Designing Community-Based Placements in Engineering Education: Enabling the Student Voice

Dimova, E.[a]   Campbell, K.[a]   Lazar, I. F.[a]   Shah, R.[b]

University College London, UK[a] Queen Mary University of London, UK[b]

Corresponding Author's Email: elena.dimova.20@ucl.ac.uk

SUMMARY

This practice paper captures the reflections of a workshop carried out at the Engineering Education Research Network Annual Symposium, in June 2023. Based on our on-going exploration of the experience of community-based placements for engineering in higher education, this opportunity supported us to gather insight from academic members of staff on the perceived role and value of this learning experience.

The reflections indicated that the contributors felt that more clarity surrounding the role of community-based placements is required; that involvement of all stakeholders in placement design is needed; and that consideration for the approaches implemented to include students in learning design is also necessary.

AIM OF WORKSHOP

To ensure the continuation of inclusion and sustainability in engineering education, the EERN was an opportunity to encourage conversation on the topic of community-based placements (CBPs). In our research, we discovered this was an emerging area that required a clearer conceptualisation and greater recognition. The reflections from this workshop contributed valuable insight building on an extensive review of literature, and further informed the research team as they designed interviews on the topic with students, staff, and community partners, for a forthcoming study.

The workshop was designed by research assistants from University College London and Queen Mary University of London, working to develop a comprehensive review of CBPs in undergraduate and postgraduate-level engineering courses throughout the UK. Three research questions guide our project:

Table 1. Research questions

Research question 1	How are community-based placements framed and carried out in UK universities?
Research question 2	What are the relevant emerging research areas, in and outside engineering education, that should be pursued to improve student and community partners' engagement and experience?
Research question 3	How can university-community partnerships be strengthened through placements?

The aim of the workshop was to generate insights into how CBPs are, could, and should be designed for student engagement and success. In particular, the workshop addressed and challenged issues from the literature; these included the alignment of placements with curricula and community organisations (Jones, Green & Higson, 2007), the significance of reflective practice on student, academic, and professional development (Atfield, Hunt & Luchinskaya, 2021), and the clarification of stakeholder roles and responsibilities (Gomez, Lush & Clements, 2004).

This paper describes the workshop intervention, and the objectives of the research team. This is followed by a synthesised discussion of the reflections with relevant scholarship on CBPs in the context of engineering education, concluding with recommendations for practice in higher education.

WORKSHOP SCHEDULE

Table 2. Workshop aims

To enable educators to share experiences of how community-based placements are currently carried out;
To identify ways of enhancing the student experience by involving students in the design of placements;
To outline practical steps for enabling student involvement in placement design.

Workshop structure

The workshop was designed for up to 30 contributors to work in groups of 5. It involved the following activities:

Table 3. Workshop schedule

Activity	Duration
An introduction about the workshop and its structure was provided, followed by an overview of the research team's motivations for pursuing research on community-based placements in engineering education	10 mins
The presenter shared examples of how community-based placements are currently designed and carried out in UK universities	10 mins
Using Mentimeter, the contributors to the workshop individually shared their views regarding the perceived benefits of community-based placements for students, followed by a group discussion	15 mins
Working in groups of five and using Mentimeter, the contributors shared their views on improving the student experience of community-based placements, guided by three questions. For each question, the	15 mins

groups shared and discussed their Mentimeter inputs with the room	
The contributors reflected on key takeaways from the workshop to implement in their own practice	10 mins

Design of the workshop intervention

Workshops in the field of engineering and education have been offered since the 1970s to share knowledge and make meaning of experience (Péraire, Erdogmus & Dzvonyar, 2019). Workshops have been used to communicate pedagogical developments and aid educators in developing relevant teaching skills (ibid.). Given the contemporary nature of CBPs in engineering, the workshop format was a suitable method for presenting this new perspective on engineering placements. Moreover, the interactive component of workshops can encourage educators to collaboratively generate practical ways of enhancing student engagement and experience.

The workshop design was informed by literature on workshops for educative settings. Key to this, was matching tangible goals and objectives with an appropriate delivery method (Steinert et al., 2008). To enhance collaboration, Mentimeter was employed as this platform has been shown to increase participants' satisfaction, enjoyment, and to enhance individuals' voices (Mayhew et al., 2020). Mentimeter enables a dialogic and reciprocal teaching approach, creating inclusivity, increasing attention, and fostering deeper learning (ibid.).

Developing the workshop for EERN was not perceived as an opportunity to collect data for our research team, rather one to encourage reflection more broadly on the conceptualisations of and encounters with CBPs. As such, ethical clearance was not required. However, based on the significance of the EERN conference to the field of engineering education, it was paramount that we took this opportunity to develop networks and facilitate conversations around emerging matter.

WORKSHOP OUTPUTS AND OUTCOMES

Discussion

'What are the benefits and opportunities of community-based placements for students?'

This opening question captured the range and frequency of conceptualisations of community-based placements (CBPs) (Bringle & Hatcher, 1995; Swan, Paterson & Bielefeldt, 2015). Outstanding themes were associated with career prospects, professional development, and financial contribution.

Students reportedly value the prospect of financial benefits from CBPs to avoid being placed at a financial disadvantage. Valentine and Keating (2020) reaffirm that the lack of funding available to cover students' commuting costs, for example, is a major participation barrier. This can lead students to feel disadvantaged, limiting their confidence in real-world workplace experiences (Brooks & Youngson, 2016).

Another important reflection was the networking opportunities for students associated with CBPs. Notably, these present employment opportunities and partnerships for students, but they are equally valuable for organisations too, to access new talent pools (Harris, Chisholm & Burns, 2013).

Importance was placed on developing transferable skills while participating in a CBP. Contributors listed team working, communication skills, and the ability to problem solve as key outcomes of CBPs. These play a significant role in preparing students for employability as curriculums are increasingly assessed on the experiences and work readiness they provide (Blackmore et al., 2016). Literature also highlights the importance of resilience, organisation and management, and ease of transition (Atfield, Hunt & Luchinskaya, 2021), which students are also encouraged to develop during a CBP.

To summarise, the shared understanding of CBPs was that they provided a platform for authentic learning experiences, where students could employ their knowledge in practical settings (Eyler & Giles, 1999). This belief was evidenced in existing CBPs in UK universities and in previous studies (Ridley, 2014), which showed how the opportunity to recontextualise knowledge helped students to gain a richer understanding and awareness of the reality of community issues and settings, further informing their decisions about employment.

'In what ways can students be involved in the design of community-based placements?'

Existing literature highlights the importance of involving all stakeholders, especially students, in placement design for optimal engagement (Atfield, Hunt & Luchinskaya, 2021), which was echoed in the workshop contributions. This section reflects on key points from the discussions, highlighting practical steps universities can take to involve students in the design of CBPs, thus contributing novel ideas to existing literature on the topic. Some of the key ideas elaborated on below include the establishment of student advisory boards, community outreach activities and research initiatives for students.

The first proposition was that a student advisory board be established, to ensure collaboration of all stakeholders on placement design. Opportunity for involvement would enhance student voice and create a platform for student feedback; this was felt to be beneficial for future students too. Inclusion of students in the planning of CBPs may enhance their knowledge of placement and employment opportunities. Existing literature shows that when students fail to show an interest in preparing for placement early on in their studies, they risk limiting their career prospects (AGCAS et al., 2022).

The possibility of including students as researchers early on in CBP design was suggested. Contributors considered how meaningful the experience of exploring the community's most pressing needs might be for students, spurring them on to make decisions about the organisations involved in their learning. It is possible, too, that this may encourage civic responsibility (Bringle & Hatcher, 1995).

The discussion indicated a lack of communication between universities and their surrounding communities. This reiterated a prominent issue from the literature, confirming the need for richer knowledge on strengthening partnerships, to enhance the engagement and experience of stakeholders. As such, contributors proposed stakeholder meetings to bring university representatives together with community partners to discuss placement opportunities. This would help universities to design a curriculum with community needs in mind, and for these experiences to become a 'knowledge-exchange' (Atfield, Hunt & Luchinskaya, 2021) or 'knowledge-transfer partnership' (Harris, Chisholm & Burns, 2013).

'What are some of the barriers to including students in the design of community-based placements?'

The discussions highlighted problems associated with the student experience of CBPs, which discourage student participation in CBP design. These included the need for clearer

communication of the benefits of CBPs, stronger administrative support, and transparent communication between stakeholders.

Contributors maintained that students lacked awareness for their local community and the social injustices faced within. This may correspond with students' inclination to contribute to matters that are relatable and meaningful to them (AGCAS et al., 2022), evidencing a disconnection between the campus and the community. Scholarship shows how prosocial motivation is required for students to feel compelled to help and develop their community (Swan, Paterson & Bielefeldt, 2015). However, when the purpose of CBPs is not clearly communicated, students are known to make rigid decisions about their path towards employment, thus limiting career prospects (Brooks & Youngson, 2016; Jones, Green & Higson, 2017).

Contributors highlighted that engineering students predominantly apply to industry placements to advance their employability prospects, rather than local placements. The benefits of local placements, although in abundance, are scarcely communicated to stakeholders (Brooks & Youngson, 2016); they include ease of transition between cultures, and increased understanding of the issues directly effecting one's own community (VanderSteen, Hall & Baillie, 2010).

There were concerns about the lack of administrative support involved with CBPs. Despite shared enthusiasm for community outreach, the execution of placements was challenging owed to the absence of an administrative team to support implementation. This finding corresponds with the literature on inadequate use of and input from university careers services (AGCAS et al, 2022). Their insight is notoriously underutilised, leading to uncertainty about the expectations and specifications of organisations during placements – which likely contributed to the apprehension felt by staff. Careers services could also play a key role in disseminating best practice and timely information (Blackmore et al., 2016).

The absence of administrative support reportedly created a mismatch between stakeholders' expectations. It was felt that this could be owed to stakeholders not coming together to agree on regulations. There was a sense that students often felt unprepared for the level of work that the community organisation expected from them, or in other cases, that the community partner did not meet the student's research or work aims and expectations. This confusion was mirrored in earlier cases, indicating that standardisation and best practice needs establishing (Harris, Chisholm & Burns, 2013; Cinque, 2016; Ornellas, Falkner & Stålbrandt, 2018; Valentine & Keating, 2020). This could be overcome

through a shared language and terminology, as well as clear objectives and expectations from the outset.

'What are some practical ways of overcoming these barriers?'

There was general agreement that an understanding of the value of CBPs within academia needs addressing. As evidenced in the literature too, the extent to which information is disseminated about CBPs appears to be limited. Some key reflections include embedding CBPs in the curriculum, explicit communication of CBP benefits, and greater pedagogical attention to community involvement. These topics expand on existing literature and serve as guidance for further research in the area.

Contributors reflected on the prospect of placing institutional value on CBPs, making them appear more relevant to learning and professional development; for instance, creating a compulsory and credit-bearing community-based component in degree programmes. This might change the students' perceived value of the experience, increasing the level of effort and engagement. Gomez, Lush and Clements' (2004) research details how the optional aspect of placements can deter students from participating, leading them to doubt its significance.

The contributors argued that universities could be explicit about the benefits of CBPs, namely employability skills (Swan, Paterson & Bielefeldt, 2015; Brooks & Youngson, 2016). Ornellas, Falkner and Stålbrandt (2018) revealed that participation can lead to smoother transitions to work, development of resilience, and entrepreneurial skills and conceptual thinking. Much of the discussion also pointed to how soft and transferable skills could enhance a student's CV.

It was widely felt that by placing greater emphasis on the importance of community involvement, engineering educators could produce engineers who are both technically skilled and socially aware.

LIMITATIONS

We acknowledge that by addressing a predominately engineering audience, there remain gaps in the knowledge of how this topic is conceptualised in different fields. By participating in the EERN, we have limited the contributions to a small sample, albeit higher education professionals.

The terminology employed throughout the workshop aimed to overcome issues of exclusion by offering descriptions and definitions employed in our work, for those attending from disciplines other than engineering. Indeed, the limited research available on CBPs may also have hampered the accessibility of contributors to the discussion, due to a lack of familiarity.

Finally, given that workshop attendees were academic staff, it might have been beneficial to include students to create a more holistic view of CBPs. Nevertheless, as the workshop presenter was a student, the student perspective was partly featured.

CONCLUSIONS & RECOMMENDATIONS

In the final task, contributors noted their three main takeaways from the workshop. These are listed below as suggested action points.

Table 4. Action plan for practitioners

1. To evaluate the role of community-based placements in engineering education.
2. To identify areas associated with the design of community-based placements in engineering education where students can play a role.
3. To identify methods and approaches which can help with the development of participatory approaches that involve students in the learning design of community-based placements.

We hope that contributors will see the relevance and applicability of these reflections to the development of their own student-partnership practice, research, and teaching.

Overall, the insights derived from this workshop have informed the design of our research on CBPs for engineering in higher education.

Topics from the discussions, such as raising awareness of the employability benefits of CBPs and the logistics of planning, executing, and evaluating CBPs through administrative support, were identified as emerging research areas and were eventually explored through our stakeholder interviews with students, academics and community partners in research following on from the conference.

The interview questions were informed by the workshop; exploring ways to achieve optimal stakeholder experience and engagement with CBPs, and how the direct student involvement in the design of CBPs can benefit this process.

We believe our workshop reflections from the EERN are useful for educators who seek to implement CBPs in their teaching and/or research practice.

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