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## Opponent's review

Doctorate dissertation of Ing Aneta Bartuskova

### **Proposed a smart user interface for course-based education systems**

#### **1. Originality of the Work**

The title seems general and common but after reading through the thesis, I can say that the research was conducted in a systematic way, such that theoretically a framework of design requirements was first dealt with. Then followed by dealing with organization and navigation issues through the proposal of organization schemes extensions within the framework of design requirements. The result of this particular part of the study is to support the development of smart user interface for course-based educational system. The problems of the research formulated can be easily understood to support the motivation of the study.

#### **2. Fulfilment of objectives**

The objective of the study mainly is to improve the design of educational work system and the candidate has narrowed down the work by concentrating on the enhancement of web-based interfaces with respect to their organization and navigation. The proposed interface design through enhancement of existing organization schemes was analyzed and evaluated with several tests using several usability. In addition, the objective of the evaluation is to support the proposal for the development of smart user interface for a web-based educational system. The web-based educational system was also tested for personalization.

In my opinion, the conclusion of the work discussed in Chapter 8 has shown the objectives of the study have been achieved successfully.

#### **3. Obtained results**

The result of the thesis is the framework of design requirements with new organization schemes for interfacing the hybrid systems of a web-based educational system embedding personalization concept.

Since the web-based educational system proposed was not fully implemented as mentioned in Chapter 7, many further works can be suggested through this limitation of the study.

#### **4. Formal aspect of the dissertation**

The research problem was formulated from existing literatures in terms of issues in the topic of designing web interface, organization of information and navigation of one interface to another, limitations of course-based and repository-based systems respectively. All above were discussed in the context of usability and issues identified were then used to define the research problem.

I suggest the candidate to review more recent literatures in determining the issues as some section was referring to old references.

What I found good in this thesis is the candidate refine the research problem through some analysis of selected LMS and LORs. In my opinion the results of preliminary investigation on existing LMS and LORs did support the findings of the literature reviews done by the candidate.

A theoretical framework was then proposed based on findings from literature reviews as well as the preliminary investigation of existing systems. The candidate presented the results of the findings in few tables which can be found in Chapter 5.

The methodology was developed to design the interface according to the design requirements of the framework using the proposed organization schemes. In addition the candidate discussed the procedure of testing the usability which in my opinion is depth enough to show concrete results. The results of design requirements are presented with a number of diagrams containing schema for the schemes and structures as well as for visual representation. The usability test using objective and subjective usability metrics with 5 users as participant is a good approach to validate the design.

#### **5. Related Publication**

The candidate has published in one journal and has presented the work in many conferences including scopus-indexed conferences.

#### **6. Questions**

What is the limitation of the work which could be recommended as future work.

#### **7. Conclusion**

The candidate has summarized the contributions clearly in Chapter 8 and has explained and documented the research process (methods, analysis and results) in a very structured approach.

The submitted doctorate dissertation needs slight improvement to fulfill the formal requirements and it is possible to recommend it for the defence.  
I suggest the candidate conclude her work by highlighting the contribution in theoretical, methodological and practical context.

I am pleased to recommend this thesis for the award of the degree of Doctor of Philosophy conditionally.

A handwritten signature in black ink, appearing to read 'Roliana', is written over a horizontal line. The signature is fluid and cursive.

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10 th January 2017