Developing an Instrument to Measure Research Skills

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Abstract

A diagnostic instrument to identify the competencies in research knowledge and skills of doctoral student was developed. There is a need to measure student deficiencies in their preparation to conduct doctoral research in order to provide guidance and training. A four stage development of the instrument was conducted. Firstly, through a literature review on the construct in research knowledge and skills were identified and then defined operationally. Items for the instrument were 5 point Likert-type and were either adapted from similar existing instrument or developed by the researcher. Through a pilot study the instruments was validated by peer evaluation and its reliability was measured using internal consistency method. The process also involved item analysis to weed out weak items. The final stage involve in trying to gauge a sample of the current PhD candidates competencies in research. The reliabilities ranged from 0.78 – 0.93 and instrument was judged approach for use. Thus the instrument is beneficial for diagnosing student preparedness in doing research.

Keywords: Statistical analysis skills; information seeking skills; problem solving skills; communications skills; research methodology skills

1. Introduction

Local universities in Malaysia are receiving more and more students seeking for postgraduate education both at master’s and doctoral levels. Because of the policy of internationalization of education and the conducive post graduate environment, it also received an increasing number of students from overseas countries like Indonesia, Middle East and African. The duration of the programme is three years for completion of studies at doctoral level and one to two years for a Masters degree. Most of the doctoral programmes are by research. Students have to undertake a reasonable research work and write a thesis. The thesis is then stringently evaluated in terms of its contribution to knowledge and originality by an external evaluator, usually an academic researcher working in a similar field.

However some students take a long time to embark on their research and hand in their theses. On average, four years is the time to graduate but some may take more time for completion. Sponsored students face the problem of their scholarship being discontinued if they take more than three years though an extension of the scholarship was

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possible base on merit. Supervisors also face the problem of not being able to take new students if these students spend more time and need extra supervision to complete their education.

The main outcome especially for the doctoral programme is to develop the student as a competent researcher i.e. has acquired the knowledge and skills of conducting and disseminating his or her research in a particular field of research. This has been the focus in most of the programmes by research. It is an asset to the country to produce researchers to embark further researcher for economic health or other reason i.e. to be on a cutting-edge with other countries in the use and application of knowledge (Dodani & LaPorte (2008), Murtonen (2005) & Sveiby (2001)).

There are various reasons for students’ failure to complete their doctoral degree. The finding from the literature on students difficulties, indicate one of the main cause, is the lack of preparation in knowledge and skills to conduct research. Students are often expected to have for example the skills of seeking and selecting the information using the library or on-line or web, in their field of interest. They should also be well equipped in the methodology of conducting research, including collection and using the tools of analyzing the data and of course communicating and writing research.

This often is not the case even though institutions offer various training facilities to equip the students. Libraries offer courses on seeking information, computing centres also provide training on data analysis and supervisors or advisors do provide but may not be sufficient for guidance and training on research. It is necessary to diagnose students’ lack of preparation in research so that they will have a smooth path in postgraduate education. Thus, this study was carried out to develop an instrument to assess student training needs for conducting research.

2. Development Process of the Research Knowledge Skills to Conduct Research Questionnaire

There a number of models or steps involves in the developing questionnaire being propose. A five phase model was used for the development of the questionnaire. The phases involved were presented in the Figure 1
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