Academic Programme Preference Inventory (APPI)

Manual

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Acknowledgements

Introduction

With a wider base of academic choices, school leavers and adults in Hong Kong not only have to consider which programmes will be most useful to their careers, but also take their own apparent or potential interests and abilities into account when making these decisions. If people do not have a thorough understanding of their interests and abilities or, to put it more aptly, their psychological characteristics, it will be difficult for them to make informed decisions about their academic direction. If the programmes students select do not match their psychological characteristics, students may have difficulties with motivation, personal fulfillment and ultimately academic success. To facilitate a suitable match between students' psychological characteristics and the programmes they select, the Academic Programme Preference Inventory (APPI) was developed to offer an on-line, self-directed standardized test to measure academic programme preferences for potential learners based on continuing higher education programmes in Hong Kong. It is expected that APPI can enable school leavers and adults to have a better understanding of their personal attributes and to make wise educational choices.

Procedures of the development of the APPI

The development of the APPI included the following eight stages:

Stage 1. Design of the Inventory. The 14-dimension, 454-item inventory, related to social, school, family and leisure activities in the Hong Kong context, was developed and reviewed by the project team.

Stage 2. Suitability and validation of the inventory. The inventory was assessed by local practitioners of student guidance, as well as international psychologists and career counselors. Based on their feedback, the draft inventory was revised and 34 items were deleted. A new draft containing 420 items was finalized for the pilot study.

Stage 3. Pilot study. The pilot study was carried out on 49 Form 4 to Form 7 students at a secondary school on Hong Kong Island. The order of the 420 items was randomized before the pilot study.

Stage 4. Test-retest. 194 completed questionnaires were received for reliability analysis. The time interval between test and retest was four weeks. The test-retest reliability coefficient was 0. 69. 102 items with item-total correlations less than 0.4 were discarded (Nunnally, 1967) and the test-retest reliability coefficient of the remaining 318-item scale rose to 0.72.

Stage 5. Main study (Identification of personal attributes). The 318-item scale was administered to 1,288 students in Forms 4 to 7 in six secondary schools. A factor analysis of the data revealed nine interpretable factors. There was a further reduction of 190 items from this scale, based on their factor loadings and item-scale reliability. The resulting 128-item scale had an alpha reliability of 0.98.

Stage 6. Verification study (verification of the multidimensionality of the inventory). Data were collected from 1244 students in Forms 4 to 7 in four secondary schools of different academic levels, namely high, middle and low. The multidimensionality of the scale was examined by factor analysis. Comparable to the findings in the main study, eight types of attributes remained the same as the results of the main study while two factors merged into one. As the result 112 items were yielded in nine attributes with an alpha reliability of .955. Gender-based norms for each attribute were also established.

Stage 7. Determining minimum desirability ratings. Eighty-nine programme leaders/ programme coordinators/ course coordinators/ lecturers from three universities determined the most important personal attributes that a potential student should possess in order to meet the minimum entry requirements of each of the seventy-three academic programme categories, based on the nine psychological types identified.

Stage 8. Establishment of the online APPI. The resulting 112-item inventory was named the APPI- an on-line, self-directed standardized test to measure academic programme preferences for potential learners based on all open education programmes in Hong Kong.

It is linked to the homepage of the local Student Guidance Center (Hok Yau Club).

Samples of the development of the APPI

Survey samples were selected from students studying from Forms 4 to 7, ranging in age from 15 to 19.

Samples for APPI development

Survey	APPI testing	Male subjects	Female subjects	Total number
Pilot study	Suitability of the questionnaire	30	19	49
1st survey	Test-retest	107	87	194
2nd survey	Main study	635	653	1,288
3rd survey	Verification study	558	686	1,244

APPI Inventory

An exploratory factor analysis (principal component analysis with varimax rotation) of the data was administered and revealed nine interpretable factors. All 112 items were found to load significantly (> .40) on the nine factors. Based on the item content of each factor, nine adjectives were deemed most suitable to describe the personal attributes: Organizational, Mechanical, Scientific, Sociological, Mathematical, Literary, Social Service, Musical, and Aesthetic.

Description of the personal attributes

Description of the nine personal attributes

Organizational-This individual's persuasive and charismatic qualities usually situate him or her in a leadership role with others. This is also reflected in their ability to make sound decisions in a timely manner, thus indicative of an individual who is intuitive and highly independent.
Mechanical-This individual can be characterized by the ability to manipulate machinery, electronics and computers. This refers to operating, installing, repairing or troubleshooting various devices. In addition, such an individual is skilled at designing applications for computers or mechanical objects.
Scientific-This individual enjoys all science disciplines, including biology, physiology

and chemistry courses. Beyond the classroom, this individual will also interact with the environment examining the constituents of food, medicine, plants and microscopic organisms, and also has an interest in conducting various science experiments.
Sociological-This individual is well read in various areas that directly or indirectly affect society such as law, politics and economics. Such an individual is also inclined to participate actively in political activities or to interact with others to discuss politics or gather individuals' perceptions of social issues.
Mathematical-This individual is skilled at manipulating numbers. Some examples include solving mathematical and practical problems, understanding and analyzing numerical data and measuring objects. This individual is also interested in studying arithmetic courses.
Literary-This individual expresses interest and skill in reading and writing in the areas of literature and language. Interests include memorizing literary passages, writing short stories and learning new vocabulary. These individuals express themselves well in their writing and are also skilled at proofreading, grammar and analyzing literature.
Social Service -This individual enjoys working for the community. Specifically, this person engages in activities to help individuals in need (senior citizens, the mentally challenged, depressed people, the sick), volunteers for charity organizations and participates in activities for protecting the environment.
Musical-This individual is musically inclined in all areas of the discipline. For example this individual is interested in reading music theory and biographies of musicians, composing or writing songs, playing a musical instrument or singing on stage. This individual is also skilled at teaching others to sing or play an instrument and conducting a band.
Aesthetic -This individual is skilled at drawing, photography and especially design. Skills in design include advertisements, interior design and stage props. This individual is interested in visiting galleries and photo exhibitions.

Reliability

Internal consistencies of the APPI and its subscale were examined by the use of reliability analyses. Cronbach's Alpha reliability and split-half reliability tests were conducted. The internal consistency of the total score of the APPI was 0.95 and the subscale internal consistency coefficients ranged from 0.88 to 0.94 based on Cronbach's Alpha reliability test. The split-half correlation of the APPI scale was 0.83 and the subscales split-half correlations ranged from 0.84 to 0.92.

Subscale internal consistencies for the nine attributes

Factor	Cronbach's Alpha	Split-half Reliability
Organizational	.88	.87
Mechanical	.94	.92
Scientific	.92	.90
Sociological	.89	.84
Mathematical	.92	.90
Literary	.88	.85
Social Service	.89	.87
Musical	.92	.88
Aesthetic	.88	.85
Total score	.95	.83

Validity

Content validity of the items in the APPI subscales was evaluated by 20 international psychologists and career counselors from the United Kingdom, the United States, Taiwan and Mainland China.

Suitability

The construction of the items of the APPI was based on the Hong Kong context. The suitability of the items was assessed by the President of the Hok Yau Club in Hong Kong and 7 guidance teachers in participating schools. In addition, the survey instrument was pilot tested.

Standardization

Base on 1,244 data sets (558 male and 686 female subjects), the norms of the APPI were established as below.

Factor	Male (N=558)		Female (N=686)	
	Mean	SD	Mean	SD
Organizational	3.26	0.58	3.21	0.59
Mechanical	3.32	0.80	3.44	0.69
Scientific	3.19	0.74	2.90	0.75
Sociological	2.73	0.70	2.54	0.62
Mathematical	2.99	0.76	2.57	0.73
Literary	2.73	0.66	2.93	0.70
Social Service	3.15	0.62	3.46	0.60
Musical	2.76	0.82	2.96	0.82
Aesthetic	3.16	0.73	3.42	0.68

The Online APPI

The APPI is accessible, in English and Chinese, by visiting the homepage of the local Student Guidance Centre (Hok Yau Club) at <http://www.student.com.hk>. It is accessible to the general public. There are four parts of the APPI: introduction, copyright notice, instruments, and the results. The data obtained from users will be sent automatically to the APPI developers in Excel format for further validation and to update gender-based norms.

Referred Publication

Wei-yuan Zhang, Lixun, Wang & Tak-kay Ng, (2004) Research Collaboration between Open Education Providers and Consumers in Developing an Academic Programme Preference Inventory, *Asian Journal of Distance Education*, Vol., 2. No.2.