Exploring Motivational Factors for Faculty Engagement in Service-Learning Courses: Perspectives from Indian Undergraduate Engineering

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Abstract

Context

Service-learning is a teaching and learning strategy which integrates academic learning with meaningful community engagement and helps in an increased sense of civic responsibility (Oakes, 2014). Most research on service-learning so far have focused on the impact of service-learning on student learning, community benefits and institutional development and there is little literature available on the role of faculty in service-learning (S. R. Bandi et al., 2023). The article will investigate the motivational factors for engineering faculty in India to engage in service-learning programs.

Purpose

There have been increasing calls on the wider adoption of service-learning in undergraduate engineering in India, as it helps engineering students achieve graduate attributes as recommended by international accreditation agencies (Kandakatla et al., 2023). However, for engineering institutions to adopt service-learning, it is critical for to get the faculty engaged as they are one of the key stakeholders who will lead the design and implementation of these programs The study attempts to answer the research question - "What are the factors that influence faculty engagement in service-learning?" with a goal to understand how engineering faculty be motivated to engage in service-learning programs in India.

Approach

Qualitative approach is chosen as the methodology for the study as we intend to investigate the experiences of engineering faculty which will reveal their motivational factors to engage in service-learning programs (Michael Quinn Patton, 2002). Data is collected from faculty at an engineering institution in South of India which has systematically integrated service-learning into their curriculum. Semi structured interviews were used to collect the data and we employed thematic analysis for data analysis to get an in-depth exploration of the faculty perspectives.

Outcomes

The pilot study revealed primary insights on the impact of service-learning courses on faculty learning in undergraduate engineering-education. Demographic background of faculty, peer support and institutional encouragement are the motivational factors for faculty members to be part of service-learning facilitation. The results will include a detailed thematic analysis and discussion on the motivational factors for faculty in service-learning.

Conclusions

India announced the National Education Policy (NEP) in 2020 and service-learning has been one of the most relevant pedagogies to achieve the vision laid out in the policy (S. Dustker et al., 2023). Findings from the study will enable engineering education leaders to gain insights on how build capacity to enhance faculty skills in service-learning, make available required for effective planning and implementation, and provide incentives to motivate and encourage engineering faculty to engage in service-learning.

Keywords— Service-learning; Faculty Engagement; Motivational Factors

I. INTRODUCTION

The adoption of service-learning practices in higher education has been steadily increasing across the globe (Clayton et al., 2023). Service-learning provides an approach for faculty to bridge the gap between theory and practice by integrating them in a meaningful way. Through service-learning, students are engaged in real-time problem-solving experiences aimed with a goal to develop solutions for the benefit of the partner communities. Service-learning offers students with several opportunities to experience empathy (Kandakatla et al., 2022), become socially responsible, and build professional skills such as communication, teamwork, and project management (Kandakatla et al., 2023). Involvement in service-learning experiences have been reported to also have a positively impact on student's academic achievement, self-

efficacy, and leadership (Astin et al., 2000). In the last few decades, there has been a growing acceptance of service-learning as a pedagogy among engineering institutions across the globe.

Same is the case in India, where there has been significant push to enable higher education institutions to engage with local communities. The government of India launched a national level program called Unnat Bharat Abhiyan UBA) that aims to bring transformational change in the rural development of India with the support of higher education institutions, while students get an opportunity to understand the society (Radhakrishnan et al., 2022). Community engagement and service has been an integral part of Indian education system. Students who are part of implementing UBA activities at higher education institutions in India immensely benefit by building their social, technical and leadership skills (S. Bandi & Naik, 2020). The National Education Policy (NEP) announced by India also highlights the importance of holistic development and multidisciplinary education. Service-learning addresses achieving objectives of holistic development of the learners and multidisciplinary approaches (S. Dustker et al., 2023).

The announcement of the UBA program in India has led to many institutions to launch community engagement programs and adopt service-learning as a pedagogy for students learning. However, effective implementation of service-learning requires tremendous level of preparations and efforts from the institutions especially the faculty. Faculty engaged in service-learning efforts are one of the most important stakeholders who could influence the success or failure of the initiatives (Bandi et al., 2023). However, faculty can find it discouraging to engage in service-learning as it has been known to significantly increase their responsibilities and workload (Camus et al., 2022). It is therefore essential that the faculty engaged in service-learning are highly motivated and committed to both the community impact and students' learning. This study aims to understand the underlying factors that motivated engineering faculty in India to engage in service-learning programs. A qualitative methodology was used to design and conduct the study at a private technological university in South India. Data was collected using semi-structured interviews that were conducted with faculty members who are part of teaching service-learning courses to undergraduate engineering students at the university. The results are presented through different themes that indicate how faculty could be motivated to adopt service-learning in their teaching practices. The article will enable faculty to explore if they belong to the service-learning initiative and help leadership of the higher education institutions to sustain motivation among the faculty for service-learning. The next sections of the paper will cover literature survey, methodology, results, discussion, and conclusion.

II. LITERATURE SURVEY

This section provides an overview of the literature on faculty engagement in service-learning.

A. Background of Service-learning

There are several definitions for service-learning in the literature. The following definition by Bringle and Hather is widely used - *"Service-learning is a credit-bearing, educational, experience in which students participate in an organized service activity that meets identified community needs and reflect on the service activity in such a way as to gain further understanding of course content, a broader appreciation of the discipline, and an enhanced sense of civic responsibility."* (Bringle & Hatcher, 1995). Service-learning has four components – academic learning, service, reciprocal partnerships (Delaine et al., 2023) and reflection (Oakes et al., 2002). Credit is given for the academic learning with the standards of the respective regulators. Learners take part in services that attempt applying their knowledge and skills in proposing solutions to the problems of the community. The long-lasting partnerships built among the partners (Students, Faculty, Institutions, Community etc.) benefit from each other. Student often reflect on the service-learning experiences to analyze and further their learning (Dustker et al., 2021). There have been different models of how institutions integrated service-learning into their curriculum. Some of the popular models include EPICS (Engineering Projects in Community Service) of Purdue University, SLICE (Service-learning integrated throughout College of Engineering) of University of Massachusetts-Lowell and HESE (Humanitarian Engineering and Social Entrepreneurship) of Penn State University, USA, which successfully implemented service-learning in their curriculum (Bielefeldt & Pearce, 2012).

B. Faculty engagement in service-learning

A study on the enablers and barriers to implementation of service-learning report that faculty are one of the key stakeholders the success of service-learning initiatives (Bandi S, 2021). Institutions take high level decisions on allowing integration of service-learning in curriculum and students are the recipients. Faculty are the bridge between the strategic planning of courses and delivery to the students. Faculty spend significant time with students and become very important in success or failure of the initiative. Faculty also plays an important role in making students work with community. The role of faculty in service-learning to improve connection with community is highlighted by Rona (Karasik, 2020). There is an appreciation to bring real time problems to the classroom and work collaboratively to achieve solutions. If the faculty are not motivated to integrate service-learning in academics, the outcome will be uncertain. Faculty agree to the pedagogy for better understanding and learning (Blakey et al., 2016).

C. Factors influencing faculty engagement in service-learning

A range of factors motivate faculty to incorporate service-learning in their teaching. Darby et al. explored how faculty are motivated to be involved in service-learning (Darby & Newman, 2014). The study reported that faculty realized benefits of the pedagogy and the value on students learning and development. A discourse analysis in this context elicited a teaching learning model, tool for personal identity, institutional mission, and community participation (O'Meara & Niehaus, 2009). Wide range of factors were revealed by the faculty in a study by Chris (Hammond, 1994). The factors include the experience of faculty in the past, unselfish desire to serve society, support from the institutions, civic values, societal values, and teaching. Choi et al described how students work closely with their classmates and faculty where the bonding gets stronger (Choi et al., 2023) which becomes a motivation for faculty. Following are the categories under which the faculty motivation happens for choosing service-learning, as per the literature explored.

D. Institutional and Administrative Support

Not all faculty undergo mandatory training before they take up teaching, particularly in higher education. But it is required to understand different learning styles of the students and plan the curriculum accordingly. Faculty needs a specific training to take up service-learning courses (Derreth et al., 2022). Few institutions established suitable mechanism to sustain community engagement in academic learning. Different models are designed to cater the needs of the undergraduate engineering students across the world. Suitable models have to be developed for effective outcomes of the service-learning pedagogy (Kiely, 2005). Training to the faculty is required to continuous learning for improvement of teaching. Grace Ngai presented the obstacles faced and the respective strategies to address the challenges in implementing service-learning (Ngai & Chan, 2019). There are challenges ranging from faculty background, expertise, financial benefits, time, patience, and commitment to delivering etc. Sufficient funding and time are required for faculty to properly plan and implement the community engagement initiatives for academic enhancement (Kelli, 2020). The challenges once mitigated or resolved, the same become motivators to practice the same in different contexts for learning. There are studies on how the challenges have been addressed and later became potential contributors. While there are challenges for practitioners of service-learning, there are suitable solutions to overcome (Garvin & Acosta Lewis, 2022).

E. Gaps & research question

Studies on service-learning so far focused on the benefits to the students, community and to some extent on the institutions. However, a critical gap exists regarding the faculty motivations for community engagement in service learning within Indian context. There is less literature available on the role of faculty and motivation, particularly in Indian context. According to Anderson et al practitioners should reimagine the service-learning interventions and role of faculty (Anderson et al., 2019). Though the sources available are limited, the literature survey provided useful information and insights. But it lacks a comprehensive analysis of factors driving faculty participation and the impact of faculty engagement in service-learning. For Indian context, with the increase in adoption of service-learning, it is important to understand how faculty get motivated to engage in service-learning. Hence this study on "Faculty motivations to engage themselves in community engagement for academic service learning of the students in the Indian context" is taken up to fill the gap.

III. METHODOLOGY

A. Research design

The aim of the study is to analyze faculty motivations in service-learning by considering a case in the Indian context. The research question is "What are the factors that influence faculty engagement in service-learning?". We took a qualitative approach to design the study as we could investigate the experiences of faculty who were engaged in service-learning programs. The experiences of faculty are multifaceted in this case. We recognize that the responses from the faculty are complex and diverse which necessitates an inquiry to capture depth of their perspectives. The open-ended nature of the faculty responses and outcomes of the study justifies the need to adopt qualitative methodology for the study (John W. Creswell & J. David Creswell, 2018).

B. Sample Strategy

The study is planned to conduct on the faculty of a private technological university in southern India. There are 20 faculty members from two campuses of university who taught the service-learning course. The criteria guiding participant selection are as follows:

a) Experience in Facilitating Service-Learning Courses: Participants were chosen based on their experience in facilitating service-learning courses. This criterion ensures that the insights gathered are grounded in the practical engagement of faculty members with service-learning pedagogy.

b) Diversity in Years of Experience: To capture a comprehensive range of perspectives, the sample includes faculty members with varying years of experience, ranging from lower to higher levels. This diversity aims to know potential differences and commonalities in motivations across different career stages.

c) Representation Across Engineering Disciplines: Recognizing the multidisciplinary nature of engineering academics, the sample includes faculty members from different engineering disciplines. This diversity enhances the study's richness by exploring how motivations for engaging in service-learning may vary across distinct engineering fields.

The university authorities granted permission to interview the identified 20 participants, and 19 faculty members were successfully interviewed for the study. The cooperation of the university and the high participation rate indicates the relevance

and interest of faculty members in contributing to the understanding of motivational factors in service-learning within the context of this private technological university in southern India.

C. Data collection

Target participants of the study are the faculty who are facilitating service-learning courses. As there is a smaller number of institutions offering such courses, the number of faculty who have experience of teaching service-learning courses is less. Investigation of the research question required us to elicit rich qualitative data from the participants and semi-structured interviews were used for collecting data. An interview instrument was designed to systematically collect the required qualitative analysis. To establish the context of the participants' background, the interview questions on their demographics and educational backgrounds are added after they introduce themselves. The next question is to directly understand what made them to be in service-learning including their personal choices and enforcement from the institution. We also wanted to know if their previous service-learning experiences were influencing them. So a question was added on what was their involvement in the community engagement activities prior to taking up this assignment. The next questions were to understand the motivation from the stakeholders including colleagues, community and institution. A couple of pilot interviews were conducted to validate the instrument and there were few changes made in the instrument to avoid binary, leading and biased questions. The interviews are audio recorded, transcribed, and analyzed.

D. Data Analysis

The data transcripts are cleaned to remove filler words and repetitions. After exploring the transcripts multiple times, a codebook was created using the relevant quotes which are in line with the objective of the study. Themes evolved out of the codes with internal connections. Thematic analysis is done to answer the research question proposed. The interview transcripts were read several times to see the emerging patterns. Codes have been assigned to the specific quotes which highlight the motivational factors of faculty. Broad themes evolved out of the data excerpts that were coded during the analysis.

E. Reliability and Validity of the Study

The reliability of the semi-structured interview protocol was checked through cognitive pilot interviews conducted prior to the start of the data collection process. The codebook prepared during the data analysis was validated in collaboration with a fellow researcher to verify the initial round of the coding process. An approval from the Ethics board of the university is taken before proceeding to the participant interviews. The discussion section highlights the outcomes of the study and comparison of the findings with the existing body of literature on the motivational factors for faculty to accept teaching academic service-learning courses.

IV. RESULTS

The results of the study are presented using themes and sub themes. Every theme specifies a particular factor that motivated faculty members to choose service-leaning in their teaching. Quotes from the participants responses are shown in the results to exemplify the findings. Themes and subthemes emerged out of the data collected after familiarizing the data, generating initial codes and by combining the related codes. We will provide details results accompanied by the supporting evidence.

A. Theme 1: Professional Growth Opportunities for Faculty with Service-Learning

Several participants mentioned that their experience of teaching service-learning courses helped in their professional growth. The following subthemes support the analysis further.

1) Sub Theme 1.1: Improvement in Teaching Skills

Some faculty members did not agree to take up service-learning courses by their own choice while some are interested from the beginning but most of them started liking it as they progressed. The following two quotes exemplify the same.

"I thought it will be better opportunity to me to learn the teaching skills, so I agreed to it, and it worked for me." (Participant HP2)

"Initially it was not a choice, but as I mean as a part of what we called teaching learning methodology or process. I gained interest with relation to this course." (Participant H1)

One participant explained that the positive impact of the experience was beyond the service-learning courses to other courses as well.

"Service learning. I think it is very, very important and it has enriched my knowledge. Whatever theoretical knowledge I had, I have learned it practically now and I'm more empowered to teach any other subjects and implement service learning in other subjects. That has motivated me." (Participant B13)

These insights highlight the broader value of integrating service-learning which help in improving teaching methods and professional growth.

2) Sub Theme 1.2: Student Mentoring

In this sub theme, we delve into the experiences of the faculty members in service-learning significantly improved their ability to mentor students effectively. Through their narrations, we can gain further insights.

The following statement from the participant indicates the impact of service-learning on the faculty member's ability and comprehend and engage students at a deeper level. It says that the service-learning helped faculty to understand students' behavior and team dynamics.

"Certainly, these things will help us in understanding the behavior of the students of behavior of the teams." (Participant: H1)

Another participant reflected on her growth as mentor. The narrative reveals that the multifaced nature of faculty member's experience emphasizes on the improvements in managing students, stakeholder interactions, communication, and

teaching methods. It shows a strong transformative effect on service-learning on faculty's mentoring capabilities.

"I learned how to manage the students, how to interact with the stakeholders, how to use different methods to teach the difficult concept. These are the things what I learned from. Even my communication how to engage all things. It helps me a lot." (Participant B8)

A participant described the reciprocal nature of mentoring in service-learning. This illustrates the two-way impact of mentoring by faculty members in service-learning. With this faculty understand the students better and help them better.

"When we start mentoring the students, we also learn many more things. We were also not aware of personalized learning aspects of the students. Once we started into being with questions, start mingling with students and we'll come to know." (Participant B12)

The participants' narratives conclude that there is a deeper understanding of the students behavior and team dynamics as a result of continuous interaction between faculty and students in the community engaged projects.

3) Sub Theme 1.3: Enhanced Personal Learning Through Service-Learning Courses for Faculty

A participant has seen an opportunity to learn how to see a real-world problem from the user and solver ends.

"When we go to the community, we will go into real field testing. We will understand the things and improve observation skills as well, and then how to communicate with the stakeholders and all and then how to define a problem. We will have both the perspective of faculty and community be mixed and we will define a problem properly and then we'll go to ideate." (Participant: HP2)

Another participant revealed that the course helped in improving his skills and research skills.

"It has helped in presentation skills and in designing the activities for the courses. So actually, we are thinking of bringing out all these ideas as papers this time, once papers and all, so may be at that time we can expect the professional growth." (Participant H3)

Another participant spoke about the way the service-learning experience was useful in dealing with students while addressing their contextual issues.

"The learning was happening from day one and every time I learned the accumulated knowledge helped me to pass on and deal with the other students. Who came later and prepared them better than what I used to do in the past. So, accumulation of knowledge and experience makes you stronger in in in trying to tell and teach the students to defend themselves and work in their situations." (Participant H2)

Another faculty member shared that there is improvement in the learning when he repeated the course for the next batches of the students.

"It has made me a better person personally and professionally. I mean they say that you teach service learning now in a better manner than compared to earlier. So, I've got a positive result when I take this course." (Participant B10)

Participants highlighted the valuable opportunity to approach real-world problems from both user and solver perspectives, refining their observation skills and communication with stakeholders.

4) Sub Theme 1.4: Research Opportunities

One participant described the increased interest and opportunity to extend research on Design Thinking and Social Innovation further.

"I'm able to do a lot of research related to DTSI. I've done one paper already and trying to communicate it now and. In other subjects also I'm able to get many research ideas. This will help me in my professional group also. Professionally, I'm able to meet people here and interact with the principal, interact with many courses' coordinator, and all. It brings a kind of visibility also on the campus, if you are involved in service learning." (Participant B13)

This subtheme focused on the participant's increased interest and expanded research opportunities in Design Thinking and Social Innovation through service-learning, demonstrating its positive impact not only on professional growth but also on campus visibility and networking.

5) Sub Theme 1.5: Institutional Support

The faculty members acknowledged their willingness and motivation to visit communities to facilitate service-learning course with the required logistic support by the institution. The same is presented here by a participant as

"All sorts of support from institution were given. Like for example if we wanted to go to community visit bus facilities was provided by the institution itself. We never made our own vehicles work or we never went by ourselves. It was all made easier for us by the institution." (Participant: B10)

The critical role of institutional support in sustaining faculty members' willingness and motivation to engage in community visits for service-learning courses is exemplified by the provision of facilities for these visits.

6) Sub Theme 1.6: Interdisciplinary Approach

Many participants reported that there are no boundaries between subjects and courses when dealing with the service-learning courses.

"Service-learning subject has taken more depth in terms of me having to acquire more knowledge than required. When I'm teaching any other subject, I have a boundary in which I gain the knowledge and I leave it there. But this is not the case with service-learning subject." (Participant H2)

"Problem or certain situation we would diversify in apart from our own discipline, we would tend to think in a multidisciplinary aspect. So, it could help even in professional growth." (Participant B9)

The participants emphasized the nature of service-learning courses, by removing the traditional subject boundaries and the encouragement of interdisciplinary thinking.

7) Sub Theme 1.7: Career Progression

The faculty reflected that there is some weightage in their appraisal process for those who are part of service-learning. Here is a quote in support.

"Ultimately, we do have an appraisal system where certain aspects in which the questions are related to whether faculty members are engaged in developing the newer courses, whether he or she is engaged in developing newer methodologies? Yes. Surely this service-learning experience helps in it." (Participant: H1)

One participant was specific in briefing the details of learning and how it relates to his career progression.

"It has helped me in my career also because I have learned many more things focusing on problems. Real world applications like community engagements and some experience. Like reflection and integrations, interdisciplinary approach, soft skill development, personal growth, motivation and engagement, and ethical consideration, and also can take challenges and complexities." (Participant B12)

Participants emphasized the impact of service-learning on career progression, noting its positive influence on the faculty appraisal process.

B. Theme2: Opportunity to contribute to society.

1) Subtheme 2.1: Motivation Through Community Engagement in Service-Learning

When we asked the participants what motivated them to accept service-learning courses, they mentioned that engaging with society helps both faculty and students to learn with ease.

"This course offers that flexibility, and the course main objective is to bring a kind of change and make students learn to engage with the society and all. Yes, definitely that was the main motivation factor." (Participant: B13)

Many other participants highlighted that the community engagement was never part of their regular courses. One example from the data is.

"This course is helping us to develop our experiential learnings and we could have a community engagement which was not there in the any of the courses. And here it also involves interdisciplinary approaches. Means which helping us to have a cultural competence, along with the ethical consideration with respect to the society and also the long-term commitment." (Participant: B14)

The participants expressed that the motivation to embrace service-learning courses comes from the opportunity they provide for both faculty and students to learn seamlessly by engaging with society.

2) Subtheme 2.2: Passion to Serve Community

Some of the faculty members have an intrinsic motivation to serve the community. In their words, it gives them satisfaction that they are part of social service.

"Initially it was by deputation. We were into DTSI and once we got into FDP, it was something interesting. What I got to know because we were actually getting into the social cause,

knowing their problem, and trying to simplify the various aspects." (Participant: B9)

"Because to it is a societal cause to serve the society that is the main objective. That's what I feel. That's what will remain in the future. Something like that to whatever the service we provide or serve the society that will be the remaining long term or achievement you will have that satisfaction." (Participant B1)

One participant expressed his passion towards contributing to society and how it was made true through teaching a course.

"I had the passion from the beginning, like something I have to do for the society. So, I have to contribute something to society. So, in this regard, I came to know we have to take up one service learning. Courses like social innovation, so I thought like, why not join this group so that I can take this subject for the students and with the help of student group I can reach the society." (Participant H3)

Another participant shared his thoughts on the responsibilities of a citizen towards a society to show gratitude.

"Giving back to society is a big thing because I believe since I used to deal or teach system simulation, so nothing exists in isolation. Everything is interdependent on each other so as we grow in our lives. You can't say that I don't have to look at people around me or I have nothing to do with them. That kind of an attitude would not help me survive or grow on a longer run because we're all interdependent on each other." (Participant H2)

An interviewee realized the scope for faculty and students to create an impact on the society through the design thinking course.

"I found that here there is a great opportunity for us to make students go out there and whatever they have learned and implement that interact with the society and try to bring in a kind of change in the society." (Participant: B13)

As per a participant's viewpoint on the value of design thinking course is already known from an online course and it motivated further to accept the invitation to facilitate the similar course to the students. Following is the quote from his own words.

"Openly accepted the invitation to be a part of the service learning because I had done a NPTEL course on design thinking for social design thinking course and I found it very exciting, and I thought that I'll get to learn something in the service-learning course. And it was a kind of choice also." (Participant: B13)

The theme of 'Passion to Serve Community' outlines faculty members' intrinsic motivation to contribute to society, finding satisfaction in social service, and recognizing the societal impact achievable through service-learning courses.

3) Subtheme 2.3: Engineers Commitment to Real-World Impact

Few participants conveyed how they are motivated to use the service-learning courses reminding the role of engineers towards society.

"Whatever they have studied in engineering, it should be helpful for society. It means they have to help society. This course is easy to set context." (Participant B7)

"We live in society and society also has many problems. We as engineers have a greater role to play because we are the creators." (Participant H2)

One participant was narrating his motivation in terms of connections between concepts and real-world applications using DTSI course.

"Whenever the students will learn theoretical concepts in the classroom, students learning will get connected to the real-world problems and that also mainly societal problems. So, for that reason I felt I should be part of it." (Participant: B11)

When we asked participants about the challenge that they faced during facilitating the service-learning course, most of them mentioned that challenges and few of them explained the contexts on how the challenges were the source of motivation to work further.

"The challenges are part of our life and I'm always keen to take up challenges. And work over them. So that is quite a push motivation. You could call it as I get a push out of this when I get some challenges to be worked upon. (Participant H2)

"I can understand more problems where engineering can be applied. What problems to take, what to solve? How? What are the expectations of the sufferers?" (Participant B4)

The theme 'Engineers' Real-World Impact' is showcased as participants use service-learning to apply engineering knowledge for societal benefit, bridging theory and practice, with facilitation of challenges motivating continued engagement.

C. Theme3: Opportunity to experience Empathy.

The faculty members reflected upon their experiences with the community. They voiced their opinions on how they started being empathetic towards societal issues and learnt empathy in service-learning courses. One example is from the data is followed.

"When someone face the problems, I will try to understand why they are facing, how they're facing, and the biggest advantage of this service-learning course is that like we will get into empathize with all the people who are facing the problems." (Participant: HP2)

One participant opined that all the educated people need not really know the pain of society but the ones who observe the people who are in pain will learn empathy which is through service-learning courses.

"We will come to know lot of incidents what all is going on around us. I mean, in the community, how people are responding. So even though if they are highly qualified, some of them are not at all concerned about poor people and needy people. So, we need to learn many more things about society. That is possible with the DTSI course." (Participant: B12)

Few participants reported that they were not aware of certain bigger issues that the community around face and courses like "Design Thinking and Social Innovation" only can provide opportunities to understand those issues.

"If we look, there is one more picture apart from our regular life. That is what they are facing the social difficulties in their lives. There is no other way in traditional courses to explore this." (Participant: B5)

A similar opinion is shared by another participant on how he started taking benefit of learning empathy in his respective department after learning it from the service-learning course.

"I thank my colleagues. From the training that we had, I came to know about empathy and all. The basic standards, the rules and regulations, and the journey started. Now, in my department automation and robotics, I am using empathy in the design thinking." (Participant HP1)

The theme encapsulates the impact of service-learning courses on faculty members, giving a deeper understanding of societal issues and instilling empathy.

V. DISCUSSSION

The discussion brings a comprehensive analysis and synthesis of findings with the support of existing literature on the topic. Figure 1 shows the representation of the themes of discussion in a relative positioning of the factors that motivate faculty to adopt service-learning in their courses. The observations are related to the personal growth in faculty members, their professional growth, institutional support given to them followed by community development because of implementing service-learning in academic curriculum. Any change that starts at personal level leads to community development with an opportunity of academic enhancement for the students. Further discussion focuses on the analysis of the same.

Figure 1: Thematic Analysis of Faculty Motivation in Service-Learning

A. Personal Growth

The participants expressed about their personal learning as a motivation factor for them during their participation in service-learning activities as part of the academic course. They discussed the factors like their enhanced skills and learning the concept of empathy. Every individual irrespective of being a faculty member or student has unique learning style and preferences. Faculty motivation is influenced by personal experiences and fulfillment (Holland, 2019). In our qualitative case study, responses from some participants justify that the motivations which come from the perspective of personal benefits stay longer. The benefits include satisfaction, growth, and fulfillment etc. Even the interdisciplinary approach is one opportunity for faculty to go beyond their comfort zones of their departments and learn concepts of other areas which help faculty understand overall problem.

B. Professional Growth

From the results section we can infer that service-learning experience contributed to the professional growth of faculty members. The improvement in the teaching quality, participating research and career opportunities can be considered as significant benefits for faculty.

According to Camus at all, service-learning experience of faculty helped in professional development (Camus et al., 2022). Different faculty members come together to offer community engagement courses during pandemic (Sylvan & Becker, 2022). Professional growth of the faculty in exploring interdisciplinary approach and leveraging institutional support is also worth noting. The following section elaborates on the same in detail.

C. Institutional Support and Recognition

Almost all the participants in the study expressed that the support provided by the institution to implement DTSI course was outstanding. Since the university is a private and has a visionary leadership with a motto of contributing to the society, the initiative was driven from the top. As Elisa et al reported, impact on faculty to use service-learning depends on type of institution as well (Elisa et al., 2002). Even type of engagement also influenced faculty members to get involved in community engagement (O'Meara, 2008). The faculty who involved in service-learning in this case study are the full time and they have reasonable connect with their local communities. As per Clayton et al., there is need for institutional initiatives to promote faculty taking up research on service-learning to understand potential benefits of the pedagogical practices involved with community engagement (Clayton et al., 2023). Institutional practices can bring positive change in adaptation of service-learning for a meaningful learning experience to the students (Leigh & Kenworthy, 2018). The outcome of this study is an example of Institutional support being a motivational factor for the faculty.

D. Community Development

Passion to serve community, meaningful community engagement, fulfilling the role of engineer and multi discipline approach with real-world problems are the motivating factors mentioned by several participants. An existing article by Cooper endorses the same outcome. It allows interventions for the community using interdisciplinary approaches (Cooper, 2014). Connecting with community as mentioned by Krebs (Krebs, 2006) is very significant in successful outcomes of service-learning courses. The impact which pedagogy creates on communities is one of the major drivers for faculty (Richard et al., 2022). Interactions and interventions with community help students, faculty, and institutions to improve learning environments (Karasik, 2020). Several participants in this study expressed the same. Example quote from their interviews are already presented in the results section.

E. Implications to Practice

It is observed through literature and the current study that there is an opportunity to improve success of service-learning outcomes by understanding the role of faculty members and support them. There may be challenges to the faculty in the journey. Grace Ngai presented the obstacles faced and the respective strategies to address the challenges in implementing service-learning in their study (Ngai & Chan, 2019). The challenges may be internal or external to the institution. There are challenges ranging from faculty background, expertise, financial benefits, time, patience, and commitment to delivering etc. Sufficient funding and time are required for faculty to properly plan and implement the community engagement initiatives for academic enhancement (Kelli, 2020). The challenges once mitigated or resolved, the same become motivators to practice the same in different contexts for learning. There are studies on how the challenges have been addressed and later became potential contributors. While there are challenges for practitioners of service-learning, there are suitable solutions to overcome (Garvin & Acosta Lewis, 2022).

Overall, the factors which motivate faculty engagement in service-learning courses to undergraduate engineering students in Indian context are discussed and compared with the existing literature. Policy makers at institution level have to analyze the factors that motivate faculty in community engagement and incorporate initiatives addressing their challenges to improve outcomes of service-learning courses. This is a case study of one private technological university from its two campuses. The interpretations are from a researcher's point of view and may require further member checks to get deeper insights from different dimensions of research interest.

VI. CONCLUSION

The qualitative study explored into the motivational factors driving faculty engagement in service-learning courses, offering valuable insights into the dynamics within the context of Indian undergraduate engineering education. By analyzing

and synthesizing the broad themes in results and discussion sections, we understand the pivotal role that faculty members play as key stakeholders in the success of service-learning implementation. Recognizing the critical importance of understanding what motivates faculty to embrace these courses, our paper identified specific factors influencing their engagement. The implication of this study extends beyond the immediate findings to understand faculty motivation in service-learning further in various conditions. It is imperative to recognize various dimensions that may shape these motivations. Hence, we recommend future research on a comparative study considering the factors like gender, different programs and locations which influence faculty motivation in service-learning in Indian context for undergraduate engineering students.

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