

- **Model of Wagner et al. (2009)**

Karld Wagner and his associates conducted a research by in Malaysia in 2009, examining 162 students enrolling in university preparatory classes or and new school leavers. As the educational contexts in Malaysia and Indonesia are similar, Wanger et al. (2009) adopted the research findings by Joseph and Joseph (1998) and adapted them to their study aims. Thus, the model of Wagner et al. (2009) split the general factors into two elements, namely Information on Institutions and Significant People. The results of the three models are summarized in table 1.

- **Model of Sia (2010)**

The subjects of the study were high school students attending preparatory university programs at Malaysian schools and school leavers with

national graduation exam (SPM/MCE) certificates, or certificates on completion of university foundation programs (including two groups of A-level and a group of university entrance candidates); i.e. the students have real intentions of choosing a university at the time of the survey.

The model was then adopted and adapted from three models of Chapman (1981), Joseph and Joseph (1998 and 2000) and Wagner et al. (2009). The common point of these studies is the use of IPA in developing criteria and evaluation of university attributes from the perspective of high school students-potential university students. In this study, the author also inherits the above-mentioned studies and selects five attributes of a university, including: cost, curriculum, value of education, information on career and academic programs.

Table 1. Comparison of Research Findings by Joseph and Joseph (1998, 2000) and Wanger et al. (2009)

Rank	Joseph and Joseph (1998)	Joseph and Joseph (2000)	Wanger et al. (2009)
1	Value of education	Information on academic vocational programs	Tuition and financial aid policies
2	Availability of programs	Facilities and resources	Value of education
3	Cost	Cost	Curriculum
4	Infrastructure and resources	Curriculum	Significant People
5	General	Reputation	Facilities and resources
6	--	--	Information on careers and academic programs

Author's analysis and syntheses

■ METHODOLOGY

Measurement of concepts: on application of by IPA, the author has designed a small-sized qualitative research. Five experts in the field of education and linguistics were invited to look at the relevance and precise interpretation of the contents of the scale which derived from the two studies by Joseph and Joseph (1998, 2000), Wagner et al. (2009); and Sia (2010). A quantitative questionnaire was designed on the basis of 5-point Likert scale that ranges students' assessments in accordance with the importance of attributes from 1 as not important to 5 as very important.

Data was collected through interviews with high school leavers from Hanoi who left high school and took the university entrance exam in 2016. With the help of teachers at local high schools, students' parents, leaders of high schools in Hanoi, data were collected both directly and indirectly. Data sampling was divided into two different phases. Phase 1 for a preliminary assessment of the reliability of the scales was conducted on a small group of around 100 samples. The collected results were 113 valid filled

questionnaires for the preliminary assessment. In phase 2, the author sent out 500 questionnaires by developing a larger numbers of samples (relational network) for the collection of research data. The investigation period ran from mid-June 2016 to the end of October 2016, especially during the time when high school students completing their paperwork to register for university enrollment.

■ RESULTS AND DISCUSSION

Description of the research sample

As many as 361 out of 500 questionnaires were collected and valid for the research, with a response rate of 72%. The samples were classified under the following criteria:

Gender. Of the 361 high school students surveyed, the proportion of men and women was fairly balanced, with 53% of women (191) and 47% of men (170).

Academic performance. The students with credit level of score account for the highest proportion of 208 students (58%), followed by 114 (32%) students with distinction of academic performance, 34 (9%) with average score and 1% weak students.

Table 2. High school students' evaluation on university attributes*

Evaluation criteria	Average	Deviation	Reliability 95%	
			Lower bounds	Upper bounds
Reasonable tuition policy	3.687	1.064	3.577	3.797
Suitable cost of living	3.856	1.138	3.738	3.974
Financial aid policies (scholarships, grants, concessional loans ...)	4.139	1.018	4.033	4.244
Flexible tuition collection (tuition fees ...)	3.803	1.102	3.689	3.917
Overall evaluation of tuition policy	3.871	0.847	3.783	3.959
Courses/subjects with diversity of contents and structure for students' choice	3.560	1.246	3.431	3.689
Flexible conditions for registering a study program/subject	3.820	1.087	3.707	3.932
Intensive/advanced programs tailored to students' needs	3.823	1.076	3.711	3.934
Programs with various practical content	3.753	1.129	3.637	3.870
Flexibility in transferring of subjects/of major and specialization	3.765	1.151	3.645	3.884
Overall evaluation of the curriculum	3.744	0.912	3.650	3.838
Encouraging learning environment for students	3.770	1.062	3.660	3.880
Resources to meet student learning needs	3.953	1.062	3.843	4.063
Experienced, high quality faculty	3.958	1.068	3.848	4.069
Overall evaluation of the infrastructure	3.894	0.944	3.796	3.991
Institutions with academic reputation	3.892	1.099	3.778	4.006
Institutions with prestige training programs	3.715	1.061	3.605	3.825
Institutions with accredited academic programs/ highly-valued academic merit	4.047	0.986	3.945	4.149
Overall evaluation of the value of education	3.885	0.834	3.798	3.971
Institutions with information on career opportunities	3.781	1.062	3.671	3.891
Institutions with information on the student's study/research field	3.778	1.060	3.669	3.888
Institutions with information on post graduate or higher education courses	3.795	1.042	3.687	3.903
Overall evaluation of the institution information	3.785	0.929	3.689	3.881

*Author's calculation with aid of SPSS

Institution choice

The rate of admission by entrance exam is five times higher than that by assessment of academic credentials with 304 students (84%) enrolling by the entrance exam as compared with only 57 students (16%) by academic credentials. Basically, the profile of survey respondents is quite suitable. The imbalanced rate of female to male is not significant (8%). The percentage of pupils from urban and suburban areas is quite proportionate. The percentage of students with good academic performance is high (about 90%). The proportion of students attending public schools is higher than that of non-state schools, which reflects a real current trend in high school education in Hanoi. It is also rational that the admission rate by exam is higher with 84% as students with good academic performance tend to challenge themselves in exams for an entry into prestige tertiary institutions.

Results of evaluation of institution attributes

Choice criteria on tuition and financial aid policies. The results from the survey show that the tuition and financial aid policy gains a good grade of average of 3.871 (SD=0.847) on the 5-point scale. Particularly, the most appreciated criteria in selection of an institution is "financial aid policies such as scholarships, grants or concessional loans" (4.139); and the least "reasonable tuition policy" (3.687). This reveals a clear change and is well suited to the current context. School tuition policies have changed dramatically; the tuition gap between state-owned and non-state institutions has narrowed. At university, the amount of tuition depends on different training programs. Students are, therefore, more concerned about financial aid policies, scholarships and concessional loans in a hope to grasp an opportunity to lessen the financial burden on their families.

Evaluation of the curriculum. For the curriculum factor, students gave a rather high overall score with an average of 3.744 (SD=0.912). In which, the most appreciated aspect is "the institution with an intensive/advanced curriculum tailored to students' needs" (3.823) and the lowest "the courses/subjects with diversity of contents and structure for students' choice" (3.560). It is an interesting finding as the respondents are students preparing for college. This shows that students are getting gradually matured in their choice of curriculum. They consider the need for intensive study and advanced research to acquire knowledge.

Assessments of facilities and resources. The results show that the score given by students with good academic performance is 3.894 (SD=0.944) on the 5-point scale. In which, the most appreciated aspect is the "high-quality, experienced teaching staff" (3.958) and the lowest "learning environment for students" (3.770). Students care more about the teaching staff with good and practical teaching experience. This reflects the fact that students evaluate the teachers as a decisive key.

Importance of value of education. The value of education of choice institutions was rated at a high level with an average score of 3.885 (SD=0.834). Accordingly, the most appreciated aspect is "schools with accredited academic programs" (4.047) and the lowest is "the institutions with prestige training program" (3.715). The value of education of tertiary institutions manifests itself in many aspects. It is not only recognized by students, businesses/organizations but also highly appreciated by other prestigious academic institutions.

Information on career and academic curriculum. Information about institution was rated at a quite high level with an average score of 3.785 (SD=0.929) on a 5-point scale. The top score is for "institutions with information on post graduate or higher education courses" (3.795); and the lowest for "institutions with information on students' study/research filed" (3.778). This study directed at high school students who have enough conditions to choose which university to enroll so the information on higher education courses is most interested. According to qualitative research, students tend to think that institutions having master's degree training courses in cooperation with overseas institutions will take the advantage.

■ CONCLUSION

The research shows that high school students rank tertiary institutions' attributes in ascending order: the first is the material and resources in which the quality of teaching staff is most concerned. The second is the value of education of institutions on the basis of the recognition by prestigious academic rating agencies. The third is the tuition and financial aid policies, in which financial aid being the most important. The fourth is the information on career and academic curriculum due to students' interest in higher level of education information for their acquisition of knowledge. Last but not least is the emphasis on intensive/advanced academic programs. Basing on the findings, education managers, university administrators will be improving the quality of tertiary education services for better satisfaction of students' needs. In recognition of strengths, weaknesses of the institution, they will sort out an appropriate enrollment strategy. On the side of high school students, the study also indicates the "maturity" in their choice, reflects their confidence in profoundly evaluation of universities' attributes. However, this study bears certain limitations; that is it only reflects choice criteria of students with intention of selecting their upcoming tertiary institution. Therefore, a future research will focus on assessment of the perfectness of the IPA, including the evaluation of the degrees of implementing attributes.

■ DECLARATIONS

Authors' Contributions

All authors contributed equally to this work.

Competing interests

The authors declare that they have no competing interests.

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