A Factor Analysis of Teacher Competency in Technology

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Abstract

Background: The 21st Century is here more literate citizen is expected to use technology to access and communicate information by knowing how to manage electronic information from an ever-widening range of resources and in a wide variety of formats. Teachers’ integration of technology is stalled by the lack of successful development opportunities in the constructs of technology and pedagogy. In Thailand, there are many studies that aimed at integrating ICT into teaching to solve the problem of lacking ICT competencies.

Aims: To analyze factors of teacher competency in technology.

Sample: The Sample were 317 secondary school teachers from Islamic private schools at Pattani province Thailand in academic year 2011 which was selected by stratified random sampling procedure.

Method: Frequencies and exploratory factor analysis were used in the study. The KMO result indicated that the sampling was quite adequate. The Varimax rotation was used. Cronbach Alpha reliabilities for overall factors were 0.876. The data was analyzed using program R version 2.13.2.

Results: The results for the factor analysis for this measure yielded a three factor solution with eigenvalues greater than 1.0 and the total variance explained was 30.327% of the total variance. KMO measure of sampling adequacy was 0.779 indicating sufficient intercorrelations while the Bartlett’s Test of Sphericity was significant (Chi square=1850.599, p< 0.01).

Conclusion: This study was analyzed to ascertain the factors of teacher competency in technology of secondary school teachers in pattani province Thailand. Three factor themes emerged through data collection and analysis factors that were studied include basic technology operation, personal use of technology tools and teaching of technology. Hence, the results of this study have implications for the schools to take into consideration teachers’ competency when encouraging them to use technology.

Keywords: factor analysis, teacher competency, technology

教師技術應用能力因數分析

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摘要

緒論: 步入 21 世紀的今天，人們一般上相信，教育程度較高的人應該懂得應用資訊及通訊技術以獲得及分享資訊；即能夠操作電子資訊，並通過電子資訊科技的各種管道和資源來獲取資訊與知識。筆者認為，教師對於上述技術的掌握不夠純熟主要原因是礙於缺乏技術與教學法的培訓。在泰國，有很多研究探討如何將資訊及通訊技術 (ICT) 融入教學以解決教師缺乏 ICT 掌握能力的問題。

研究目的：分析決定教師技術應用能力的因素

研究對象：此次研究物件為通過分層隨機抽樣選出之 2011 學年來自泰國北大年省穆斯林私立學校的 317 名中學教師。
研究方法：此次研究採用頻率與成分探索性因素(frequencies and exploratory factor analysis)的方法來進行。KMO 值顯示，此次研究採用的抽樣相當恰當和準確。此項研究亦採用了最大變異法（Varimax rotation）進行研究。資料透過 R 程式 2.13.2 版的分析顯示，總體因數的克隆巴赫信度係數 (Cronbach Alpha reliabilities) 爲 0.876。

研究結果：研究結果顯示特徵向量(eigenvalues) 大於 1.0，總方差為總方差的 30.327%。KMO 抽樣充足量度顯示足夠的內方差(intercorrelations)，即 0.779；而巴氏球形檢定 (Bartlett’s Test of Sphericity) 的結果為 Chi square=1850.599, p< 0.01。

結論：此項研究主要分析決定泰國北大年省中學教師資訊及通訊技術方面的掌握能力的因素。研究內容分三個方面：基本的技術操作能力、個人的技術應用情況以及技術教學。因此，此項研究可供校方參考，當校方鼓勵教師應用有關方面的技術時應該考慮到教師的掌握能力。

關鍵詞：因數分析、教師能力、技術

References


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