Schema-based Scaffolding for Creating Presentation Documents

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Abstract: In order to properly create presentation documents as research activity, it is necessary to get and accumulate experiences in composing the semantic structure that represents what to present and how to sequence the contents presented. However, it is not easy for novice researchers because they have fewer experiences in creating presentation documents. This paper proposes scaffolding for composing the semantic structure of presentation documents with presentation schema that is typical semantic structure embedded in the presentation documents accumulated in a research group. The results of a case study suggest that the schema-based scaffolding contributes to creating presentation documents.

Keywords: Presentation Schema, Scaffolding, Presentation Documents, Research Activity

Introduction

This paper addresses the issue of how to develop skills in creating presentation documents (P-documents for short) consisting of slides in a research group. Creating P-documents involves composing semantic structure that represents what to present and how to sequence the contents presented [1,2]. However, it is hard particularly for the novice researchers who have fewer experiences in composing the semantic structure from their research contents.
In this paper, we introduce a scaffolding method for composing the semantic structures of P-documents with presentation schema (P-schema for short) that is a typical semantic structure of P-documents accumulated in the research group [1]. This paper also reports a case study, which has been conducted for ascertaining whether P-schema contributes to composing better semantic structure and better P-documents.

1. Skill Development for Creating Presentation Documents

In creating a P-document as research activity, it is necessary to segment the research contents into several parts to compose the corresponding slides and to sequence the slides so that the presentation can be readily understood by the audience [1,3]. Such segmentation and sequencing specifies the semantic structure the P-document embeds, which represents what to present and how to sequence the contents presented [1]. The semantic structure tends to be common among the P-documents created in a research group. The common structure could be viewed as heuristics for creating P-documents, which is unique to the group [3].

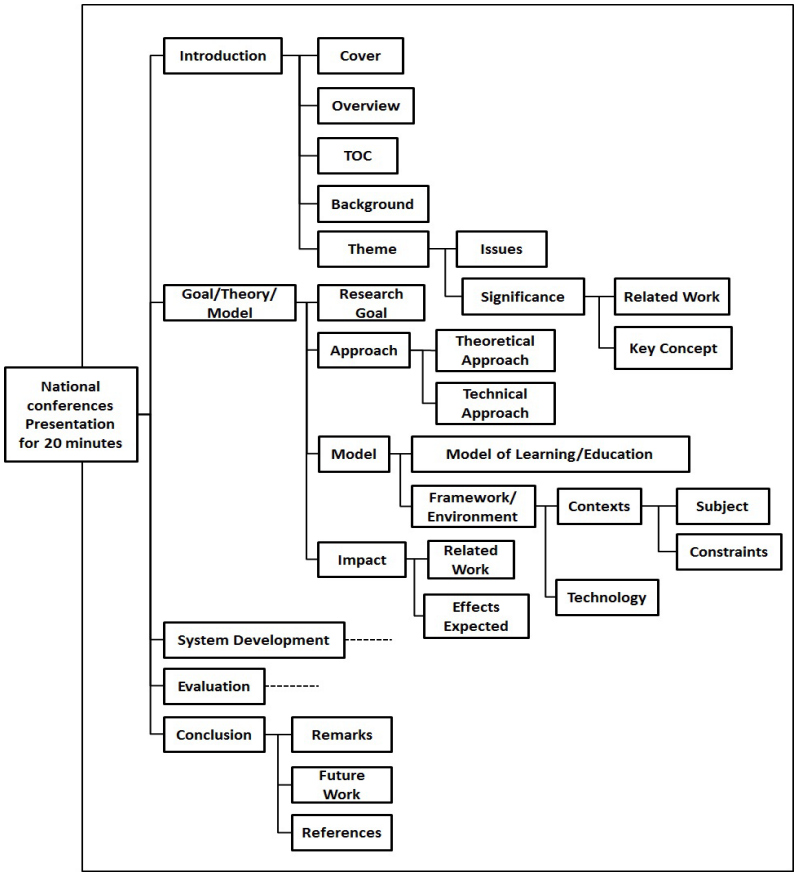

Figure 1: P-schema representing P-documents for national conferences.

On the other hand, the novice researchers have difficulties in segmenting and sequencing the research contents since they do not have a full understanding of the heuristics. In order to develop skill in creating P-documents, it is important to accumulate experiences in composing semantic structures to be embedded in the documents. However, the novice researchers have fewer chances of creating P-documents.

We have accordingly proposed scaffolding for composing the semantic structures of P-documents with P-schema that is typical semantic structure of P-documents accumulated in the research group [1]. P-schema could be defined by the expert researchers [2]. In this schema-based scaffolding, the novice researchers are allowed to compose the presentation structures in authentic research contexts of creating and learning P-documents.

Figure 1 shows P-schema that is defined from P-documents for undergraduate thesis in our research group. In the context of creating a P-document, a novice researcher could segment and sequence the research contents according to the P-schema. In the context of learning a P-document an intermediate/expert researcher created, he/she is also allowed to relate the slides and the P-schema to compose the semantic structure the document embeds. In this way, the novice researchers could accumulate experiences in composing the sematic structures to develop the skill.

In order to ascertain whether P-schema could function well as a scaffold for composing semantic structure and P-document, we have conducted a case study with 4 novice researchers. Each subject was required to create P-documents for his/her undergraduate thesis with and without P-schema. After that, two expert researchers in our research group evaluated the P-documents. As the results, the experts evaluated that P-document created with P-schema had a better semantic structure than P-document created without P-schema, had an understandable sequence of the slides, and made clear what the contents of the slides represent.

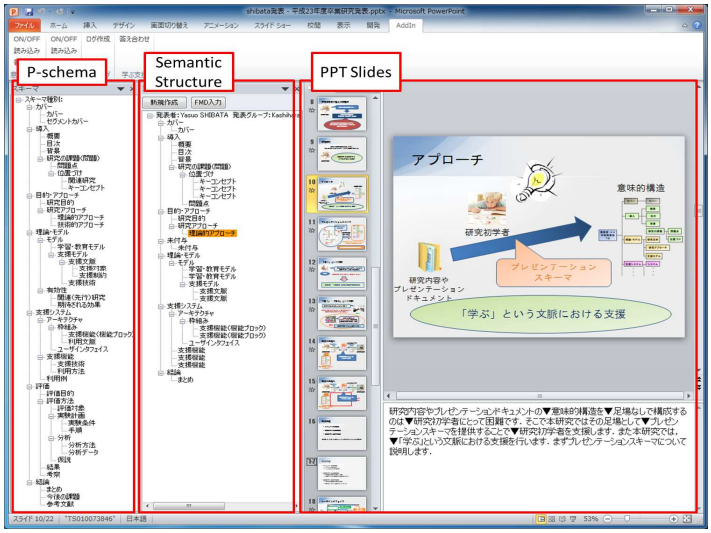

Figure 2: User interface for composing semantic structure of P-document.

2. Scaffolding System

Following the results of the case study, we have implemented a scaffolding system as an add-in of PowerPoint 2010 whose main aim is to help novice researchers compose semantic structures and P-documents. As shown in Figure 2, this system provides the novice with PPT functions and P-schema. The novice researcher can use P-schema in the left pane to compose a semantic structure of the P-document in the middle pane.

3. Conclusion

In this paper, we have introduced schema-based scaffolding where novice researchers could compose semantic structures of P-documents with P-schema that are accumulated in a research group. This paper has also reported a case study, and has demonstrated a scaffolding system with PPT functions. In future, we will evaluate the system in detail to refine the functionality including adaptive and intelligent components.

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