Identifying and overcoming barriers to undergraduate research: The student voice

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Why was the idea necessary (Problem)

Research is a cornerstone of academic advancement and is increasingly integrated into undergraduate education worldwide.[1] At the University of Pretoria's Faculty of Health Sciences, efforts have been made to encourage undergraduate research. Despite strong student interest and the inclusion of research in academic programmes, undergraduate publications remain limited. Low research output can hinder the development of critical thinking skills, restrict knowledge generation, and disadvantage students who lack early research exposure.[2,3]

What was tried (Approach)

The Tuks Undergraduate Research Forum (TURF) was established to simplify the intimidating world of research and to support undergraduate initiatives. TURF facilitates engagement through regular meetings, guest speakers, collaborative projects, a free undergraduate research course available to students and staff and an annual symposium.

At the symposium, TURF hosted a panel discussion on "Identifying and Overcoming Barriers to Undergraduate Research," featuring committee members and representatives from other student research societies. The discussion was followed by an interactive Q&A session, allowing participants to share challenges and propose solutions.

What were the lessons learnt (Outcomes)

The panel and audience identified several barriers that prevent students from conducting research and proposed strategies to address them (Table 1). A key obstacle was insufficient knowledge of research methods. Many students were unfamiliar with qualitative research or dismissed it as lacking scientific rigour. With regards to quantitative research, statistical analysis posed a significant challenge, with most students limited to descriptive statistics. Proposed solutions included encouraging participation in the TURF Undergraduate Research Course (TURC) and integrating basic research training within undergraduate curricula. Furthermore, more focus should be given on promoting qualitative research within undergraduate curriculums. The Faculty of Health

Table 1. Summary of symposium participants' assumptions, barriers, solutions, and existing opportunities

Participants' assumptions	Barriers to undergraduate research	Solutions	Opportunities available at UP
Research occurs only at postgraduate level	Students may not develop research skills or pursue opportunities	Introduce undergraduate research early	The Tuks Undergraduate Research Course (TURC) equips students with research skills
All research requires funding	Students discouraged without funding access	Highlight low-cost research designs in curricula	TURC addresses funding misconceptions
Undergraduate research not acknowledged	Students may opt out due to lack of recognition	Establish institutional guidelines for recognition	Existing researchers use inclusive Memorandums of Understanding to formalise collaboration
Research is highly specialised	Limited interdisciplinary collaboration	Emphasise cross-disciplinary projects	University-affiliated initiatives such as SimWars* host collaborative academic events

*SimWars is a clinical performance competition using healthcare simulation technologies to allow undergraduates to showcase knowledge, skills, and teamwork.

Sciences at UP should also expand its existing biostatistics support infrastructure to accommodate undergraduate students. Specifically, TURF advocated for the hosting of online biostatistics workshops that should be made available to undergraduate students.

Additional barriers included misconceptions that research requires extensive funding, limited recognition of undergraduate contributions, and perceptions of research as highly specialised. Proposed solutions focused on highlighting low-cost research designs, formalising acknowledgement of student involvement, and fostering interdisciplinary collaboration. The Faculty of Health Sciences has committed to supporting such collaboration. This is exemplified in initiatives like Simulation Wars (SimWars), in which mixed teams of students from different degree programmes compete to manage an emergency patient scenarios most effectively.

These insights emphasise the need for structured support, early exposure, and greater visibility of undergraduate research opportunities. By engaging schools and departments, TURF can broaden awareness of available pathways and strengthen the undergraduate research culture at the University of Pretoria.

The panel discussion highlighted the importance of early and structured exposure to research, recognition of student contributions, and promotion of accessible research opportunities. TURF is well-positioned to advocate for curriculum integration, encourage cross-disciplinary initiatives, and increase student participation. To this end, TURF is expanding TURC to include modules on ethics, submission, data collection, data analysis and manuscript preparation. Furthermore, TURF has advocated for the inclusion of a compulsory research module in the new MB ChB curriculum. Implementing these strategies could foster a stronger research culture and enhance publication outcomes among undergraduates at the University of Pretoria.

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