RETHINKING DESIGN IN EDUCATION: POSITIONING PRE-SERVICE TEACHERS AS AGENTS OF CHANGE

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THEME:

Teacher education and professional learning in STEM

BACKGROUND AND AIMS

A significant body of research suggests that the cultural configurations of schools, including their governance structures, organization, and teachers' approaches to curriculum and instruction, have not substantially changed in North America over the last century (Cuban, 2020). The linear, instrumental, and technical rational tradition of design in education in North America stands in contrast to the ways design is conceptualized in design fields where there has been an emphasis on promoting more stakeholder-centered approaches to design (Buchanan, 2001; Dorst, 2011; Schön, 1984). Guided by contemporary theory and research from design fields, we propose a framework for conceptualizing K-12 educators' stances toward design organized along a continuum from technical rational to designerly emphasizing four key themes: (1) view of the problem space, (2) approach to inquiry and stakeholder engagement, (3) framing and frame creation, and (4) conceptualization of design process. Our goal is to use this framework to position pre-service teachers as agents of change.

METHODOLOGY OR PROCESS(ES) UNDERTAKEN

We use this framework as a lens to analyze data drawn from a case study examining 28 pre-service teachers' conceptualization and engagement in design within the context of a design course taken by over 400 pre-service teachers across 18 sections. Data in this regard were drawn from three distinct sources: Pre Course Reflection (Pre), Post Course Reflection (Post), Design Challenge Project (DCP). The full data set was entered into NVivo 12 for thematic data analysis. Rubrics were developed based on each of the four areas inherent to a designerly stance to design outlined in the review of the literature: (1) view of the problem space, (2) approach to inquiry and stakeholder engagement, (3) framing and frame creation, and (4) conceptualization of design process.

RESULTS AND CONCLUSIONS

Our analysis of the reflections and design projects shows that most participants demonstrated a technical rational stance in their pre-reflections along most themes and then either remained at a technical rational stance or shifted toward an exploratory stance by the end of the course for some of the themes. Few students demonstrated a fully designerly stance along any of the themes. We then consider why shifts in certain aspects of a designerly stance come more naturally to pre-service teachers while others are more challenging. We propose ways pre-service teachers could be supported in adopting more stakeholder-centered designerly stances that could position them as agents of change for new educational futures.

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