

## **Work in Progress: A Comparative Case Study Exploring Sense of Belonging in First-Year Seminars**

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## Abstract

**This is a work in progress.** This study explores the critical transition period for students entering higher education and the role first-year seminars could play in fostering a sense of belonging to ease that transition. Utilizing a qualitative comparative case study, we delve into three distinct first-year seminars at Johns Hopkins University's Whiting School of Engineering. Our study is guided by Allen et al.'s integrated framework for understanding sense of belonging, specifically focusing on opportunities to belong. Through in-depth qualitative interviews with faculty and students, we aim to address two research questions: (RQ1) How are the different first-year seminars at our institution understood and conducted? (RQ2) What aspects of these seminars contribute to students' sense of belonging? As the university reshapes its engineering curriculum, this research provides insights into enhancing the transition experience and fostering a supportive academic community for first-year undergraduate engineering students. The results may also provide insights for other institutions in what works towards the mission of enhancing the students' experience.

## Introduction

The transition into higher education is a critical period for students and sets the foundation for their academic journey. Yet, many are unprepared for this transition. Drawing on current education scholarship, creating engaging and supportive learning environments in which students feel they belong, helps students' transition, success, and well-being [1]. In line with Maslow's work, humans want to give and receive love, as well as to feel a part of a community [2]. As students transition to an in-residence university, seeking that belonging is natural. This can be even more relevant for first-year students as they leave one educational institution to insert themselves into another. By better understanding aspects that help students develop a sense of belonging, first-year engineering educators can create experiences that promote a more seamless transition and contribute to an overall enhanced university experience.

### *Defining Sense of Belonging*

While there is a general agreement on the importance of a sense of belonging, the specific definitions and dimensions can vary across disciplines and contexts [3]. Usually, the first definition of belonging is ascribed to Abraham Maslow [2]. Used by many disciplines, it has become key for educational psychologists as it is related to student success [4], students' perception of thriving or not in their environment [5, 6], and social capital [7]. Allen et al.'s narrative review proposes an integrated framework where sense of belonging is a dynamic feeling and experience that emerges from four interrelated components: (1) competencies for belonging, (2) opportunities to belong, (3) motivations to belong, and (4) perceptions of

belonging [3]. These components, which are described in Table 1, dynamically interact, and influence each other. They are also evolving and adapting as an individual traverses different social and environmental contexts and experiences. This view is interesting for analyzing students' sense of belonging since it is a framework that acknowledges internal and external factors. These factors could be identified to understand if there are aspects that the institution can impact in order to improve the sense of belonging of students within that institution.

**Table 1:** The components for the Allen et al. (2021) integrated framework for understanding sense of belonging.

Component	Description
Competencies for belonging	The skills and abilities needed to connect and experience belonging.
Opportunities to belong	The availability of groups, people, places, times, and spaces that enable and reduce the barriers for belonging to occur.
Motivations to belong	The need or desire for people to be accepted, belong, and seek social interactions and connection.
Perceptions of belonging	A person's subjective feelings and cognitions concerning their experience of connection.

This framework will guide our approach and inform our data collection and analysis. Our specific focus will be on investigating the 'opportunities to belong' component to understand what aspects contribute to the development of a sense of belonging. The suggested results of the exploratory study include identifying the contextual features in the first-year seminars that may contribute to enhancing the possibility to belong, as well as the ones that may act as impediments to how students see their ability to thrive within it.

### Study Overview

First-year seminars are increasingly recognized as a potential solution for transitioning students into higher education and fostering a foundation for student well-being and success [8]. The Whiting School of Engineering at Johns Hopkins University has begun to pilot first-year seminars to introduce students to the academic community and create a foundation for future success. With the potential for multiple interpretations of first-year seminars, we want to explore how they are understood and deployed differently at our university considering the set guidelines. We also want to understand the patterns and differences and what aspects help students begin developing a sense of belonging.

Through a comparative case study, we will investigate three different first-year seminars and employ a qualitative approach to answer these research questions:

RQ1: How are the different first-year seminars at our institution understood and conducted?

RQ2: What aspects of the first-year seminars help students begin developing a sense of belonging?

## **Research Context**

As part of the reform to reimagine undergraduate education, the Whiting School of Engineering at Johns Hopkins University has begun to reshape its engineering curriculum. Part of this (as stated before), is to pilot first-year seminars for first-year engineering undergraduates to introduce students to the academic community and create a foundation for future success [9]. Students can choose between a discussion-based or engineering design-based first-year seminar to fulfill the requirement. Both styles are meant to cultivate intellectual curiosity and community within a small, multidisciplinary group setting in which they work with and are mentored by a faculty member. While the discussion-based option is based on a compelling topic the faculty member is passionate about, the engineering-based seminar is focused on understanding, contextualizing, and analyzing engineering designs and systems. Faculty have been given guidelines on the student capacity of 12 students, class credit of 3, and grading of satisfactory/unsatisfactory.

The guidelines are broad so there is potential for multiple interpretations of first-year seminars. For this comparative case study, we will be looking at three different first-year seminars: (1) engineering design cornerstone, (2) anthropology and design for healthcare, and (3) empathy and design. The following are descriptions for each of these seminars.

- The design cornerstone is an engineering-based seminar that investigates how multidisciplinary engineering design results in more effective engineering, communication and problem solving with teams. It is a hands-on, project-based course that gives students the ability to understand, contextualize, and analyze engineering designs and systems. By learning and applying an engineering design process, it prepares students to solve complex problems in a variety of engineering disciplines. The lectures focus on teaching a tested, iterative design process as well as techniques to sharpen creative analysis. Guest lectures from all disciplines illustrate different approaches to design thinking, and the course culminates in a cornerstone design project.
- The anthropology and design for healthcare first-year seminar is a discussion based seminar that integrates design and the humanities to give students applied anthropology and design methodologies to understand human issues. Students will learn to look through the eyes of an anthropologist and take action with the hands of the designer. The course culminates with student teams developing a visual ethnography to explain an overall challenge.

- The empathy and design first-year seminar is a discussion-based seminar that explores the study of empathy - its potential and limitations. Students delve into understanding their positionality and how other people see, understand, and interact with the world. We also explore ways to increase and build empathy using existing tools and observe how empathic development helps enhance our abilities to communicate, work on diverse teams, and be leaders within an increasingly changing global economy. Using a human-centered design approach, we also investigate how empathy can be integrated in our own fields of study to foster (1) innovative thinking and creation, (2) inclusive teams and culture, and (3) a society that cares.

## **Research Methods**

This comparative case study employs a qualitative approach to investigate the three different first-year seminars. The qualitative data is gathered through semi-structured, in-depth interviews with faculty and students to gain a deeper understanding on the diverse experiences and insights on what aspects help foster a sense of belonging. The students and faculty from these three first-year seminars will be invited to participate in this research study. Recruitment will be conducted via email, where the potential participants will receive an invitation detailing the purpose and nature of the study. Those who consent will be scheduled for 60-minute semi-structured interviews in which they will be asked to share their experiences and insights about their involvement in first-year seminars. The data from these interviews will be analyzed using a thematic analysis [10] to understand commonalities and variances, and to illuminate specific experiences that help students' sense of belonging begin to develop at the university.

## **Conclusion**

In conclusion, this study investigates the nuanced landscape of first-year seminars within Johns Hopkins University's Whiting School of Engineering and descriptive patterns that present opportunities for belonging and barriers to students' sense of belonging. Anticipating the results, we expect diverse interpretations and implementations of first-year seminars based on the broad guidelines provided by the university. Furthermore, our analysis aims to identify commonalities and variances, as well as specific aspects within the first-year seminars that contribute to students' sense of belonging. These anticipated results have the potential to inform future educational practices and contribute to the ongoing efforts to enhance the transition experience for first-year engineering undergraduates, ultimately promoting their success, well-being, and a sense of belonging within the university setting.

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