study aimed to examine the predictive ability of college entrance exams on academic and professional performance of hospitality undergraduate students. A case study approach was employed by examining a sample of 238 students admitted to the two-year associate program of hotel management at the NKHC for the spring semesters of 1996, 1997, and 1998. These students were accepted based on their performance in eight entrance exams: Chinese, English, Computer Concepts, Political Science, Hotel Management, F&B Management, Hospitality English, and Hospitality Japanese. After admission, the students spent the first semester completing 13 courses; Chinese, English, Political Science, Computer Concepts, Service Management, Hotel Operations, Housekeeping, Hospitality Financial Management, Hospitality Japanese, Hospitality English, Colloquium, Communication, and International Etiquette. In the second semester, the students interned full-time at hotels. By the end of the internships, their

employers evaluated their job performance by completing a standard assessment provided by the NKHC.

The study hypothesized that the college entrance exams employed by some Asian hospitality programs as the only admission criterion were significant predictors of student academic, professional, and overall performance. In addition to predicting that performance, the study was also interested in identifying the entrance exam subjects that led to better performance during the students' first year in college. Academic performance was measured by the average received GPA for the thirteen courses completed in the first semester, while professional performance was surrogated by the internship evaluation score. Specifically, three hypotheses were proposed as follows:

H1: The entrance exams can significantly predict students' academic performance in college.

H2: The entrance exams can significantly predict students' professional performance.

H3: The entrance exams can significantly predict students overall performance.

The hypotheses were tested in three multiple regression analyses. The confirmatory approach was employed to predict the academic, professional, and first year overall performance based on the collective effort of the eight entrance exams (Hair, Anderson, Tatham, & Black,

1998).

The first regression model is specified in matrix form as:

$$y_{1i} = \beta_1 x_{1i}$$

where y_1 is the dependent variable of academic performance of the i th student, measured by the average score of 13 exams taken in the first semester; x_{1i} is a vector of 8 independent variables of the college entrance exams; β_1 is the vector of parameters of the model to be estimated. The second regression model is specified in matrix form as:

$$Y_{2i} = \beta_2 x_{2i}$$

where y_2 is the dependent variable of professional performance of the i th student, proxied by the internship assessment score in the second semester; x_{2i} is a vector of 8 independent variables of college entrance exams; β_2 is the vector of parameters of the model to be estimated. The third regression model is specified in matrix form as:

$$Y_{3i} = \beta_3 x_{3i}$$

where y_3 is the dependent variable of the overall performance of the i th student, measured by the total of the thirteen course scores in the first semester and the internship assessment score in the second semester; x_{3i} is a vector of 8 independent variables of college entrance exams; β_3 is the vector of parameters of the model to be estimated.

Ordinary least square (OLS) was used to estimate the model's coefficients. The assumptions of regression analysis were checked. Evaluations of the regression assumptions showed that the sample was found normally distributed, a linear model did fit the data, and heteroscedasticity was not present. In addition, the variance inflation factor (VIF) for each variable was below 10, indicating the absence of multicollinearity. Therefore, multiple regression analyses were employed to identify the admission variables which significantly predicted students' academic, professional, and overall performance.

RESULTS

Descriptive analysis of mean and standard deviation was conducted to examine the admission criteria variables as well as the students' academic and professional performance during their first year in college. Table 2 shows the average scores of the eight entrance exams, which ranged from 39.03 to 78.79 on a 100-point scale. The average score for Hospitality English was only 39.03, far below the other exams, whose mean scores were above 60 points. An examination of the standard deviations indicated a range between 9.92 and 19.64, showing that the students scored more toward the extreme ranges in the two foreign language exams of Hospitality English and Hospitality Japanese, but relatively less in the other subjects.

The descriptive statistics of academic, professional, and overall performance are shown in Table 3. Academic performance was measured by averaging the test scores of the 13 courses taken in the first semester.

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TABLE 2. Descriptive Statistics of Admission Criteria Variables

| Test | Grading System | Mean | Standard Deviation |
|-------------------|-----------------|-------|--------------------|
| Chinese | 100-point scale | 69.39 | 9.92 |
| English | 100-point scale | 60.52 | 15.44 |
| Computer Concepts | 100-point scale | 66.52 | 12.21 |
| Political Science | 100-point scale | 78.79 | 11.26 |
| Hotel Management | 100-point scale | 70.20 | 11.61 |
| F&B Management | 100-point scale | 68.99 | 12.15 |

| | | | |
|----------------------|-----------------|-------|-------|
| Hospitality English | 100-point scale | 39.03 | 16.55 |
| Hospitality Japanese | 100-point scale | 63.24 | 19.64 |

N = 238

TABLE 3. Descriptive Statistics of the Academic, Professional, and Overall

Performance

| Score | Grading System | Mean | Standard Deviation |
|--|-----------------|--------|--------------------|
| Academic performance score (1st semester) | 100-point scale | 80.61 | 3.99 |
| Professional performance score (2nd semester) | 100-point scale | 86.29 | 7.60 |
| Overall performance score | 200-point scale | 166.91 | 9.31 |

N = 238

Professional performance was surrogated by the internship assessment score provided by the employers at the end of each student's internship in the second semester. Measured on a 100-point scale, the mean scores of academic and professional performance were 80.61 and 86.29, and their standard deviations were 3.99 and 7.60, respectively. The first-year overall performance, a sum of the average score of the 13 courses and the internship score, presented mean of 166.91 and a standard deviation of 9.31 on a 200-point scale.

Three multiple regression analyses were performed to predict the students' academic, professional, and overall performance based on their entrance exams scores. The relevant statistics associated with the three models are presented in Table 4. The goodness of fit for the models was measured by the F statistic and adjusted R² statistics. The analysis result of the relationship between the eight entrance exams and academic performance showed that the model was significant at .05 with F statistic of 9.32. Four exam subjects—Political Science, Hotel Management, F&B Management, and Hospitality Japanese—were significant predictors of the students' academic performance. The first hypothesis that the entrance exams significantly predicted the students' academic performance was supported. However, an examination of adjusted R², another important model goodness of fit indicator, showed that the entrance exams

explained only 22% of the variation in the academic performance. This result means that 78% of the academic performance variation for these students was left unexplained.

With an F value of 2.49, the second model, which assessed the relationship between the entrance exams and professional performance, was also found statistically significant. Chinese was the only significant independent variable. The hypothesis that the eight entrance exams significantly predicted the students' professional performance was supported.

Table 4 is omitted from this formatted document.

With an adjusted R² of 5%, the entrance exams could only explain a small portion of the variations in students' internship performance. In the third analysis, the overall performance was a collective measurement of both academic performance for coursework and professional performance during the internships. The goodness of fit for the model had F statistic of 5.17 and adjust R² of 12%. Hence, the third hypothesis was supported. Chinese, Computer Concepts, and F&B Management were significant predictors of students' overall performance. Although the model was found statistically significant at .05, the entrance exams could account for only 12% variation in the overall performance, indicating a majority of the performance difference was due to other factors.

CONCLUSIONS AND IMPLICATIONS

Due to the increasing number of applications to hospitality programs, the admission process and criteria is a primary consideration for higher education. However, the admission practices and criteria employed by hotel and tourism programs in Asia remain ad hoc; and objective factors, mostly test scores, remain the only criterion. Few studies have investigated the effectiveness of the subject-specific tests in predicting the students' academic and professional success potentials in hospitality programs. The study acknowledged the insufficiency of employing entrance exams as the only means of admission assessment and recommended that subjective factors, such as interpersonal skills and motivation, also be taken into consideration.

The relationship between entrance exams and students' academic, professional, and overall performance during their first year in college was investigated, and they were all statistically significant. All the hypotheses were supported. Among the eight exams, Political Science, Hotel Management, F&B management, and Hospitality Japanese were significant in predicting students' academic performance. Interesting, Hotel Management had a negative relationship with student academic performance. The lower the hotel management test score was, the better the performance in the first semester was. The content validity of this exam should be further examined to see if the questions could really measure student knowledge of hotel management.

In terms of professional performance, Chinese was the only significant factor contributing to student variations in internship evaluations. Students with higher scores in the Chinese exam, which tested students' language and comprehension competencies, seemed to have a better

mastery of written and spoken language and communication skills, which might confer an advantage in professional and business relationships. For overall performance, three exams—Chinese, Computer Concepts, and F&B Management were significant in predicting students' overall performance.

However, it should be noted that the adjusted R² of the three models were 22%, 5%, and 12%, respectively, indicating poor model fit and little variation in the students' performance was captured by the entrance exams. As the only admission criterion, college entrance exams were limited in selecting applicants with potentials of academic and professional success. Moreover, 45% of the students improved their scores by short-term cramming and taking the entrance exams more than once. The exams may have assessed applicant test-taking techniques instead of applicant potential success in academic and professional performance. Therefore, the usefulness of employing only subject-specific achievement tests to predict students' performance is questionable.

The lack of sufficient explanatory power may not be surprising since other factors such as motivation and work experience can influence student performance. Unlike other non-vocational programs, such as history or mathematics, hospitality undergraduate programs aim to provide both theoretical and professional training (Ineson, 1996). Besides using exams to test applicant cognitive ability, the admission committee should also consider applicants' leadership abilities, motivation, interpersonal skills, and communication skills. A comprehensive approach that incorporates both objective factors, such as exam scores and academic standings, and subjective criteria, such as interviews, study plans, and letters of recommendation, should be employed to select qualified students.

The contributions of this study are constrained by two major limitations. First, a case study approach was employed to analyze the admission criteria and practices in the NKHC, a hospitality college in Taiwan. Although the study could be used as a reference for hospitality and tourism programs to develop admission criteria, caution should be observed in generalizing the results. Second, the data analysis was cross-sectional by examining the students' academic performance in the first semester and professional performance in the second semester. A longitudinal study might be more accurate in measuring student progress in academic achievement in college and student professional performance in internships as well as later in permanent jobs.

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