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Understanding the Connection Between Faculty Experiences and Cultural Climates of Emotional Well-Being

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Introduction and Background

In this work-in-progress research paper, we demonstrate early insights of our constructivist grounded theory investigation into the emotional experiences of engineering faculty and their surrounding academic cultures of well-being. This study's integrated activities will help advance our theoretical understanding of the underexplored areas of faculty emotional experiences in engineering education. Further, we aim to characterize the link between faculty's emotional experience and their surrounding academic cultures of well-being. There is a growing body of literature that showcases the transformational role that faculty play in shaping students [1, 2]. However, such research tends to illustrate student perspectives of faculty rather than the lived emotional experiences and well-being as the central focus. In this study, we aim to explicitly prioritize the well-being and emotions of faculty as individuals [3, 4]. By understanding how we can constructively meet the emotional needs of engineering faculty, through reframing failure incidents and fostering social connection, we may establish cultures of psychological health that positively affect the well-being of faculty, staff, and students.

Specifically, we aim to better understand the social and individual experiences of professional shame in engineering faculty. We refer to *professional shame* as a painful emotion that occurs when someone fails to meet cultural expectations in a professional setting [5]. We understand professionals shame to describe both an emotion internalized by faculty and cultural experiences that they help contribute to through their behavior in setting expectations for engineering students [6-9]. Like students, faculty members are not immune to professional shame as they contend with emotional states associated with meeting the multi-layered expectations of their institutions, their professional peers, or their students. Therefore, it is important that we gain an understanding of how faculty contribute to and experience professional shame.

Accordingly, the research questions of this paper are: (RQ1) How do faculty experience professional shame? (RQ2) How do faculty behave in ways that might affect the professional shame experiences of students? (RQ3) How do cultures of well-being in engineering education relate to faculty's shame experiences? Through answering these research questions, we will help gain a better understanding of the complex and nuanced connections between faculty well-being and their surrounding engineering culture.

Research Methods

To answer our research questions, we used mixed qualitative research methods. Specifically, we conducted interpretative phenomenological analysis (IPA) on ten interviews transcripts from faculty at six institutions to generate insights into engineering faculty's individual lived experiences of professional shame (RQ1). IPA is a qualitative research method suited toward understanding an individual's lived experiences through the participants' own understanding of their experiences [10]. IPA allows the researcher to conduct an in-depth examination of the lived experiences elicited from individual participants during an interview and develop nuanced themes that characterize the experiences of participants [11]. Due to the unique nature of faculty's interaction with professional shame, IPA was the best research method to understand how faculty on an individual level experience shame [10].

For this paper, we primarily focus on the connection between study participants lived emotional experiences within the surround cultural engineering context (RQs 2 & 3) using constructivist grounded theory (CGT). Grounded theory methods consist of systematic and yet flexible set of guidelines of the collection and analysis of data with the goal of constructing theories from the data itself [12]. CGT allows simultaneous data collection and analysis allowing the data to drive the analysis. Further, the constructivist element of CGT fosters the researcher's reflexivity about their decisions. The flexibility present in CGT research allows for the creation of innovative ideas, allowing us as researchers to gain new insights into allowing us to better develop new theory. Further, CGT facilitates the integration of the position and perspective of the researcher as part of the research reality. Thus, CGT and IPA together were the qualitative approaches that is best fit for answering our collective research questions as well as developing a theoretical model that will frame how faculty members emotions impact and are impacted by the cultures around them [12, 13].

Using CGT, we are analyzing twenty interviews faculty members from three universities to elicit their lived emotional experiences within the surrounding culture of their programs. Of these twenty interviews, seven had also been analyzed in the IPA study by different members of the research team. We have completed in-depth initial coding of each interview and used constant comparison to create a relevant abstraction of the interview data. In focused coding, we are using insights from line-by-line initial coding processes and to develop a coherent focus of theoretical patterns from the data. The data and findings from the IPA study will be embedded within the initial coding and allow us to embed our understanding of the individualized experiences of professional shame within our focused coding. Through our grounded theory analysis, we will produce a theoretical model that defines the connection between the emotional regulation of engineering faculty and the academic cultures that embed them.

Developing Initial Codes Integrated with IPA Experiential Statements

In line with the best practice of conducting CGT, we began by going through each transcript and developing initial codes. Initial coding is a foundational step where we began to break down the interview transcript into smaller, manageable pieces. For our study, we conducted line-by-line coding to ensure that our codes stayed tight to what the participants were saying and experiencing. Line-by-line coding is a highly detailed and iterative process where codes are constructed as data is being read and reread ensuring that we will be able to identify relevant patterns and categories in the transcripts. Throughout the process of initial coding, we conducted extensive memo-writing by maintaining an active log on our sense making for each transcript. We are using constant comparison [12, 14] to create a relevant abstraction of the interview data, by comparing 1) experiential features of common incidents within different participants, 2) accounts that were reported by a single participant in interviews at different time periods, or 3) accounts that align with or demonstrate tension within a single transcript.

As an example of how we conducted initial coding we present an excerpt from an interview transcript along with insight into how we coded these excerpts:

> To the student—what gives us high service to the student. I feel that some of the relationships, previous to [my university] that I had, and as well as my, my generally more—I personally have a probably, a more ambitious nature than some people. And I think that lends itself to being, "Okay, well this person, this guy, [Patrick], um, has the drive and the capability to kind of go pursue these and manage these extracurriculars for

> people. And enable these opportunities," And I've been able to. Um, but I think there's a little bit of an expectation that I do that, because of those skill sets, perhaps, maybe than on others. (Patrick)

From this quote from the interview with Patrick, we constructed several initial codes that characterize his experience while staying tight to the data. For example, these are some of the codes we generated based on the previous excerpt:

(1) Views his ambition to be greater than his colleagues
(2) Believes that expectations others have for him have increased because they recognize his capability and skill set (IPA)
(3) Experiences an expectation of affording extracurricular research and design activity for students within the engineering department

In these codes, we utilized gerunds as heuristics to bring us into data and define implicit meanings and actions. Moreover, we integrated in-depth experiential statements from the IPA study as a way of calibrating the depth and specificity of our initial codes. This style of initial coding allows us to define implicit meanings and actions, giving us different directions to explore, and suggest emergent links between processes in the data to further pursue and check. In addition, Line-by-line coding allowed us to maintain an open mind allowing the participants' voice to carry through our codes while also allowing us to have room for critical thought about the participants viewpoint [12].

Future Directions and Broader Significance

We share our process for initial coding in this paper to contribute insight from our study on methodological processes that others can use to integrate multiple methods of qualitative research. Currently, we are synthesizing the initial codes generated across all twenty transcripts to understand experiential insight of shame at both the individual level (within and across 20 participants) and the cultural level (across the three institutions). We intend to complete focused coding across all twenty participants to facilitate the development of a theoretical model that allows us to better understand the relationship between engineering faculty's emotional well-being and the cultures that surround them. With the theoretical model, we aim to make visible how faculty participate in constructing dominant narratives in engineering education concerning their emotion regulation as well as gain an understanding of the ways engineering faculty navigate their emotional experiences.

With this understanding we aim to foster support for engineering faculty to effectively navigate through their emotional experiences. Improving emotional experiences will not only be a benefit to engineering faculty but beneficial to engineering faculty's' students and their administration. Further, the CGT model will highlight the power of positively improving strategies for improving emotion regulation in faculty. Additionally, we aim for this study to be a basis for further research understanding the complex emotional experiences of engineering faculty.

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