

## Designing a Method for Turmoilization of Understandings through Multi-voiced and Multi-contextual Reflection

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**Abstract:** This study first points out the importance of "Turmoilization of understanding," that is, reconstructing a coherent understanding once established through multi-voiced and multi-contextual reexaminations into a form that incorporates indeterminacy. Then, we propose a method to support the turmoilization of understanding. The pilot study suggests some aspects of the effectiveness of this method. In future work, we will establish a method through a detailed effect examination.

### Introduction

Understanding is the act of associating facts and associating pieces of knowledge into a coherent whole (Nickerson 1985). To apply or restructure the understanding in various places, the learner needs to incorporate indeterminacy and conflicts into their understanding, rather than simply tracing the partially consistent theory given by the teacher. In other words, it is necessary to develop relatively subjective and incomplete "personal knowledge" (Entwistle & Smith 2002, Fyrenius et al. 2007). Murray (2006) argues that the uncertainty of knowledge (ambiguity and paradox) is the impetus for creation and that eliminating the uncertainty limits knowledge and makes it unusable. In recent years, it has been pointed out from studies of "Negative Capability" (e.g., Senge et al. 2004) that the incorporation of indeterminacy into understanding is effective for its subsequent utilization and expansion.

Although there are previous studies on the significance of incorporating indeterminacy into understanding, no systematic training method for reorganizing understanding in such a form has been proposed. Therefore, in this research, the authors propose a training method for understanding turmoilization.

### Turmoilization of understanding

What does it mean to "turmoilize" an understanding once it has been established? For example, if you have understood what ZPD means through textbooks or lectures. The understanding is coherent, and there are no uncertainties. Here, we are convinced that we have understood it. However, this state is nothing more than an illusion of certainty (Bencze & Hodson 1998). To break this illusion, learners should reexamine the understanding from a perspective other than themselves—assimilated into a textbook, and try to reconstruct the understanding in a context different from the context of the lecture. Due to the reconstruction, the understanding once established becomes a conditional understanding, and other possibilities of interpretation or expansion are embedded into the understanding. It is important to try to eliminate such indeterminacy, but it is more important to keep an understanding as a form that includes such instability. Such an understanding can be an embryo for the expansion of learning. This discussion corresponds to the dual function of the text pointed out by Lotman (1988). That is, Lotman argues that the text comprises two distinct functions: a univocal function that perfectly matches the interpretation of the speaker and the listener, and a thinking device-like function that finds a new interpretation from the disagreement between the speaker and the listener. Turmoilization of understanding can be seen as adding the function of a thinking device to the established univocal understanding.

### Designing a method to enhance "Turmoilization of understanding"

Here, we propose a training method for the turnover of understanding based on the above considerations. This method comprised four stages. That is, A. expressing initial understanding, B. mutual commenting activity based on given viewpoints, C. reflection, and D. reconstruction of the expression of understanding. In A, the learner represents their understanding as a written article. In B, the learners are supposed to comment on each other's articles from the given person's perspective. This can be regarded as an application of the mutual teaching method (Palinscar & Brown 1984) in that the processing performed within the individual is externalized as a role between individuals. The viewpoints are tentatively set as follows to provide a scaffolding for reexamining understanding from the viewpoints of others and other contexts: a) a person who seeks an interpretation of their experience; and b) a person who seeks a means of problem-solving based on the related knowledge. By engaging in this activity, learners are expected to be able to internalize multiple perspectives for understanding and utilize them in internal

dialogue. In C, the learner examines the comments received from other learners and verbalizes how their understanding has been shaken. Metacognition is important during this stage. Therefore, as a scaffolding, we introduce "reflection from the viewpoint of a commentator." Through this support, students can calmly look back and grasp how their understanding is turmoilized from an objective perspective. In D, the student rewrites his understanding based on C.

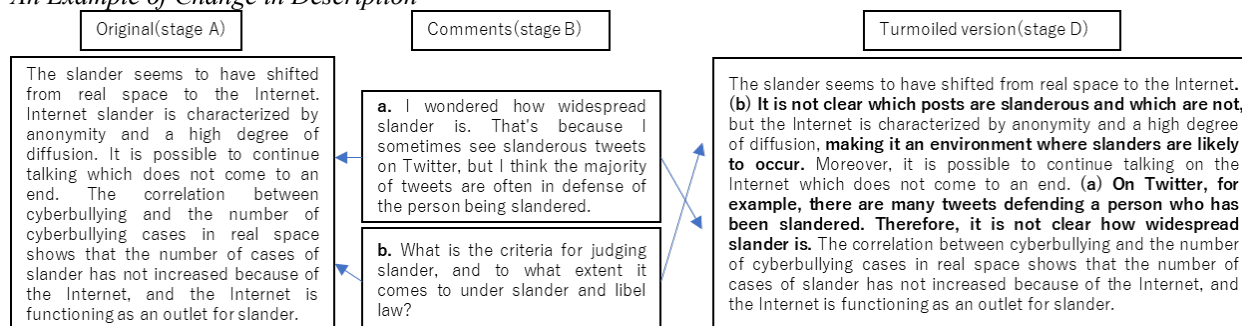
## Pilot study

A pilot experiment using this method was conducted with 18 undergraduate students. In this pilot study, the students first read a report on slander on social media, and after a brief discussion, they expressed their understanding of the rules of writing. Afterward, they exchanged documents with other students and conducted mutual comment activities from two viewpoints. The viewpoint set in the experiment was as described above. The subjects then examined comments on their documents. Then, they rewrote their expression of understanding into the form of having a fluctuation of understanding in the expression of their understanding. To simplify this procedure, reflection based on the commentator perspective was omitted to focus on the evaluation of stage B.

This preliminary study suggests that the proposed method may facilitate the turmoilization of learners' understanding. Figure 1 shows how one subject's original description was revised into a turmoilized version based on the comments from two perspectives. The final description of the understanding contained uncertain elements. These are considered effective in expanding understanding and applying knowledge. However, notably, the turmoilized version only incorporates comments as is, and there is limited inter-text interaction between the original description and the comments. To support this, a review from the commentator's point of view in Stage C would be effective.

**Figure 1**

*An Example of Change in Description*



## Conclusion

In this study, we discuss the importance of incorporating uncertain elements in understanding and propose a method for this. The pilot study demonstrated the partial effectiveness of this approach. In future work, we will establish a method through a detailed examination of the effect of this method.

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