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Student participation in hospital post-occupancy research projects: the why and how

Liesbeth van Heel^{1,2}, MSc, Jelle Koolwijk², PhD, Clarine van Oel², PhD, Harry van Goor³, MD, PhD, FRCS, Em-prof. Maja Kevdžija⁴, PhD-Ing, EDAC, Margreet C. Vos¹, MD, PhD, Auke Brugmans⁵, MSc, Deirdre Casella⁵, PhD

1.Erasmus University Medical Center Rotterdam, 2.Faculty of Architecture and the Built Environment, TU Delft. 3.Radboud University Medical Center, 4.Institut für Architektur und Entwerfen, TU Wien, 5. Rotterdam University of Applied Sciences

Introduction

- **Post-Occupancy Evaluation (POE)** assesses a building's functional, psychological, and social performance (Brown, 2018). Underutilized because of lack of time or lack of direct usefulness for further projects in the same hospital.
- **Evidence-Based Design (EBD)**: evaluates whether a building meets design intentions and user needs (Lehane, 2022). POE research provides data on design effectiveness (Ulrich et al, 2010).
- **Growing demand for POE**: hospital clients expect EBD knowledge from designers to help inform design decisions (Hamilton, 2012), especially in University Medical Centers (UMCs).
- **Growing demand for practice-based graduation work**: Bachelor- and Master studies have a need for relevant research subjects for their graduates in the fields of Management of the Built Environment (MBE) and Corporate Real Estate Management (CREM).
- **Education and research are not a hospital's core business, but they are for UMCs**, even for non-medical professions. Besides, UMC's feel an obligation to scientifically evaluate major design and construction projects, to add to knowledge for practitioners and researchers, and potentially attract future co-workers.
- **Students can contribute** by bridging research and operational activities, actively contributing to transdisciplinary, multi-actor co-creation and innovation processes that are key to understanding and identifying sustainable solutions to complex challenges, such as human-building-technology interaction (Herth et.al., 2025).
- **Collaborative approach**: it is a rare opportunity for students to be exposed to the complex world of hospitals and UMC's. Living Labs are seen as valuable contribution to teaching and learning within higher education (Van der Wee, 2024).

Aim

To present and reflect on how students have been involved in POE research projects for Dutch UMCs to better understand the potential of this resource but also look at the preconditions to balance the interests of all stakeholders involved.

Method

- **2020-2025 collaboration between TU Delft and Erasmus MC** in individual MBE master student graduation projects.
- **2023-2024 collaboration between TU Delft, Radboud UMC and Erasmus MC** for the course 'Research Methods' (RM) at MBE; student interviews with nurses and facility care workers in clinical wards at both locations, student interviews with staff of the (pediatric) psychiatry departments at both locations, student observations and interviews on the use of nursing stations at both locations, and student analysis of interview transcripts (focus on Erasmus MC). Teaching qualitative research methods in 'live' settings.
- **2023-2025 collaboration between Rotterdam University of Applied Sciences (HR) and Erasmus MC** in an 'Urban Lab' where a group of students works together on individual graduation projects, with coaching both at school and at Erasmus MC; max. 10 students at the time; 13 bachelor graduation projects finished since the start in 2023; very diverse subjects in a complex context; first accommodating individual student interests, later also inviting students to work on relevant topics for Erasmus MC and follow-up studies on prior data collection.
- **Started through informal networking** through PhD research, meeting at EHD 2022, teaching collaboration (TU Delft / TU Wien), management transfer between UMCs, promoting UMC as a potential place of work at neighboring education institution.
- **Potential of following-up on a scientific evaluation program at Erasmus MC** of a major hospital transformation project (opened in 2018) with a major campus redevelopment plan (Masterplan 2050) and to inform decision making for a major hospital and biomedical research new built (SPOT).

Opportunities of the Urban Lab concept according to the students*:

- "Participating in the Erasmus MC Urban Lab gave me the opportunity to do real research within a complex organization with societal impact."
- "I really enjoyed this format for my graduation work as it allowed me independence, but at the same time as a joint effort with fellow students. You can help and inspire one another."
- "The collaboration with Erasmus MC is a real stimulus: they take your research project serious. The coaching from Erasmus MC was valuable. The opportunity to build on previous research projects."
- "Professional work environment and graduating at the Erasmus MC looks good on your resume."
- "You can concentrate on your graduation project and are not expected to 'work' within the department as is common with other organizations. This gives you a lot of freedom, but you are not paid for the internship."

Opportunities for students according to TU Delft teachers:

- Learning how to connect with interviewees in practice, in a busy hospital work environment, based on a predominantly theoretically informed interview protocol.
- The journey students make with teachers: (1) learning to question what data show, how this can be interpreted, which factors might be at play, and how to write all this down, and (2) learning that in qualitative research more than one approach is applicable to reach conclusions.



Figure 1: 4 Urban Lab students after thesis defense

Results

- The collaboration between universities, universities of applied sciences, Erasmus MC and Radboud UMC illustrates the potential of an **ecosystem approach to healthcare design research**. Through student-led projects, valuable data has been collected on topics such as nurse station use under continuous monitoring, staff experiences in (child) psychiatry environments, and the design and use of public spaces, single-patient rooms, and accessible outdoor areas in newly built hospital settings.
- These **'living lab' projects** offer real-world insights but also reveal the need for dedicated individuals within hospitals who can coordinate research, connect across institutions, and translate findings into practice.
- Beyond informing local redevelopment projects, this work has broader value. Within a collaborative ecosystem of education, healthcare, and design, shared insights can enrich **communities of practice** and contribute to the evidence base in healthcare design. This includes the integration of built environment ('bricks'), digital workflows ('bytes'), and behavioural aspects of user-centred care environments ('behaviour').
- To fully realize this potential, **sustained collaboration, investment, and strategic alignment** are essential. While students contribute by completing their assignments, the needs of hospitals go further: all data must be brought together in one dataset and further analysed and aligned with institutional priorities. Currently, time and resources to scale up this work are lacking. The next step for our ecosystem is to secure additional funding to free up capacity—potentially by joining national or EU-level research programmes. This would strengthen the impact and continuity of research efforts.

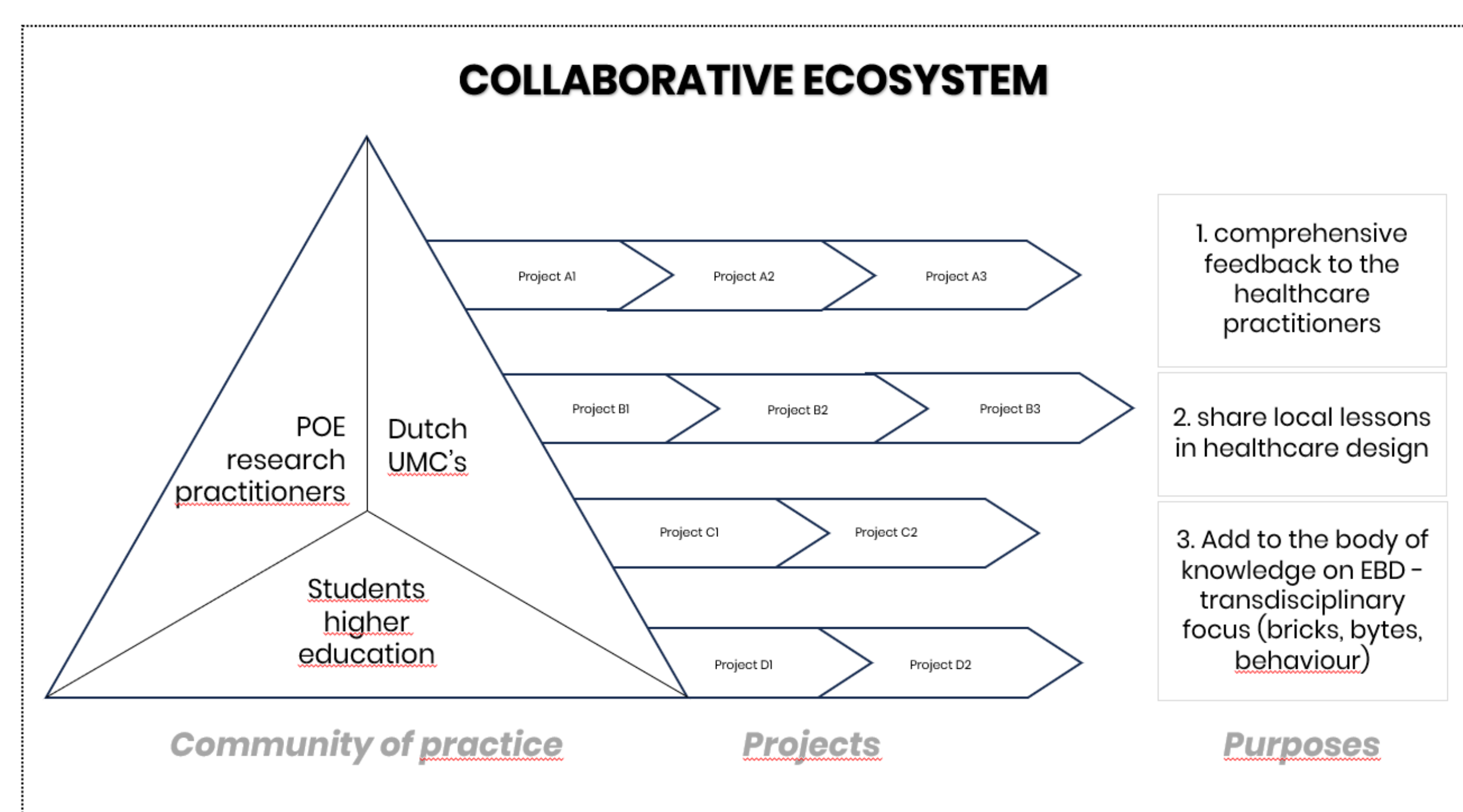


Figure 2: Collaborative ecosystem, Own work.

Conclusions

WHY would you involve students in POE research? Because they are a great and creative resource, their teachers are another source of practical or theoretical knowledge, and through the student projects a two-way street of knowledge dissemination on user-centered design is opened. Because user experience is the starting point for improving health facility design, and in the present time more knowledge is needed as the human-building-technology interaction (or balance between bricks, bytes and behavior) is increasingly challenging. Because it has the potential of becoming a long-term, sustained research collaborative, unlike regular graduation trajectories. This is an asset for all within the community of practice!

HOW would you start? Connect with institutions for higher education; find 'kindred spirits' and start in an informal way; evaluate and improve; build on the initial data collection and analysis by embedding your efforts in a (newly established) trans-disciplinary research group or project. Your student projects have the potential to be the start of a new EBD cycle and improve patient and staff experiences in and beyond the hospital!

For more information contact: m.vanheel@erasmusmc.nl

* Source: Urban Lab focus group with 7 current participants and an online survey under 13 former participants (with a response rate of 77%)

