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The Process of Validation of Instrument Used for Teaching in a 2.0 Learning Environment

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Abstract

The use of Web 2.0 applications in education has a significant effect on and is gaining momentum among the educational fields especially in teaching and learning collaboratively. A paradigm shift from traditional learning style to technology innovations has opened up more opportunities for educators to practise accordingly. A small preliminary study was administered to examine teachers' perceptions and readiness towards the utility of teaching and learning in a 2.0 environment as many previous studies had agreed that teachers' perceptions and readiness are significant indicators in managing the technologies concerned. The data collected was analysed using Winsteps 3.71.0.1 which applied the Rasch Model based on Item Response Theory Models. The instrument reliability was measured by analysing item reliability index while the construct validity was examined by analysing the point-measure correlation index based on the three constructs respectively. The preliminary results of the study showed that the item reliability of three constructs were 0.96 and 0.98. Construct validity analysis revealed that the overall items in the constructs were correlated positively to measure the underlying construct. Thus, this instrument displayed significant reliability and construct validity in portraying the teachers' positive perceptions and readiness in using Web 2.0 applications in their secondary education teaching. Consequently, the findings provide useful information which enables teachers to better understand the Web 2.0 technologies and integrate them into Malaysian education and at the same time benefit the learners.

Keywords: classroom education in Web 2.0; teachers' perceptions and readiness in Web 2.0; teaching and learning collaboratively in Web 2.0; Web 2.0 technologies

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1. Introduction

The classrooms of net generations with massive growth in the use of websites on social activities, present several new challenges to people in the field of education. Thus, to cater to the challenges, it is a novel task to consider integrating the multimodal activities in teaching and learning to support and supply classroom instruction and finally benefit the learners as well. Web services, namely wikis, blogs, discussion boards and social networking websites illustrate the current trend of diverse teaching styles that use the integration of collaborative exploration and information of academic environments. For that matter, it is necessary for the teachers to understand and adapt their teaching styles to fulfil the demand of the net-generations (Levin et al. 2002; Salaway et al. 2008). These net-generations, or hereafter called Digital Natives, are reported to grow up surrounded by new digital technologies which are integral parts of their lives. According to Prensky (2001), they have spent their entire lives living in the digital era that include computer games, E-mail, the Internet, texting, instant messages, and computer or digital music players.

Today's learners are no longer like those in our old educational system when it was first designed and taught. They have changed radically. In order to have access to the learners who are Digital Natives, new methodologies need to be created for the teaching and learning environment (Prensky 2007). Hence, as a preliminary step towards managing the Web 2.0 technologies in classroom education, it is suggested that we should have information about teachers' perceptions and readiness on the matter. Teachers' perceptions may portray the early readiness towards teaching in a Web 2.0 learning environment. To measure that, researchers need to construct items which aim to investigate a person's behaviour. It is also equally important to be aware of the crucial task of constructing high-quality items (Wright & Stone, 1979). To address the task, Rasch measurement analysis provides general guidelines in assisting a researcher to measure the reliability and validity of the items developed. In relation to that, Bond & Fox (2001) proposed that an instrument with high item reliability index indicates the replicability of the item placements along the pathway if ever the items were to be given to other respondents with comparable levels of ability.

2. Related Work

2.1   *Digital natives versus digital immigrants in Web 2.0 education*

Prensky (2001) mentioned that learners of today's generation are labelled as Digital Natives, N-gen (Net generation) or even D-gen (Digital generation). Apart from that, they are also being marked as "native speakers" of the digital language of computers, video games and the Internet since they were born into the digital world and the technologies are a part of their lives. On the contrary, those who were not born during this era, but have somehow adopted these technologies, are not the native speakers to this entire new language. They are instead known as Digital Immigrants. As a result of this new knowledge, the Digital Natives said to have undergone a physiologically different degree of brain development. Those areas of the brain that are exposed to repeated virtual experiences show an increased development while the rest of the brain does not. For instance, the thinking skills of subjects enhanced by repeated virtual digital multimodal representations namely computer games, result in the subjects responding faster to expected and unexpected stimuli.