

## **What's So Important About Peer Review of Teaching Portfolio Components? An Exploratory Analysis of Peer-Review Episodes Within ETPP**

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Understanding and promoting effective teaching are central concerns of the engineering education community. The following summary reports on research to investigate the processes by which construction of teaching portfolios in a socially supportive context can promote the advancement of teaching knowledge and ability. By characterizing how a specific intervention can advance teaching knowledge and effectiveness, findings and ideas are generated that can help others engaged in the same goal.

Any approach to advance teaching will likely need to address two issues. First, the approach will need to be a learning event where teachers succeed in learning something (e.g., new techniques, new ways to think about students) that will help them improve their teaching. Second, the approach will need to fit into the complex schedules and contexts of educators (for example, real-time problem solving or preparation of tenure review materials) since simply spending time learning about teaching may not be possible. This suggests two questions regarding helping educators become more effective: a) to what extent does the approach lead to learning knowledge and skills related to teaching, and b) what outcomes other than learning about teaching do participants derive from the approach?

**Peer review of teaching portfolio components provided a context for helping participants improve their written products, grapple with the affective nature of talking about and sharing teaching ideas, and learn knowledge and skills relevant to teaching.**

### **Implications of Findings**

These results suggest support for claims that the peer review was much more than simply a fuzzy experience, but rather provided a context for helping participants improve their written products, helping participants grapple with the affective nature of talking about and sharing teaching ideas, and also helping participants learn knowledge and skills relevant to teaching.

### **Method and Background**

This study looked at the CAEE Engineering Teaching Portfolio Program (ETPP) as a learning event—how the individual and social processes associated with building a teaching portfolio could lead to advancement of teaching knowledge and ability. Additionally, this work focused on the strategy of having future engineering educators (graduate students) create teaching portfolios through a scaffolded process and in a group-oriented environment. Participants in the ETPP

prepared a teaching portfolio consisting of a teaching philosophy, two to five annotated artifacts, and a diversity statement. Peer review—defined as reciprocal evaluation of written products—was originally conceived as a core element of the program and makes up about half of each ETPP session.

Evidence suggests that the peer review periods may be important from the perspective of both learning and other participant outcomes. This and other indicators identified the peer review activities as one of the most important elements of the ETPP. Developing a greater understanding of what is going on during these periods provides insights to programs that create approaches to improve teaching.

The following question motivated the work presented in this paper: what is going on during the ETPP peer review sessions that would explain why researchers and participants alike point to them as an important element of the program? The analysis covers a subset of the activities in four different peer review sessions from the 2003 ETPP offering selected to cover a range of issues. This offering consisted of two groups of eight participants. A comprehensive set of field notes were collected that aimed to capture as much of the session interaction as possible. The notes were coded at the level of activity and the team's understanding of the activities was used to make inferences about the two phenomena of interest: learning and additional participant outcomes.

### **What We Found**

The participants discussed issues in the following topic/coding areas: audience, genre negotiation, writing, clarification, sharing ideas, positive reinforcement, stage fright, and task negotiation. Based on the analysis, the original two questions were again revisited:

#### *To what extent does the approach lead to learning of knowledge and skills related to teaching?*

The activities also provided a strong basis for making inferences about the peer review sessions as a site for significant learning of knowledge and skills related to teaching. There is evidence from these sessions for two types of learning mechanisms: information exchange (new information) and knowledge revision. The coding captured instances of participants sharing teaching information in both declarative and narrative (story) forms (information exchange), and that participants were thinking about how to clarify their ideas, improving their underlying knowledge base (knowledge revision).

#### *What outcomes do participants derive from the approach other than learning about teaching?*

The coding of participant activity provided a basis for making inferences about the types of outcomes other than learning that participants derived from the peer review sessions. For one, participants were getting information that would lead them to create improved written products, something of interest to participants because of the role of these products in the job search process. The results also suggest participants had the opportunity to experience a productive collaborative writing environment, one that likely differed from prior professional writing experiences. The results further suggest that some participants may have had the opportunity to increase their confidence in their ideas about teaching and their ability to articulate them.