

Workshop: Using Interpretative Phenomenological Analysis to Study Psychological Experience within Engineering Education

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Abstract—In this workshop, we introduce participants to the tacit and often hidden skills of doing interpretative phenomenological analysis (IPA) to understand lived experience in engineering education. With the growth of IPA research in engineering education, this workshop will sharpen the skills of participants who come with experience in qualitative research and provide practical guidance to participants who may be novices to qualitative research. The workshop is characterized by an interactive style, in which participants collectively analyze a transcript excerpt from an interview with an engineering student regarding their experience of shame. To strengthen the translation of the workshop, the session is intentionally facilitated by both an expert in conducting IPA research and a highly trained engineer who is at the beginning stages of doing IPA.

Keywords—qualitative research, interpretative phenomenological analysis, lived experience

I. OVERALL DESCRIPTION

In this pre-conference workshop, we guide participants through the process of leveraging intentional techniques to interpret psychological experience in engineering education by using interpretative phenomenological analysis (IPA). A growing body of research has used IPA to investigate identity [1, 2], emotion [3], well-being [4], and cognition [5, 6] in the context of engineering education [7]. In this workshop, which is adapted and significantly modified from a *special session* that was awarded the Helen Plants Award at a previous *Frontiers in Education* conference [8], the facilitators guide participants into the tacit and implicit processes of conducting high-quality interviews and transcript analysis using IPA [9, 10]. This workshop leverages the first facilitators' background with practicing and mentoring others in IPA and the second facilitators' immediate background of transitioning to IPA research from a traditional engineering discipline. The goals of this workshop are aligned with the *Frontiers in Education*

Conference to enhance the infrastructure of engineering education research throughout international contexts.

II. DESCRIPTION OF SESSION CONTENT

The proposed session focuses on three specific areas, which are described as follows.

A. Psychological Experience

The session will focus on psychological experience as a lens to identify under-explored phenomena in the participants' own contexts (e.g., psychological journeys of identity; emotion in engineering education). After the participants engage in an in-depth process of analyzing a common experience of shame, based on an excerpt from an interview transcript, we will invite the participants to consider psychological experiences that are often invisible in their own institutional contexts.

B. Interpretative Phenomenological Analysis

The session will introduce participants to IPA as a methodology that is committed to understanding the lived experience of particular phenomenon (e.g., becoming an engineer) while also recognizing that the researcher plays an interpretive role in generating such understanding. Throughout the session, the participants will gain an introduction to *doing* IPA to systematically interpret a transcript through multiple iterations of understanding a text. They will begin by an initial reading for superficial comprehension and end with connecting the transcript to experiential and psychological patterns.

C. Conducting Quality Research

The session will provide a space for participants to think through how they actually analyze text from a common interview transcript. To foster this development for researchers, we will share an excerpt from a transcript in a recent investigation related to how students experience professional shame in the context of engineering education research. Using this common source of data, we will guide participants through multiple layers of interpretation of this text. Toward the conclusion of the session, we will demonstrate how our exercise relates to the assurance of *quality* in interpretive research [11, 12].

III. FORMAT OF THE SPECIAL SESSION

In the workshop, we intend for participants to form small groups of 4-6 persons. The workshop will incorporate a blend of activities for individual persons, small groups, and the entire assembly. As facilitators, we will rotate among multiple groups to provide guidance, as needed, during the structured tasks of the session. While we will provide a detailed itinerary pending acceptance of this abstract, we will generally immerse participants into conducting detailed transcript analysis on an actual interview transcript excerpt and then guide participants through an interactive process where they can trace in-depth analysis to producing experiential knowledge claims.

IV. ITINERARY

A. Welcome and Group Introductions

(00:00 – 00:15): We will welcome everyone and review the learning goals. We will then organize the participants into small groups and facilitate introductions within these groups. During this time, we will also hand out all materials related to the session.

B. Defining Terms: Psychological Experience and Interpretative Phenomenological Analysis

(00:15 – 00:25): We provide a brief explanation of these terms but then quickly immerse them into *doing* IPA to examine psychological experience. This activity corresponds to the steps of analysis detailed in Huff et al. [1]. The intent here is to foster learning among the participants in IPA through shared experience before considering theoretical features of these terms. Throughout the activity, we will wander the room to provide feedback on the various stages of interpretation.

C. IPA Activity: Reading an Interview Excerpt

(00:25 – 00:35): We will begin by having the facilitator and a participant acting out a portion of a real interview transcript from our study on identity development. The particular transcript is an authentic account of a student's experience of shame in the context of engineering education. We begin by reading the transcript to discuss how the transcript is a representation of a real event, both for the researcher and the participant.

D. IPA Activity: Individual Reflection of the Transcript

(00:35 – 00:45): After the interview is read, the excerpt will have certainly elicited some personal connections from the workshop participants. We will use this time to allow participants to *bracket* off these personal responses by reflectively, writing them down, and then forgetting about them—for the time being.

E. IPA Activity: Descriptive Comments

(00:45 – 00:55): We will give participants the opportunity to individually *describe* what they see in individual copies of transcript. What are significant features of the transcript? What is the play-by-play among the text? Each participant will do so in a designated color of ink in the wide right-hand margin.

F. IPA Activity: Linguistic Comments

(00:55 – 01:05): We then will give participants the opportunity to document how the participant is using *language*. Each participant will do so in a different color of ink in the right-hand margin of the paper.

G. IPA Activity: Conceptual Comments

(01:05 – 01:15): Having considered the description and linguistics of the transcript, the participants will now *ask conceptual questions* of the transcript. This prepares the analysts to consider how the transcript might relate to broader psychological themes from literature.

H. IPA Activity: Connecting to Broader Patterns of Experience

(01:15 – 01:25): We will close this portion of the session by guiding participants to connect sections of the transcript to broader psychological patterns of experience. Participants will note these in the *left-hand* margin.

I. Break

(01:25 – 01:40): Coffee break for participants.

J. Group Reflection on Activity

(01:40 – 01:55): After individuals have completed the analysis activity, we will discuss their reflections of the common activity in two layers: first among small groups and then among the entire assembly.

K. How Does Analysis Relate to Knowledge Claims?

(01:55 – 02:05): Following the activity, we will give an overview of how we would use IPA to compare particular findings in the excerpt from the particular interview to psychological themes in other interviews. Specifically, we will examine how such detailed analysis can result in relevant knowledge claims through peer-reviewed publications.

L. Thinking Through Quality

(02:05 – 02:25): Using the shared analysis activity as a guide, we will walk the participants through the Q3 Framework as a general form of considering quality in their own investigations.

M. Relevance of Psychological Experience

(02:25 – 02:35): We will close the session by inviting participant to consider questions of *psychological experience* that may be relevant investigations in their own institutions. Responses will be written down and shared.

N. Final Group Discussion

(02:35 – 02:50): The session will close with a brief group discussion with the group identifying how they can apply what they have learned into their own investigations.

V. ANTICIPATED AUDIENCE

We anticipate an audience of those interested in qualitative research in engineering education, especially Ph.D. students and faculty researchers who conduct or supervise qualitative studies. Such an audience would include researchers that are new to qualitative investigations. It would also include

advanced qualitative researchers who are looking to hone their skills or find others with similar interests. We also anticipate that this session will draw those who are interested in examining *experiential* features of engineering education through a psychological lens. Finally, we intend for this session to attract researchers outside of engineering education who are interested in developing skills in IPA.

VI. LEARNING GOALS

The primary learning goal of this session is for participants to develop a robust foundation to investigate psychological experience using IPA. We expect that this session will demystify features of interpretive analysis that are seldom made explicit, giving participants confidence to dive further into understanding IPA or other qualitative approaches. The secondary learning outcome of this session is for participants to identify not only strong textual resources to support their investigation into IPA but also a community by which they can continue to develop as interpretive researchers after the conference concludes.

VII. ABOUT THE PRESENTERS

Dr. James Huff is Associate Professor of Engineering Education and Honors College Senior Faculty Fellow at Harding University. He conducts transdisciplinary research on identity that lies at the nexus of applied psychology and engineering education. A winner of the NSF CAREER award (No. 2045392), Dr. Huff has mentored numerous undergraduate students, doctoral students, and academic professionals from more than 10 academic disciplines in using interpretative phenomenological analysis (IPA) as a qualitative research method to examine identity in a variety of contexts. Additionally, he has offered multiple workshops in using IPA and regularly consults other investigators in how they apply the methodology.

Dr. Amy Brooks is a Postdoctoral Scholar in engineering education within the Oregon State University School of Civil and Construction Engineering. Her past research broadly focused on global issues related to sustainable waste management and plastic pollution. She recently shifted her focus toward the field of engineering education where she is utilizing IPA to examine faculty experiences with professional shame with supervision by Dr. Huff. We leverage her insight as an advanced novice in the field of IPA research to communicate the translatability of the approach to others who are beginning qualitative research after being trained as engineers. As a

member of Huff's Beyond Professional Identity research lab, she currently co-mentors an undergraduate students who using IPA in engineering education research investigations.

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