AUTOMATED PEDAGOGICAL EXPERT FOR EVALUATING WEB-BASED E-LEARNING CONTENT

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DECLARATION

I declare that this is my own work and this thesis does not incorporate without acknowledgement any material previously submitted for a Degree or Diploma in any other University or institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgement is made in the text. Also, I hereby grant to University of Moratuwa the non-exclusive right to reproduce and distribute my thesis, in whole or in part in print, electronic or other medium. I retain the right to use this content in whole or part in future works (such as articles or books).

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Abstract

e-Learning has been revolutionizing education system based on the concept of learning occurring at any time and any place. The advent of e-Learning has not only bridged the gap between distance and education but also in student learning and student performance by allowing for more personalized teaching. Behind any successful e-Learning program, it is a necessity to maintain careful design and attractive content that can keep the audience focused and interested. Hence, the importance of evaluating web-based e-Learning content is non-secondary in the e-Learning content development. The evaluation process usually consists of pedagogical evaluation and content evaluation, because e-Learning course material is a combination of the course's content, as well as the way it is delivered. This research study is mainly focused on automating the pedagogical evaluation component of web-based e-Learning content. In automating the pedagogical evaluation, identifying inconsistencies is the biggest challenge faced by pedagogical experts in the current manual reviewing process, because different institutions use different checklists to pedagogically evaluate their web-based e-Learning content. Developing a calibrated checklist that can be used in the pedagogical evaluation process is the solution to this matter. This calibrated checklist was devised based on studying existing checklists and then a questionnaire was created, and a survey conducted with pedagogical experts to identify the most important review factors which are considered in the pedagogical evaluation process. Additionally, a quantitative formula was devised to weigh the importance of each review factor along with their related SRFs. This study achieves the following objectives. First to build a calibrated checklist that indicates the most important factors for evaluating the pedagogical effectiveness of Web based e-Learning content. Secondly, to prepare a quantitative formulation for determining the pedagogical effectiveness of Web based e-Learning content. Both the checklist and the quantitative formulation can be instrumental towards the development of a theoretical framework for pedagogical compliance of e-Learning content. This framework can provide the foundation to design and develop a tool for assisting pedagogical experts in their evaluation process prior to making a decision whether a particular e-Learning content is well designed or not. Further, it will pave the path to elicit a quantitative approach for pedagogical evaluation. The benchmarked results of automated pedagogical expert results and the manual evaluation results with respect to the variation within one times standard deviation of mean values of manual evaluation have shown the validity of the framework. Further, this study has elicited a quantitative measure to align with manual evaluation to provide consistence evaluation framework.

Keywords — e-Learning, Pedagogical Evaluation, Instructional Designer

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LIST OF ABBREVIATIONS

Abbreviation	Description
SRF	Sub Review Factor
MRF	Main Review Factor
PEP	Pedagogical Evaluation Process