Liu, C.-C. et al. (Eds.) (2014). Proceedings of the 22nd International Conference on Computers in Education. Japan: Asia-Pacific Society for Computers in Education

Visualization of Upgrading Presentation Documents with Presentation Schema

Yusuke Uenaka[a], Akihiro Kashihara[b]
[a,b]*Graduate School of Informatics and Engineering, The University of Electro-Communications*
[a]uenaka@uec.ac.jp, [b]akihiro_kashihara@inf.uec.ac.jp

Abstract: Creating presentation documents (P-documents) is an important activity in research, which involves composing semantic structure representing what to present and how to sequence the contents presented. However, novice researchers have fewer opportunities to get and accumulate experiences in composing semantic structure, which is essential in developing presentation skill. On the other hand, novice researchers usually upgrade their P-documents by referring to reviews to be obtained from the expert/intermediate researchers in the same research group to complete. This paper proposes a method for visualizing the upgrade process that identifies and represents the difference between each version of the upgraded P-document and the completed P-document.

Keywords: Presentation, upgrade, presentation document, semantic structure, presentation schema

1. Introduction

Following cognitive apprenticeship (Collins, 2006), we have developed a learning environment where novice researchers are allowed to create presentation documents (P-documents) with presentation schema (P-schema) that is a typical semantic structure in the P-documents accumulated in the same research group (Shibata, Kashihara, and Hasegawa, 2012). P-documents generally include semantic structure representing what to present and how to sequence the contents presented. Composing such semantic structure is essential in developing P-document skill.

However, novice researchers have fewer opportunities to compose semantic structure for creating P-documents. The main issue addressed in the learning environment is to help them accumulate experiences in the semantic structure composition to improve their presentation skill. In addition, we have made sure P-schema functions effectively in composing P-documents and their semantic structure (Shibata, Kashihara, and Hasegawa, 2012).

On the other hand, novice researchers usually upgrade their P-documents by referring to reviews to be obtained from the expert/intermediate researchers in the same research group to complete. In our learning environment, a novice researcher could upgrade his/her P-document with P-schema. In order to analyze the upgrade process from the initial version to the complete version of presentation document, this paper proposes a method for visualizing it, which identifies and represents the difference between each version of the upgraded P-document and the completed P-document. Such visualization could indicate the influence of P-schema on the upgrading process, and also allow the learner to reflect on his/her upgrading process.

2. Upgrade Process of Presentation Document

2.1 Difference Between Each Version and Completed P-Document

In the upgrade process of P-document based on P-schema, the novice researcher can use P-schema as a scaffold for composing the semantic structure to modify not only the semantic structure but also the contents of the slides. Figure 1 shows P-schema that is extracted from our research group (Shibata,

Kashihara, and Hasegawa, 2012). The modification is divided into the following operations: addition, deletion, change, and shift. Using such operations conducted from each version of the upgraded P-document to the completed P-document, we define the difference between the two P-documents. In other words, the difference is identified by means of how many modification operations are conducted between the two P-documents. There are two aspects on the difference between the P-documents, which are semantic structure and slide contents. The differences of the semantic structure and slide contents are identified from the two P-documents.

Figure 2 shows an example of the differences between each version of the upgraded P-document and the completed P-document (ver. 5). As for the semantic structure, Figure 2 suggests that the versions after ver. 3 have the same structure as the completed P-document. It also suggests that the slide contents of each version are gradually modified to the completed P-document.

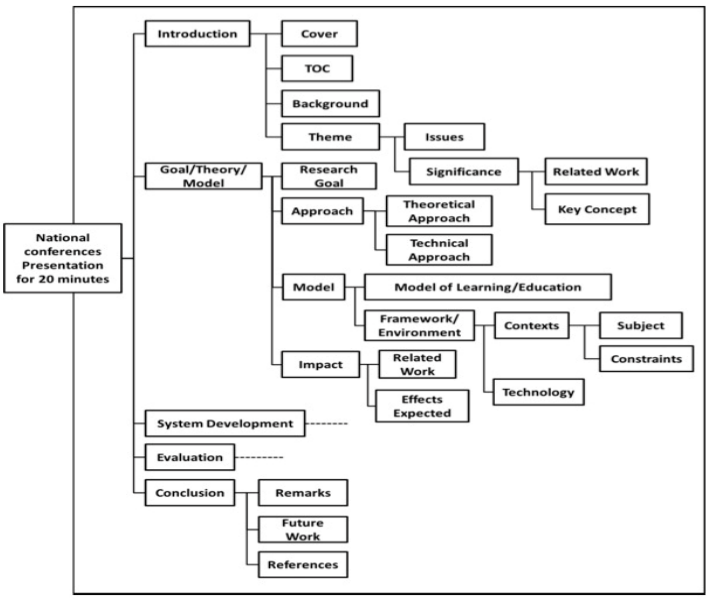

Figure 1.An Overview of P-schema.

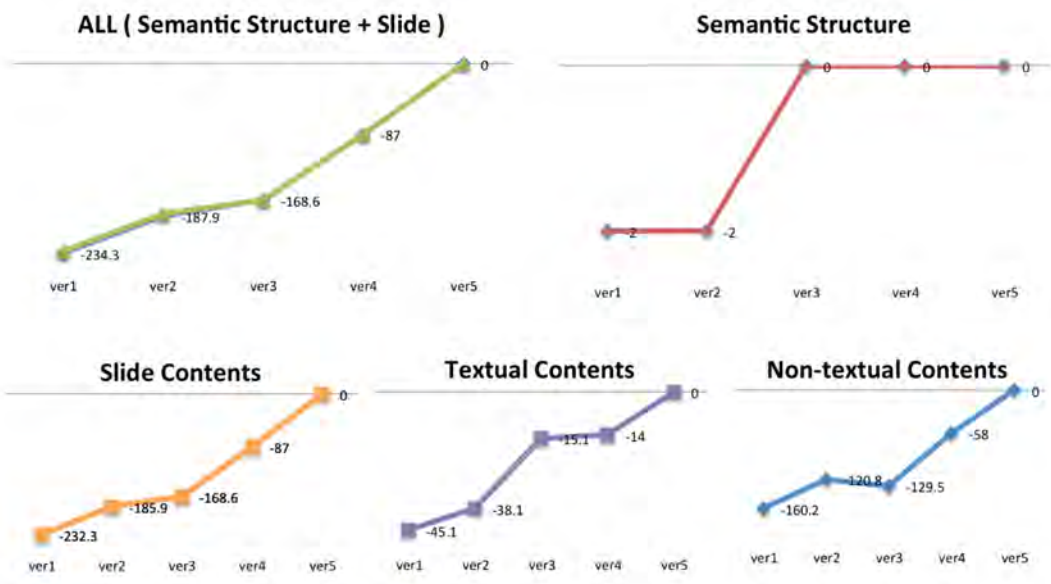

Figure 2. Visualization of P-Document Upgrade Process.

2.2 Modification of Semantic Structure

The modification to the semantic structure tends to increase in the initial stages of the upgrade process, and also tends to decrease in the final stages. This indicates that P-schema allows the learner to pay more attention to composing the proper semantic structure in the initial stages of the upgrade process. Such proper semantic structure seems to play an important role in creating P-documents.

2.3 Modification of Slide Contents

As shown in Figure 2, the modification to the slide contents including textual and non-textual contents tends to be conducted in the whole process of upgrading the P-document. It particularly tends to increase in the final stages of the upgrade process. This indicates that the modification to the slide contents tends to be promoted after the semantic structure is properly composed. In this way, P-schema could allow the learner to compose not only the semantic structure but also the slide contents of P-documents.

3. Conclusion

This paper has proposed a method for visualizing the process of upgrading P-document with P-schema to analyze it. This method identifies the difference between each version of the upgraded P-document and the completed P-document. This paper also demonstrates that such visualization is expected to indicate the influence of P-schema on the upgrading process. We also expect it to allow the learner to reflect on his/her upgrading process.

In future, we will analyze the process of upgrading P-documents with the proposed method, and evaluate the effectiveness of the visualization.

Acknowledgements

This work was supported in part by JSPS KAKENHI Grant-in-Aid for Scientific Research (B) (No. 26282047), (No. 23300297).

References

A. Collins: Cognitive apprenticeships: The Cambridge Handbook of the Learning Sciences, R. Keith Sawyer (Ed.), Cambridge University Press, pp.47-60 (2006)

Y. Shibata, A. Kashihara, S. Hasegawa: “Schema-based Scaffolding for Creating Presentation Documents”, Proc. Of ICCE2012, Singapore, pp.324-326 (2012)