A COLLABORATIVE PEDAGOGY OF MIXED METHODS RESEARCH: AN INCLUSIVE APPROACH IN DATA SCIENCE EDUCATION

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INTRODUCTION

Teaching research methods to undergraduate students is a rare phenomenon in colleges and universities in India. This is, however, set to change with the National Educational Policy (2020) proposing 4-year Bachelor's programmes as the preferred option. These programmes will have a research component with students undertaking a research project in the 4th year. Here we – a statistician (KJ) and an educational anthropologist (MC)--share learnings from team- teaching a research methodology course *RES101: Introduction to Research Methodology* in a university in India that has been offering 4-years degree programmes since 2019. This course introduces undergraduate students from different Majors to quantitative and qualitative research methods through a mixed-methods approach. That we teach both quantitative and qualitative methods in one course was a university requirement, while the adoption of a mixed methods approach to do so came about through our experience of team-teaching. This innovative pedagogy brings both numerous possibilities and challenges and methodical reflection provides a strategy to handle the challenges.

METHOD

We use collaborative reflection to identify learnings from team- teaching *RES101,* an introductory research methods course to undergraduate students (from different disciplines and different stages in their programme) over 3 semesters. In order to substantiate our (faculty) learnings we will be drawing on end semester student feedback on the course that was gathered officially by the university using an anonymous feedback form.

LEARNINGS

Curiosity and Mutual Respect: Teaching mixed methods is challenging as most faculty are trained in either qualitative or quantitative methods. Team teaching is a solution. But if team-taught, it is also essential that both faculty also embody a stance that truly believes in the value of mixed methods research, view both methodological approaches as complementary and as having some fundamental similarities and are curious about each other's methods.

Learning By Doing: That students learn about research methods by undertaking research in small groups is a vital feature of this course. Two elements in our course ensured student engagement and ownership of their research projects. 1) Student groups were formed on the basis of their shared research interests. 2) Students collected primary data using both quantitative (survey questionnaires) and qualitative methods (semi-structured interviews). However, these two features impose time constraints on the course.

*Use of Secondary Quantitative Data***:** To overcome time constraint, in the most recent interaction of the course we suggested that research groups use secondary data when available from journal articles/data archives. But oftentimes students found that the data are available in different aggregated formats and charts and, are not exactly 'useable' for further statistical analysis. 'Accessibility' of original secondary data is also an issue as most often data sets are not available publicly. Moreover, secondary data also places constraints on the research questions that students might pose.

Familiar with introductory statistical concepts: Since the students are coming from different disciplines with little to no exposure to statistics prior to taking this course, KJ often has to spend considerable time in class and outside, teaching concepts like null and alternative hypothesis formulation, Chi-square test, critical region, p-value. It is critical that students complete a course in introductory statistics before doing a research methods course that involves statistical analysis.

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