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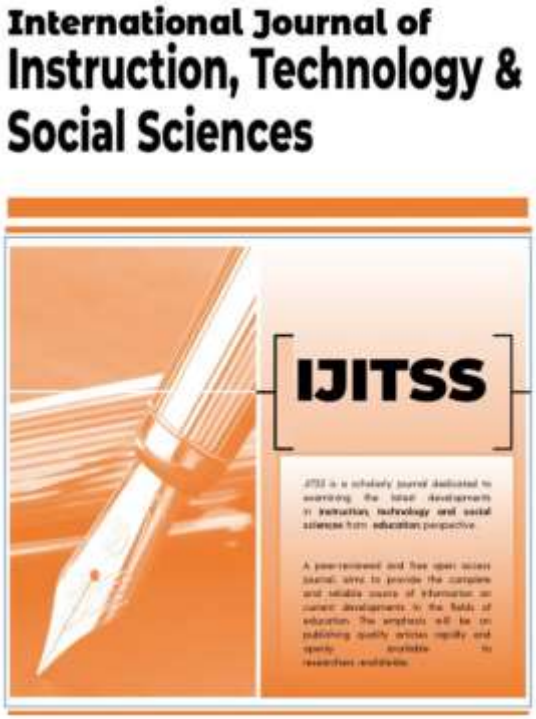

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Assessing Knowledge Management In Teacher Education

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Abstract

Knowledge management should be the limelight in order to produce more competent teacher educators in Teacher Education Institutes. Precisely, knowledge management is an information technology competency that should be developed to produce smart and knowledgeable generation. Align with this, approaches on encouraging knowledge management in teacher education are found to be very significant in producing more resourceful teachers. Despite the significance of knowledge management in teacher education, valid instruments have proven yet to be developed. Hence, the main aim of this study was to develop a valid instrument to assess knowledge management among teacher educators. A survey encompassed 100 teacher educators was carried out in Malaysian Teacher Education Institutes. An exploratory factor analysis (EFA) was employed to identify the underlying factors. Result of EFA formed Knowledge Management Practice Inventory (KMPI) comprised of 22 items which explained 78.477% of the total cumulative variance. Based on these findings, KMPI can be used as a valid instrument to assess knowledge management among teacher educators in Teacher Education Institutes. Besides, it provides comprehensive guidelines for leaders to organize intensive training on knowledge management in Teacher Education Institutes.

Introduction

Resourceful educators are capable in developing robust education system. Rather than just delivering lessons, educators in twenty-first century need to be more obligated on assessing and enriching the existing knowledge (Supermane & Tahir, 2018). Therefore, the fundamental responsibility of an educator is to plan and execute effective lessons by using enriched knowledge. In a line with proactively producing smart and knowledgeable generation (Kolandan et al., 2020), teacher educators should develop knowledge management as an information technology competency. Teacher educators need to manage their knowledge systematically in order to be innovative in planning and executing diversified teaching and learning activities. Aligned with this, Yeh et al. (2012) had stressed that diversification in planning and delivering lessons drive to the enhancement of educator's skills and promised a good impact on students' achievement. Therefore, teacher educators play a substantial role in managing existing and new knowledge in Teacher Education Institutes because they are the best models to all the teacher trainees. All the best practices in the Teacher Education Institutes will be adapted directly by the teacher trainees as the best references to be used in the schools.

Background of Problem

Ministry of Education has emphasized on technological transformation in education as it is believed that innovation based economy demands effective system (Ramachandran, Chong & Ismail, 2009; Sohail & Daud, 2009). Aligned with this, the effectiveness of knowledge management practice in enhancing innovation (Lifang & Ziling, 2011; Blass & Hayward, 2014; Budiarta, 2015; Fidalgo-Blanco et al., 2015) has been proven widely in past studies. Therefore, as the main focus of education transformation, teachers play important role in educating and guiding future leaders to manage their knowledge effectively in order to be innovative (Karavas-Doukas, 1995). In relation to that, knowledge management should be the limelight in order to produce more competent teacher educators in Teacher Education Institutes.

In spite of efforts taken, educators still facing problems in managing their knowledge effectively to plan and execute diversified teaching and learning activities (Ministry of Education, 2013). Accordingly, this issue need to be tackled as soon as possible to avoid the impact on organizational excellency especially in the education sector. Ramayah, Yeap and Ignatius (2014) also expressed the same concern on educational institutions in Malaysia that lack of knowledge and expertise will affect the achievement of educational institutions' objectives. In relation to this, knowledge and expertise need to be managed wisely as the demand for variety resources among educators has increased in order to foster innovation in Teacher Education Institutes. Budiarta (2015) has stressed that knowledge management enhance educator's motivation to learn and adapt new knowledge in daily routines. All the adapted knowledge, contribute directly to the educator's teaching skill improvement and efficiency.

Scarcity in continuous exposure of knowledge management in Teachers Education Institutes was one of the dominant reasons contributed to the aforesaid problem. Moreover, Supermane (2019) highlighted that declining in trainings and courses that are used to channel knowledge has led to limited resources of knowledge. Hence, the effectiveness knowledge management practice is not noticeable in Malaysia, especially in the context of Teacher Education Institutes. Notwithstanding The New IPG-Teacher Education Transformation structure, valid framework to obtain excellency in knowledge management have proven yet to be developed for all the teacher educators. Supermane and Tahir (2017) has disclosed that the effective knowledge management among Malaysian educators has enhanced the innovative teaching and learning skills. Given the importance of knowledge management in Teacher Education Institutes, this study developed a valid instrument to assess knowledge management among teacher educators. By providing instrument and in-detailed information about knowledge management, teacher educator will be able to manage the existed and provided knowledge to attain the institution's mission and vision..

Methodology

Teacher educators in Malaysia were chosen as the population for this study as they involved directly in managing their knowledge and resources to plan and execute teaching and learning activities in Teacher Education Institutes. A clustered sampling procedure was used to obtain the sample for this study. Therefore, a total of 100 teacher educators from one of the Teacher Education Institutes in Southern Malaysia were engaged in this study. A self-administered questionnaire was used as the main instrument for the purpose of data collection. All of the items in the instrument were constructed to measure knowledge management among teacher educators in Teacher Education Institutes. The instrument was based on five point Likert scale. Thereafter, all the collected data was used to conduct factor analysis. Items can be rationally substantial in measuring constructs if they could be extracted with factor loadings above 0.5 (Hair et al., 2014). Hence, Exploratory Factor Analysis (EFA) was carried out in this study to extract the items with factor loadings above 0.5.

Results and Discussions

The primary purpose of this study was to develop a valid instrument to assess knowledge management in Teacher Education Institutes. Therefore, this study examined all the psychometric properties of KMPI and signified substantial results. In the context of this study, EFA was used to extract items with factor loadings above 0.5 to strengthen the validity of this instrument. Prior to EFA, Bartlett's Test of Sphericity (BtoS) was performed to examine the item level bivariate correlations and Kaiser-Meyer-Olkin (KMO) was used to test the partial correlations among pairs of items. In addition, Kristin and Ekawati (2016) has stated that KMO value is equally important to identify the adequacy of data test. The findings of this study showed that the obtained value of BtoS was very significant as it was closer to 0. The obtained KMO value was 0.722. Norman and Streiner (2008) has stressed that the KMO value within 0.70 and 0.79 is considered at the average level but sufficient to measure the construct of knowledge management. Thus, the obtained values of BtoS and KMO for this study indicate that the data met the underlying requirements to perform EFA.

Next, principal component analysis method was engaged to estimate the factors that contributed the most variances to the observed variables. The analysis revealed four factors as solution with 78.477 percent of total cumulative variance. Therefore, the findings of this study showed a sufficient percentage of cumulative variance to measure all the four factors of knowledge management. Finally, uncorrelated factors were identified using Orthogonal Varimax rotation. As the result, four items were discarded from the initial list of 26 items as the factor loadings were below 0.5. Table 1 shows the final factor loadings for the remaining 22 items of knowledge management. The factor loadings for all the 22 items were in the range of 0.655 to 0.881.

Table 1: Final Factor Loadings Matrix for Knowledge Management

Factor	Code	Item	Factor Loadings
1	**PPPM**	**I get teaching and learning resources from...**	
	PPPM1	database in the department	0.723
	PPPM2	shared experiences by lecturers	0.830
	PPPM3	internal communication network	0.809
	PPPM4	internet	0.752
	PPPM6	open conversation	0.747
	PPPM7	collaborative efforts with other lecturers	0.787
2	**PPSP**	**I keep and retrieve knowledge from...**	
	PPSP2	information board	0.877
	PPSP3	database in resource centre	0.788
	PPSP4	internal communication network	0.655
	PPSP5	internet	0.754
	PPSP6	printed documents (books, reports, modules etc.)	0.699
3	**PPPP**	**I transfer all the created knowledge through...**	
	PPPP1	discussions with lecturers	0.683
	PPPP2	in house courses	0.881
	PPPP4	internet	0.856
	PPPP6	printed documents (books, reports, modules etc.)	0.656
	PPPP7	briefing/workshop/course/meeting/conference	0.777
4	**PPAP**	**I apply the created knowledge in...**	
	PPAP1	preparing teaching and learning lesson plans	0.808
	PPAP2	implementing teaching and learning activities	0.824
	PPAP3	designing students' course work	0.788
	PPAP4	improvise teaching and learning	0.777
	PPAP5	delivering lesson content	0.855
	PPAP6	preparing rubrics for course works	0.753

Extraction Method: Principal Component Analysis.

a. Four factors extracted.

Rotation: Varimax with Kaiser Normalization.

In the context of teacher education, all the remaining 22 items were categorized into four factors. The findings were reassuring as the development of the KMPI will be the fundamental effort to manage all the intellectual capital in teacher education.

Conclusion

Knowledge management is a compelling competency to be honed by all the teacher educators. They need to manage their intellectual capital and limited surrounding resources to plan and execute innovative teaching and learning activities. Innovation in Teacher Education Institutes can give an extraordinary impact on the teaching and learning outcomes (Supermane & Tahir, 2017). Nonetheless, teacher educators face difficulties in managing their knowledge without proper guidelines. Therefore, Teacher Education Institutes can adapt KMPI as useful reference to practice and assess knowledge management in teacher education.

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