

# Nutrition, food and sustainability research: Developing student project capability in UK higher education

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## Abstract

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Graduates from life sciences, including nutrition, will be at the forefront of promoting environmental, social, and food systems sustainability. The requisite competencies for their future roles include systems thinking, interdisciplinary collaboration, and effective communication, which are essential to navigating the complex interrelationship between human health and the environment <sup>[1,2]</sup>. To address this need, a 'Living Laboratory' (LL) within a higher education (HE) food service setting could enrich the traditional laboratory experience, allowing students to cultivate these skills through experiential learning. This project aimed to *i*) scope the published literature to characterise LL examples within a HE food environment and *ii*) explore the understanding and perceptions of a LL concept in a food service setting for final year student research projects among students and academics at King's College London.

A systematic scoping review was conducted in accordance with PRISMA-ScR guidelines (Registration OSF:d7y96). Two databases were searched (PubMed/Medline, Web of Science) from January 2010 to July 2024 to identify articles reporting the design, implementation or evaluation of LL in HE food service settings. A narrative synthesis was performed, and the resulting themes were used to inform focus groups (KCL Ethics:LRM-23/24-42657) with academic staff (two groups, nine participants) and students (four groups, seven postgraduate and nine undergraduate participants). Focus group discussions were audio-recorded and transcribed verbatim. Data were analysed using an inductive thematic approach <sup>[3]</sup>.

Twenty-one articles were included in the scoping review. Common terms used to describe the LL concept included 'innovation', 'collaboration', 'diverse stakeholders', 'enabling students' and 'practical learning experiences'. Recommendations for implementing LLs were provided in six articles and included engagement and outreach with stakeholders; managing conflicts; assessing impact; and establishing ethical and governance frameworks. The focus group findings indicated that both students and academics view the LL concept as a dynamic, real-world setting, emphasizing engagement and collaboration with internal and external stakeholders. Academics perceived the educational benefits of LLs as fostering experiential learning and perceived the barriers to implementation as including a lack of resources, scheduling conflicts, insufficient stakeholder engagement and unclear governance frameworks. Students highlighted the importance of aligning projects with taught programme content, and identified challenges such as limited awareness, unequal engagement across disciplines, time constraints, and concerns about inclusivity and equity across campuses. Students agreed that the LL provided opportunities to develop skills and knowledge in sustainability, science communication and real-world evidence studies, opening new career options after graduation. Lastly, altruism to improve food environments for peers and future students was a significant driving factor in student engagement.

Implementing LLs in HE food service settings requires input from multiple stakeholders. This scoping project identified key considerations from both academic staff and students to inform the co-design of a LL in a HE food service setting.

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