

FUZZY DELPHI METHOD REFINEMENT OF MOBILE LANGUAGE LEARNING FRAMEWORK ELEMENTS FOR TECHNICAL AND ENGINEERING CONTEXTS

ABSTRACT

Judging by the pace and paramount importance of technologies in technical and engineering contexts, Malaysian English for Second Language learning continues to seize the vigor of Mobile Learning. So much, that the learning using mobile devices has seemingly undermined the need for specified, validated elements for a Mobile learning framework to empirically support the effectiveness of chosen materials and applications. This paper, which is parts of the substantial mobile English for Specific Academic Purposes (ESAP) learning framework development for Malaysian technical and engineering contexts, focuses on the utilization of Fuzzy Delphi Method (FDM) to refine the identified elements. The actual design and development research of the framework comprised three phases; two were covered in this paper. It began with the identification of elements (indicators and items) through document analyses of the established mobile learning frameworks and studies, and ESAP and communication needs at technical and engineering contexts. Seven indicators with 180 items were identified from the literature, and in the later phase, the FDM had 11 experts' viewpoints surveyed via online. The method refined the findings of the first phase to eight indicators with 137 items which will be used in the evaluation of the framework at the final phase. Essentially, the robustness of FDM refinement process which is a combination of human intellectuals and technology, serves to highlight this cost-effective mean of data collection and validation method in terms of time and effort. The elements were refined i.e. specified from the literature, agreed and validated by the experts using the method to signify the importance of context when designing mobile learning for specific group of language learners.

Keywords: *Mobile learning, Fuzzy Delphi method, ESAP, framework design and development, engineering*
