A NEW MEASURE OF GENERIC COMPETENCIES

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Background

Since the early 1990s, generic competencies – transferable, multifunctional knowledge, skills and attitudes that people could learn and develop in different ways and learning environments, and apply across a variety of job and life contexts, have been capturing growing attention all over the world. The urgency in developing generic competencies in recent years are mainly fueled by employers from the industry, as fast changes in technology and global competition prompt employers alike to look for all-round employees who demonstrate teamwork, problem-solving, flexibility, initiative, and the capacity to undertake many different tasks and information (NCVER, 2003). Proficiency in the broad range of generic skills has become the main requirement for the modern worker (Australian Chamber of Commerce and Industry & Business Council of Australia, 2002).

Whereas there is a growing consensus in, among other things, the seemingly pivotal role generic competencies play in the job and life contexts in the 21st century, the question relating to assessing such competencies is not adequately addressed. Relatively few assessment resources/tools are available in the field, and Clayton, Blom, Meyers, & Bateman (2003) urge for the development and dissemination of assessment resources to practitioners to support effective generic assessment. In the present study, a newly developed self-assessment inventory – the Self-Assessment of All-Round Development (SAARD) Questionnaire (The Hong Kong Polytechnic University, 2006), will be introduced, along with its validation procedures and results.

While learners' performance in standardised knowledge and/or skill tests or authentic tasks are regarded as more objective, precise and convincing, self-assessment are often more useful for improvement purposes. A number of studies (Chur-Hansen, 2001; Garrigan, 1997; Yorke, 2001) agree that a capacity for self-assessment will help learner gain self-awareness, mature and progress, and describe their developmental needs. But the tacit nature of such skills works against their being recognised, conceptualised, and articulated, not only by observers, but also by those who possess them (Clayton, et al., 2003). Self-assessment inventories offer a level of scaffolding to make reflective self-assessment a manageable task which enable learners (e.g. undergraduate students) to undertake the comparatively simpler task of recognising, rather than identifying their generic skills (Lizzio & Wilson, 2004).

Moreover, conducting standardised tests on a large scale (e.g. at institutional level at universities) is expensive both in terms of resources and effort, and some of the generic competencies are affective in nature (e.g. cultural appreciation) which do not readily lend themselves to direct performance measures, and under such circumstances, learners' scores reported in validated self-assessment inventories can be considered as useful general proxies for their achievement. A number of efforts to develop self-report instruments to document several generic competencies at one time have been made in the last decade, but all the inventories examined are either too long or too brief, ask the respondents to make global self-ratings against non-behavioural skill categories, or are not introduced with convincing evidence to support their psychometric properties. Obviously, more work needs to be done in this area.

Objective

The goal of our research is to create a new measure of generic competencies, the Self-Assessment of All-Round Development (SAARD) Questionnaire. By presenting the results regarding the validation of the SAARD, we wish to show that it can differentiate student groups exhibiting different kinds and levels of generic competencies.

Summary of Results

Procedures

After expending relentless effort in doing extensive reviews on relevant academic literature (Bass, 1997; Goleman, 1995; Higgins, Power, & Kohlberg, 1984; NCVER, 2003), and collecting feedbacks from students and relevant experts, an initial draft of the SAARD Questionnaire with 84 items had been developed. The SAARD Questionnaire asks students to rate their abilities and behaviours along a 7-point scale with respect to the following 14 areas of generic competencies:

1. Communication
2. Creative Thinking
3. Critical Thinking
4. Cultural Appreciation
5. Emotional Intelligence and Psychological Wellness
6. Entrepreneurship
7. Global Outlook
8. Healthy Lifestyle
9. Interpersonal Effectiveness
10. Leadership
11. Life-long Learning
12. Problem Solving
13. Social and National Responsibility
14. Teamwork

In early 2006, an anonymous survey was conducted on a sample of 1,498 students from all seven Faculties and School of the Hong Kong Polytechnic University (or 'the University' used hereafter), four different levels of study (from 'Higher Diploma year-one' to 'Postgraduate studies'), and both sexes, with an aim to examine the reliability and validity of the new instrument. The response rate of the survey was 83 per cent.

Results

Data gathered in the survey were submitted to analyses using the SPSS and the AMOS statistical packages. Initial item analysis and exploratory factor analysis revealed 28 items with poorer psychometric properties and as a result, the total number of items of the new instrument was trimmed down from 84 to 56. The more condensed 56-item SAARD Questionnaire was then subject to the following analyses:

I. Internal reliability

The Cronbach's alpha coefficient for the overall 56-item questionnaire was .95 and the mean inter-item correlation (MIC) was .25. The alpha coefficients of the 11 subscales/factors ranged from .61 to .91, and their MICs ranged from .30 to .70.

II. Exploratory factor analysis (EFA)

In order to identify the factor structure underlying the remaining 56 items, an exploratory factor analysis (principal axis factoring) was done. Applying the varimax rotation procedure, a 11-factor solution was identified based on the Kaiser (eigenvalue > 1) rule and the interpretability of the factor solution, which accounted for 48.54 per cent of the item variance. From the findings, a clear, interpretable factor structure that was generally consistent with our a priori hypothesised structure was observed. For seven factors, almost all the items designed for measuring a particular generic competency area (e.g. entrepreneurship) were grouped under one and the same factor. For the other two factors, all the items designed for measuring the cognitive competence of students (e.g. critical thinking, problem solving) and group working skills (e.g. leadership, teamwork) were grouped under two general measures of cognitive abilities and working in groups respectively. For the last two factors, items designed for measuring two dimensions of healthy lifestyle: engagement in physical activity and health responsibility, were grouped under two separate factors in a sensible way.

III. Confirmatory factor analysis (CFA)

A confirmatory factor analysis with maximum likelihood estimation was then run to further test the fit of the proposed 11-factor model. As suggested by Byrne (2001), two fit indices – the Comparative Fit Index (CFI), a fit index which is relatively insensitive to the sample size, and the root-mean-square error of approximation (RMSEA) were used. In the present study, the CFI and the RMSEA of the 11-factor model were .90 and .040 (with its 90 per cent confidence interval being .039 and .042)

respectively, indicating acceptable fit. And in a subsequent study conducted in August, 2006, using an independent sample of over 3,000 freshmen, a CFA was also done to cross-validate the 11-factor model, and the CFI and RMSEA were exactly the same. Thus, the proposed 11 factors were assumed. In general, the findings stated in sections II and III have lent support to the factorial and construct validity of the 56-item SAARD Questionnaire.

IV. Known groups validity

Known groups validity was explored by testing the hypothesis that certain subgroups of the students would report higher scores on some of the subscales of the SAARD than would others. Results generated from multivariate analysis of variance/covariance (MANOVA/MANCOVA) had supported our hypotheses that those studying at a higher level (e.g. postgraduate students) would demonstrate better development in their cognitive abilities (e.g. critical thinking), and would therefore rate themselves significantly higher than those studying at a lower level (e.g. Higher Diploma year-one students) (mean scores = 79.85 vs 72.27); students studying Art and Design would also report higher scores than all other students in their development of creative thinking (mean scores = 20.05 vs 18.23) and cultural appreciation (mean scores = 21.84 vs 18.36); Business students would give themselves better ratings than all others in entrepreneurship (mean scores = 19.91 vs 19.21); and male students would report having engaged more in physical activities than female students (mean scores = 9.13 vs 7.82). Generally speaking, all these results have lent support to the known groups validity of the 56-item SAARD Questionnaire.

Conclusions and Recommendations

In conclusion, results generated from (i) internal reliability analysis; (ii) exploratory factor analysis; (iii) confirmatory factor analysis; and (iv) known groups validity analysis indicate that the 56-item SAARD Questionnaire is a reasonably reliable, valid and useful instrument for measuring the all-round development of students, and it is worthy of additional use and testing. It has a relatively comprehensive coverage of major dimensions of various generic competencies operationalised mainly into behavioural skill items, while at the same time remains reasonably concise and user-friendly.

The SAARD Questionnaire is designed for producing general profiles of all-round development of university students along various areas of generic competencies at both the individual, programme/faculty/departmental, and institutional levels. The SAARD could be administered annually to students during their entry and exit points so as to monitor their all-round development whilst studying at their universities. At the Hong Kong PolyU, strenuous effort has been made to develop local student norms such that students can get useful individual guidance/feedback about their profiles of competence and weaknesses from the findings. Students' individual developmental profiles have also been uploaded to their e-Portfolios to help them document their growth over time.

Despite the fact that the results of this study are encouraging, more work is required to further examine the construct validity of the SAARD by correlating its scores with, for instance, scores achieved in standardised tests with similar content or scores achieved along relevant performance indicators used in the job setting after graduation.

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