

Poster: Methods for Investigating Teacher Professional Identities of Elementary Teachers of Engineering

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INTRODUCTION

Science, technology, engineering, and math (STEM) knowledge serves as the foundation for economic growth, technological innovation, and quality of life in the U.S. As a result, the improvement of K-12 student achievement in STEM has broad national support [1]. Although national level efforts to integrate engineering standards into curricula are an important step in the improvement of student engineering achievement, the next step is ensuring teachers are prepared for this integration. There is a distinct lack of research on how teachers form their perceptions of engineering and integrate what they have learned into their classrooms longitudinally. As such, the current research leaves room for investigations into how well-established and successful elementary teachers of engineering developed their perceptions of engineering and an engineering identity over time.

RESEARCH QUESTIONS

What narratives do superstar elementary teachers of engineering construct about their engineering teacher professional identity?

From those narratives, what personal experiences, professional contexts, and external political environments were critical to the formation and mediation of an engineering teaching professional identity of superstar elementary teachers of engineering?

SUPERSTAR DEFINITION

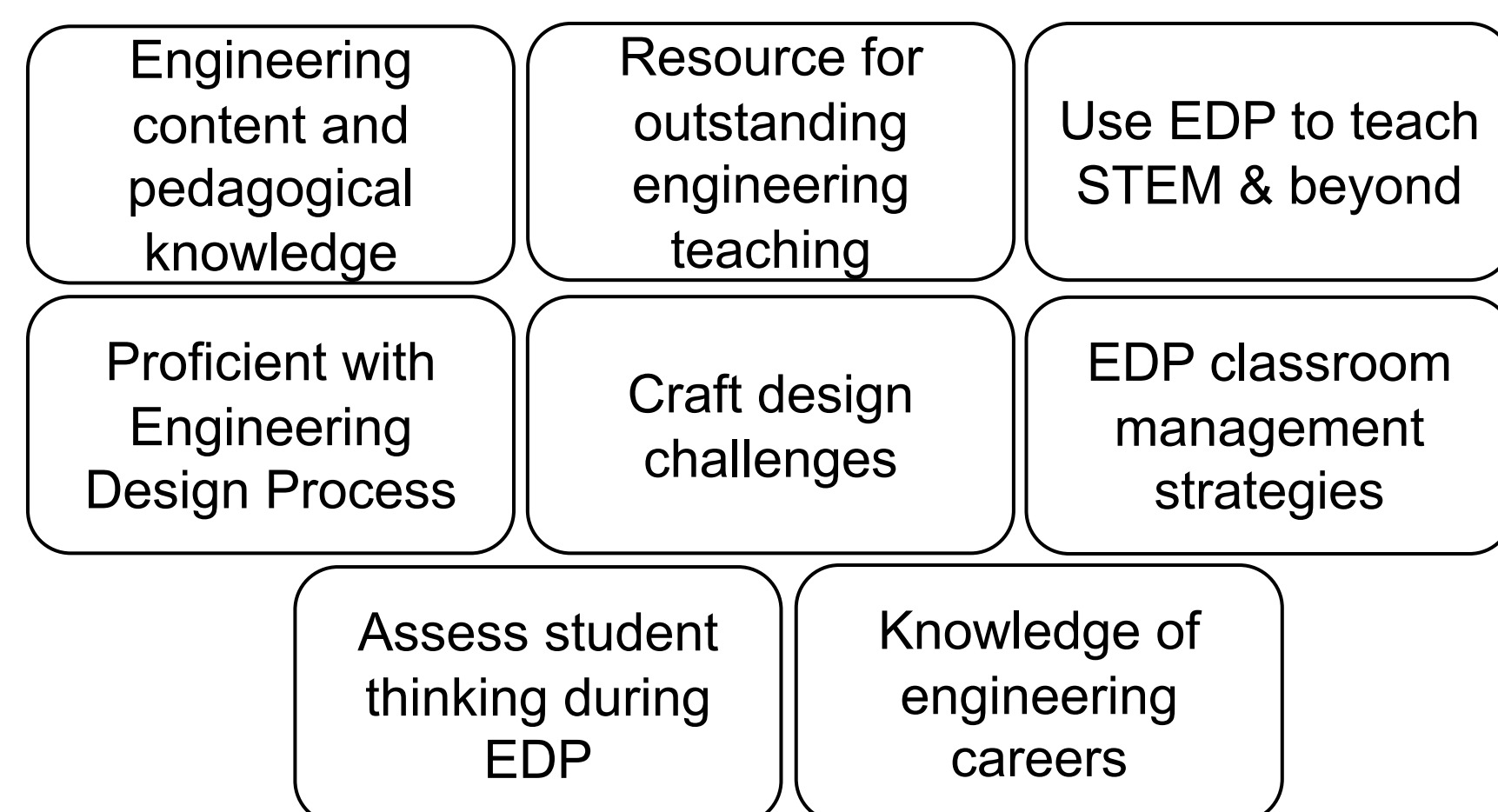


Figure 1: Superstar elementary teacher of engineering definition [1], [2], [3]

CONCEPTUAL FRAMEWORK

Identity will be examined through a combination of the model for conceptualizing teacher professional identity and narrative identity theory where the model provides the context with which superstars develop an engineering teaching professional identity and narrative identity theory provides a mechanism for understanding the sense making of the contexts. The model for conceptualizing teacher professional identity has three dimensions, personal experience, professional context, and the external political environment, that work together dynamically to influence a teacher's sense of professional self and decision-making processes [4], see Figure 2. The articulation of a teacher's professional identity is done through the construction of themselves as teachers within their own mind and this articulation can draw links between teachers' moral purpose and their professional practices [4]. According to narrative identity theory, "narrative identity is the internalized and evolving story of the self that a person begins to work on in late adolescence and emerging adulthood and continues to rework for much of the rest of life" [5, p. 111]. In other words, the stories one creates about oneself (what the "me" says about the "I") develops identity and can explain their past and future actions [5].

RESEARCH PLAN

This study will use narrative inquiry [6] to examine the engineering teacher professional identity development of elementary school superstar teacher of engineering using the belief that identities are storied.

Data Collection

Participants will be recruited using professional organization recruitment, social media recruitment, and referral recruitment. Participants will be interviewed one-on-one using narrative interviewing techniques [7] combined with critical incident techniques [8].

Data Analysis

The interview data will be analyzed in two phases using I-poems to determine contexts that informed identity development and influenced participants' superstar behavior. Creating I-poems from narrative interview data is a step in the Listening Guide that focuses on the voice of the participant by following the use of the first-person pronoun "I" [9]. The I-poems will then be used in two analysis phases to answer my sub-research questions, see Figure 1. Phase 1 will uncover narratives constructed by superstars about their engineering teacher professional identity through a narrative thematic analysis [7] on the I-poems. Phase 2 will uncover the experiences and contexts critical to the development of engineering teacher professional identities for superstar teachers using the fourth step of the critical incident technique (CIT) [10] on the I-poems, see Figure 3.

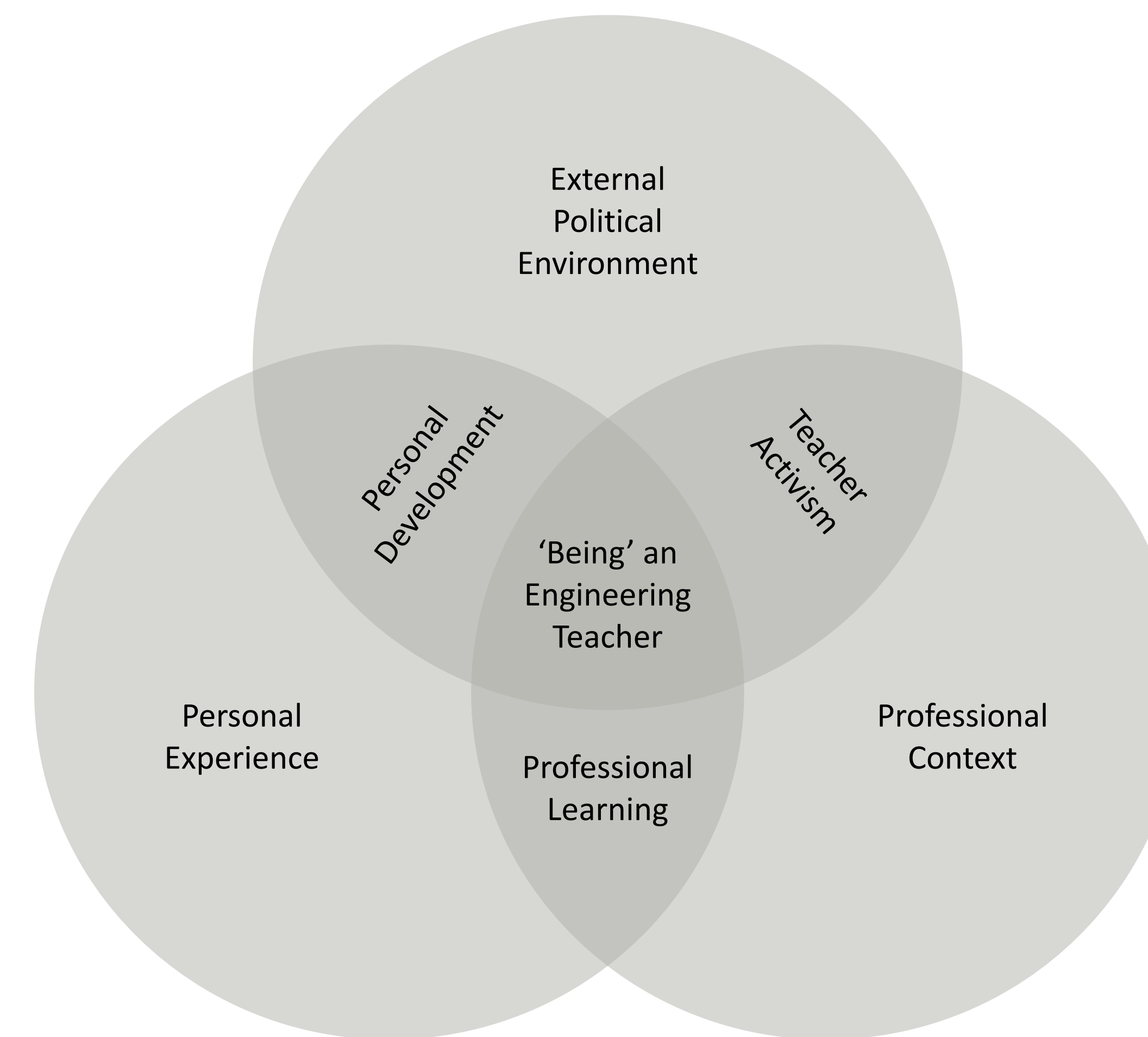


Figure 2: Model for Conceptualizing Teacher Professional Identity

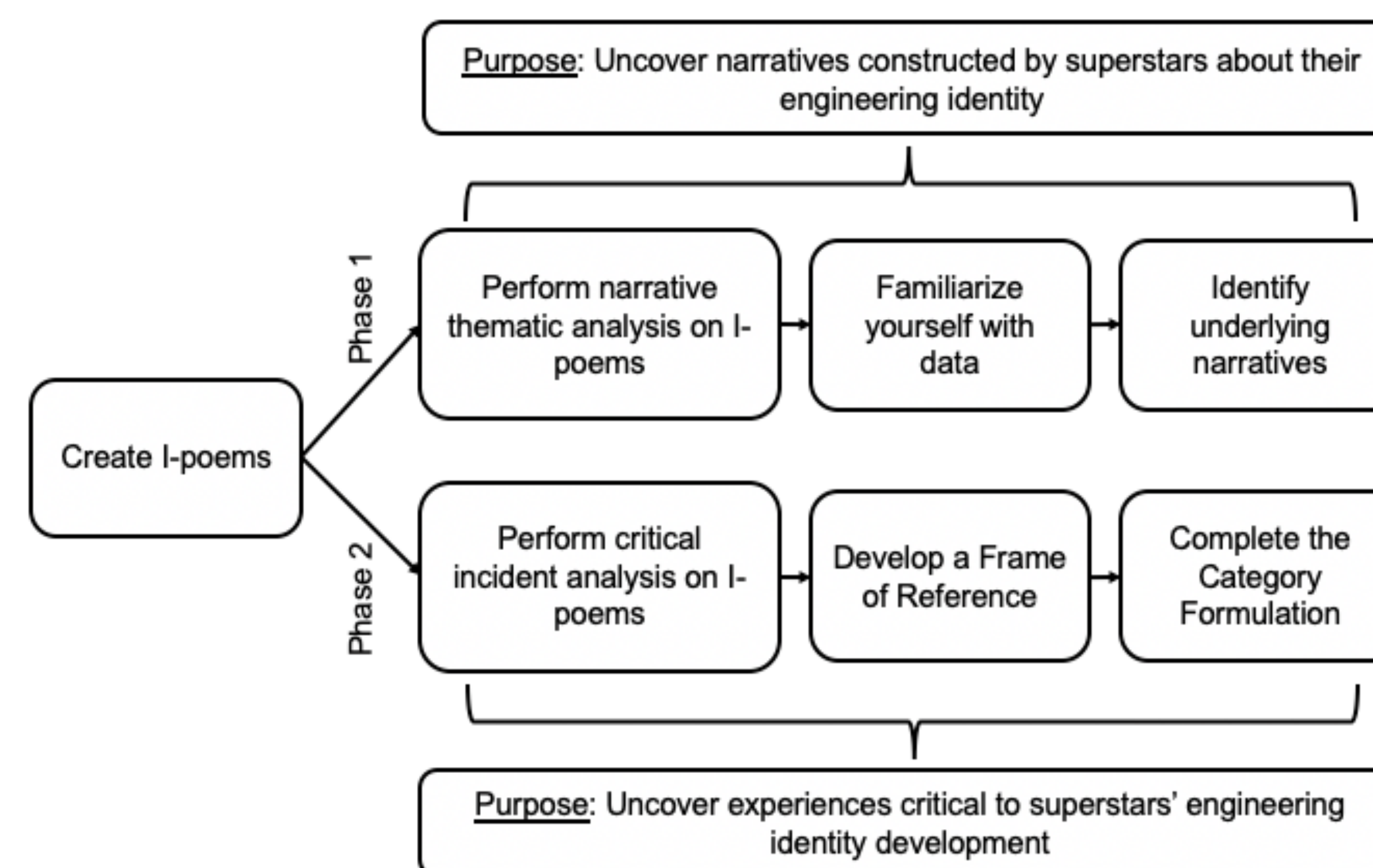
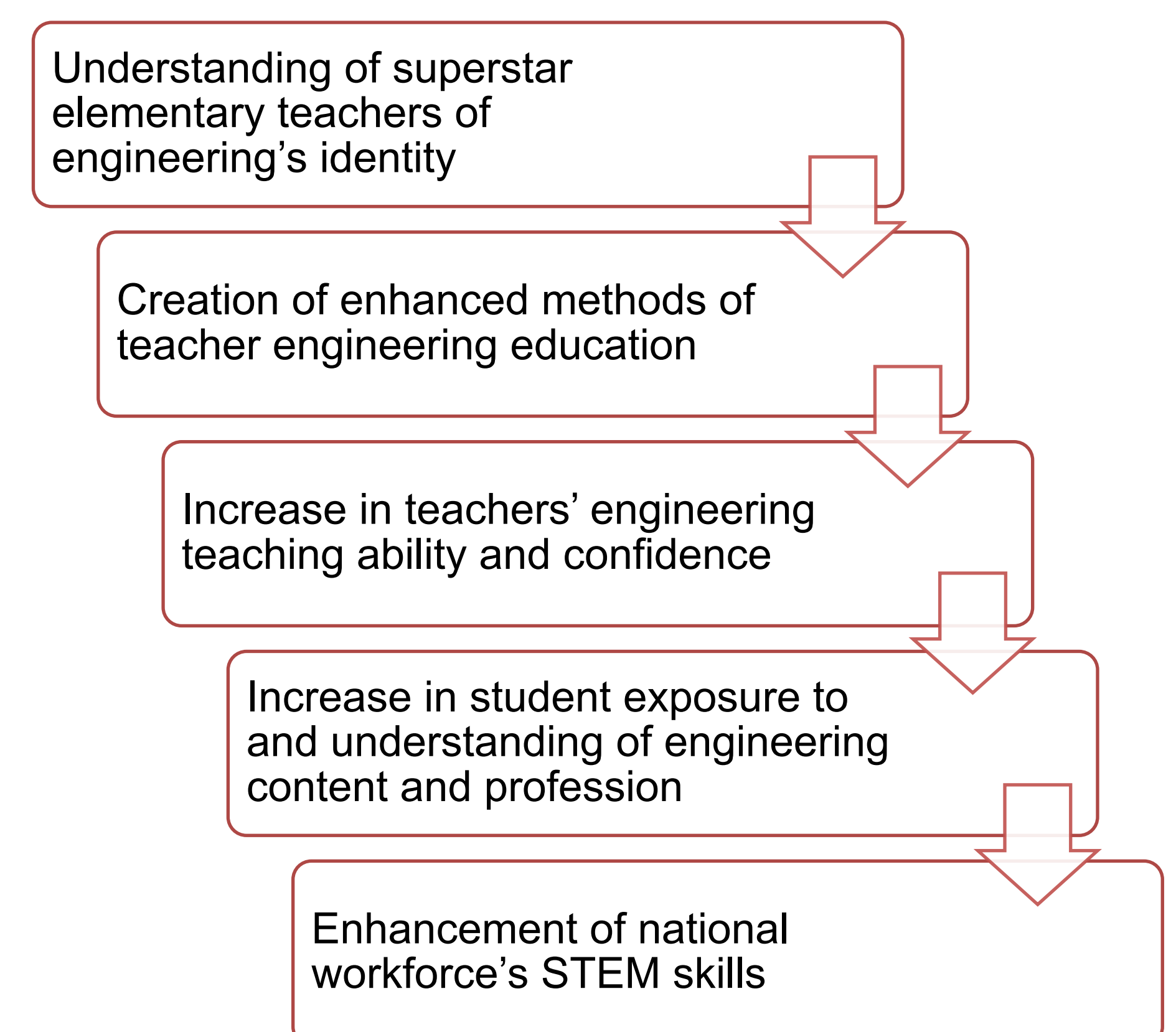


Figure 3: Data analysis sequence with purpose of each phase

CONCLUSION



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