

Surf or a deep dive? Increasing interdisciplinary learning in the MSc programme Global Development

Neda Trifkovic, Department of Economics

Abstract

This project evaluates the potential for increasing interdisciplinary learning in the MSc programme Global Development. A lack of disciplinary homophily and the fact that student performance does not depend on their BSc background are taken as evidence of programme's high interdisciplinarity potential. Interdisciplinary learning occurs through antagonistic mode of disciplinary teaching and group work involving mixed student backgrounds. Future entails re-evaluating the balance between the breadth and the depth of student learning.

1. Introduction

Interdisciplinary educational programmes are increasingly popular, reflecting the ever-increasing complexity of the real world. This is understandable as no single perspective or knowledge framework is sufficient to fully understand the multitude of '... societal, economic, environmental, and philosophical issues and challenges ...' (Jacob, 2015). Interdisciplinary practices in higher education refer to the integration of two or more disciplines or fields of study in relation to research, instruction and programme (Jacob, 2015). The integration is done for the purpose of producing a cognitive advancement in ways that would have been difficult through single disciplinary means (Boix Mansilla and Duraising, 2007). Even though interdisciplinary research is at the frontier of knowledge (Van Noorden, 2015), interdisciplinary degrees are more relevant to non-academic actors (Brint et al., 2009).

Many factors affect knowledge acquisition, such as gender, ethnicity, parental income, entry criteria, academic self-efficacy, grade goal, or effort regulation (Richardson et al., 2012; Honicke and Broadbent, 2016). Specific to interdisciplinary learning, disciplinary foundations play a strong role in shaping student learning (Holley, 2009). Problems in achieving interdisciplinarity in student learning may be caused by disciplinary differences in epistemologies, discourses, and ways of teaching (Bradbeer, 1999). Isolated knowledge and discipline-specific reasoning may constrain higher order thinking arising from integration and synthesis of different academic perspectives (Golding, 2009).

1.1 Context

The MSc in Global Development is organized in cooperation between the Faculty of Science (Department of Geography (GEOG) and Department of Food and Resource Economics (IFRO)) and the Faculty of Social Sciences (Department of Anthropology (ANTR) and Department of Economics (ECON)) at University of Copenhagen (UCPH). It aims to equip students to work with problems in the area of global development by increasing skills, knowledge and new approaches to the analysis of livelihoods and well-being of individuals, cultures and social norms, and policies and strategies for economic growth (University of Copenhagen, 2013a). The programme is defined as cross-disciplinary, but the intention is for it to become interdisciplinary.

1.2 Objectives

This project aims to assess the potential of the Global Development programme to achieve a higher level of interdisciplinarity.

1. The project evaluates to what extent the learning outcomes of Global Development students are shaped by the primary academic discipline of their BSc degrees.
2. The project examines to what extent differences in students' and lecturers' native disciplines affect their perspectives and approaches to interdisciplinary learning and teaching.
3. The project explores how the programme can be restructured to achieve a higher level of interdisciplinary learning.

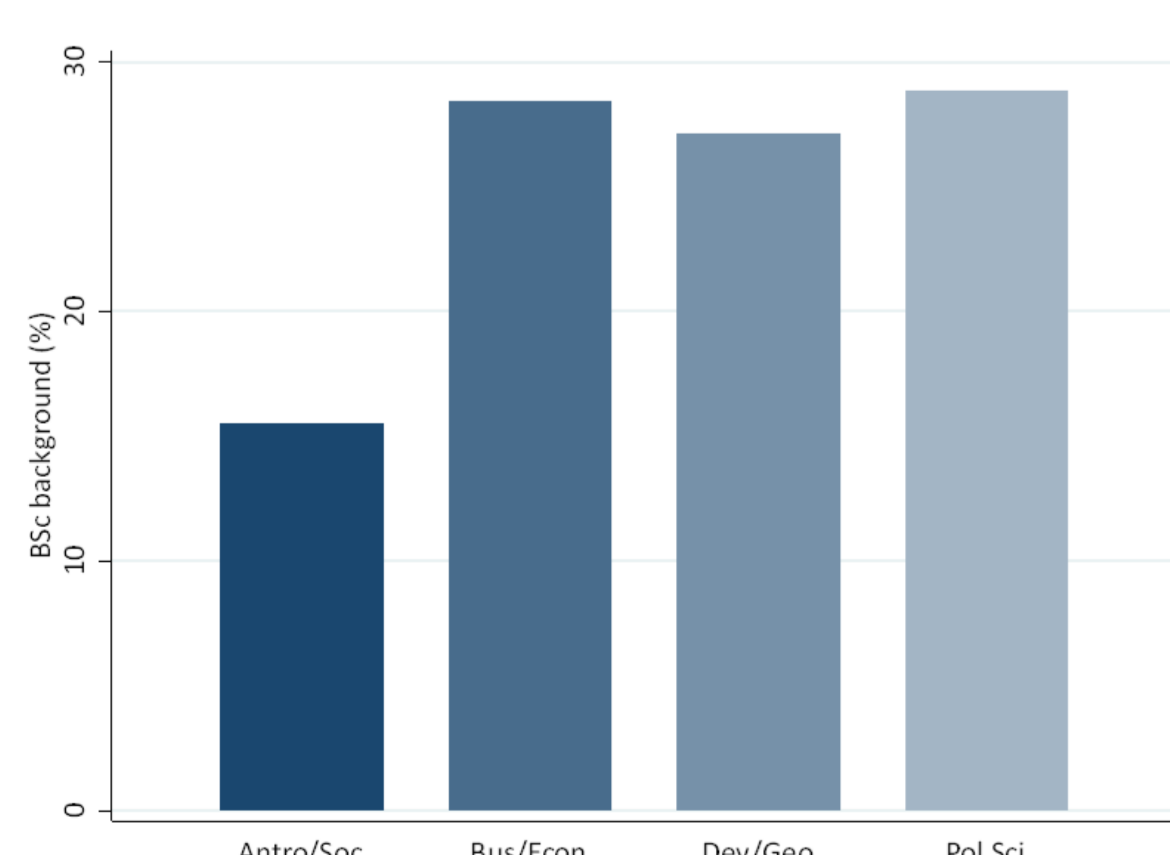


Figure 1. Percentage of students with different BSc backgrounds

2. Data and methods

The project applies mixed methods. Statistical analysis is used to test for the presence of disciplinary homophily, which is assessed based on a score from five tests shown in Table 1. The absence of disciplinary homophily is taken as a sign of interdisciplinarity. This corresponds to addressing the first objective of the project.

The quantitative data used in the analysis comprise six rounds of administrative data (2016-2021) about programme graduates. The data are analysed using linear regressions where outcome variables (disciplinary homophily, thesis grade and MSc GPA) are regressed on the BSc discipline, as the main independent variable, and a range of variables measuring student characteristics (age, female, country group, supervisor, joint thesis, internship, duration of enrolment and cohort). To reduce the burden of dimensionality, BSc disciplines are grouped as follows: anthropology and sociology (Antro/Soc), business and economics (Bus/Econ), development studies and geography (Dev/Geo), and political science and international relations (Pol Sci).

Table 1. Five tests of interdisciplinarity learning

Indicator/question	Inter-disciplinary if
Do students stay within the same academic discipline in the MSc thesis as in their BSc degree?	No
Does the MSc thesis grade depend significantly on the academic discipline of the student's BSc degree?	No
Does the MSc GPA depend significantly on the academic discipline of the student's BSc degree?	No
Does the MSc thesis grade depend significantly on the department where the thesis was written?	No
Does the MSc GPA depend significantly on the department where the thesis was written?	No

Between 2016 and 2021, 331 students graduated from the programme, but due to some data deficiencies the analysis is based on 232 graduates. As shown in Figure 1, most students have economics or business BSc background, while the lowest share of students is with anthropology/sociology BSc degree. However, anthropology is the most popular MSc thesis area, while geography/development studies is the least popular (Figure 2).

Quantitative results do not indicate how interdisciplinary learning in the programme is created, so qualitative analysis of individual interviews with nine students and nine lecturers from the programme is added. The sample of interviewees was purposeful and convenient although some students were sampled at random. Most interviews took a semi-structured format, while three were informal. The interviews were conducted in April and May 2022 and lasted between 20 and 45 minutes. Two-thirds were conducted over Zoom and the rest was in person. Thematic analysis was applied to explore perspectives of recent programme graduates and lecturers about interdisciplinary learning, which enabled addressing the second and the third objective of the project.

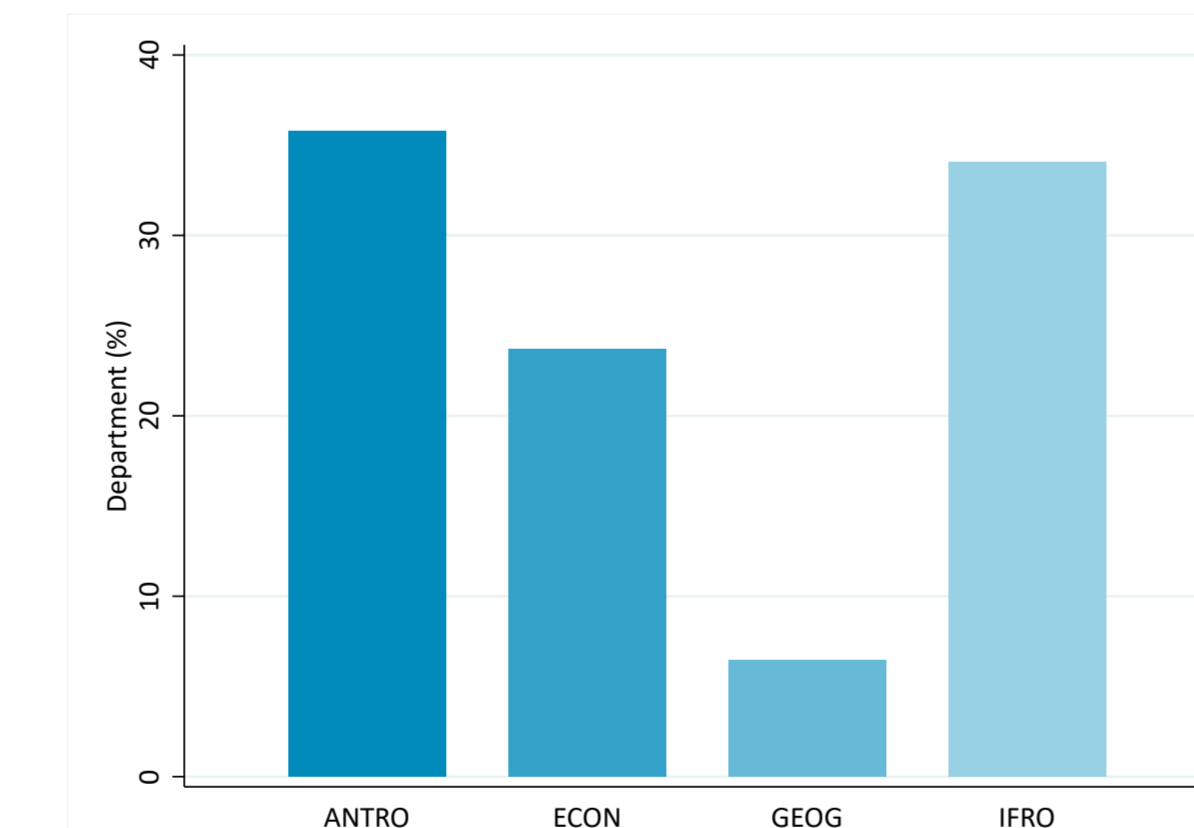


Figure 2. The distribution of MSc theses by participating departments

3. Results

3.1 Formal tests of interdisciplinarity

Figure 3 shows which MSc thesis discipline was selected by students with different BSc backgrounds. There is a large degree of discipline switching, in particular among bachelors in development studies and geography who tend to write their theses in the fields of anthropology or political science. A similar tendency is observed among those with political science background, who mostly write their theses in anthropology. However, students with BSc in anthropology/sociology and economics/business overwhelmingly choose the thesis in the same academic field. Using anthropology as a comparison category, Figure 4 shows how student's BSc background predicts the MSc thesis grade. The results indicate that compared to anthropology, students with a BSc degree in economics and political science obtain slightly higher MSc thesis grade, while students with a BSc degree in development studies or geography obtain slightly lower MSc thesis grade. However, these differences are not statistically significant. Also, there is no significant relationship between the student's BSc degree and the MSc GPA.

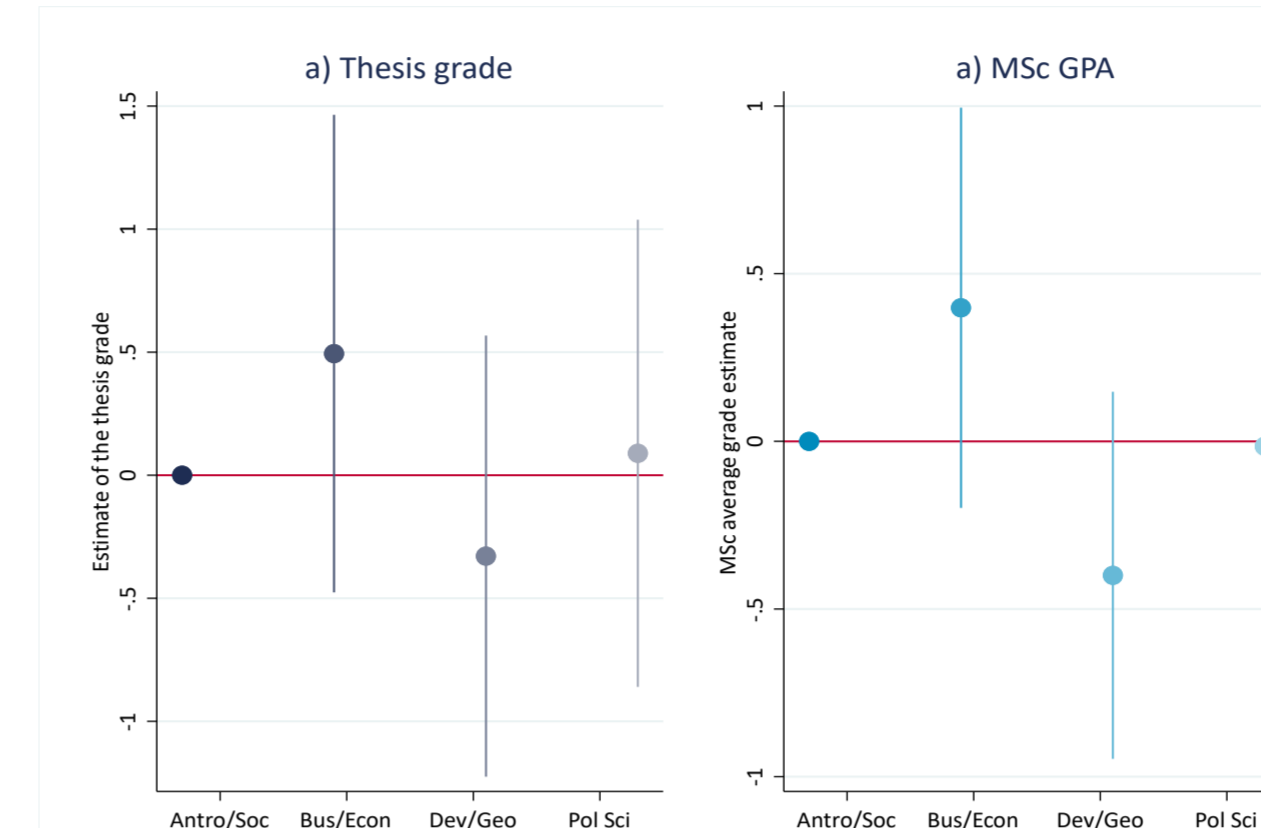


Figure 4. Do the thesis grade and MSc GPA depend on the BSc background?

The results shown in Figure 5 indicate that there is no significant relationship between the department where the thesis was written and the thesis grade or the student GPA. Compared to the Department of Anthropology, students writing their thesis at any other department were no more likely to obtain a higher thesis grade or have a higher GPA. This approach aims to account for different micro-cultures and expectations about the quality of student work, interactions with students and supervision styles prevalent in different departments at UCPH. It also accounts for the fact that some departments are more interdisciplinary than others.

3.2 Interdisciplinarity in the Global Development programme

The programme has several dimensions of interdisciplinarity. First, most courses are jointly taught by lecturers from at least two different departments. Second, many courses use reading materials from several fields of research. Third, many courses teach concepts created based on insights from several disciplines, e.g. economics, sociology and geography. Fourth, students are assigned into mixed groups comprising various BSc degrees. In principle, this setup should contribute to creating interdisciplinary learning in each course, but there are doubts that this is achieved.

The expectations about the level of disciplinary integration are divergent. Is it enough to stay at the level of using mixed methods or students should fully master synthesizing different disciplines?

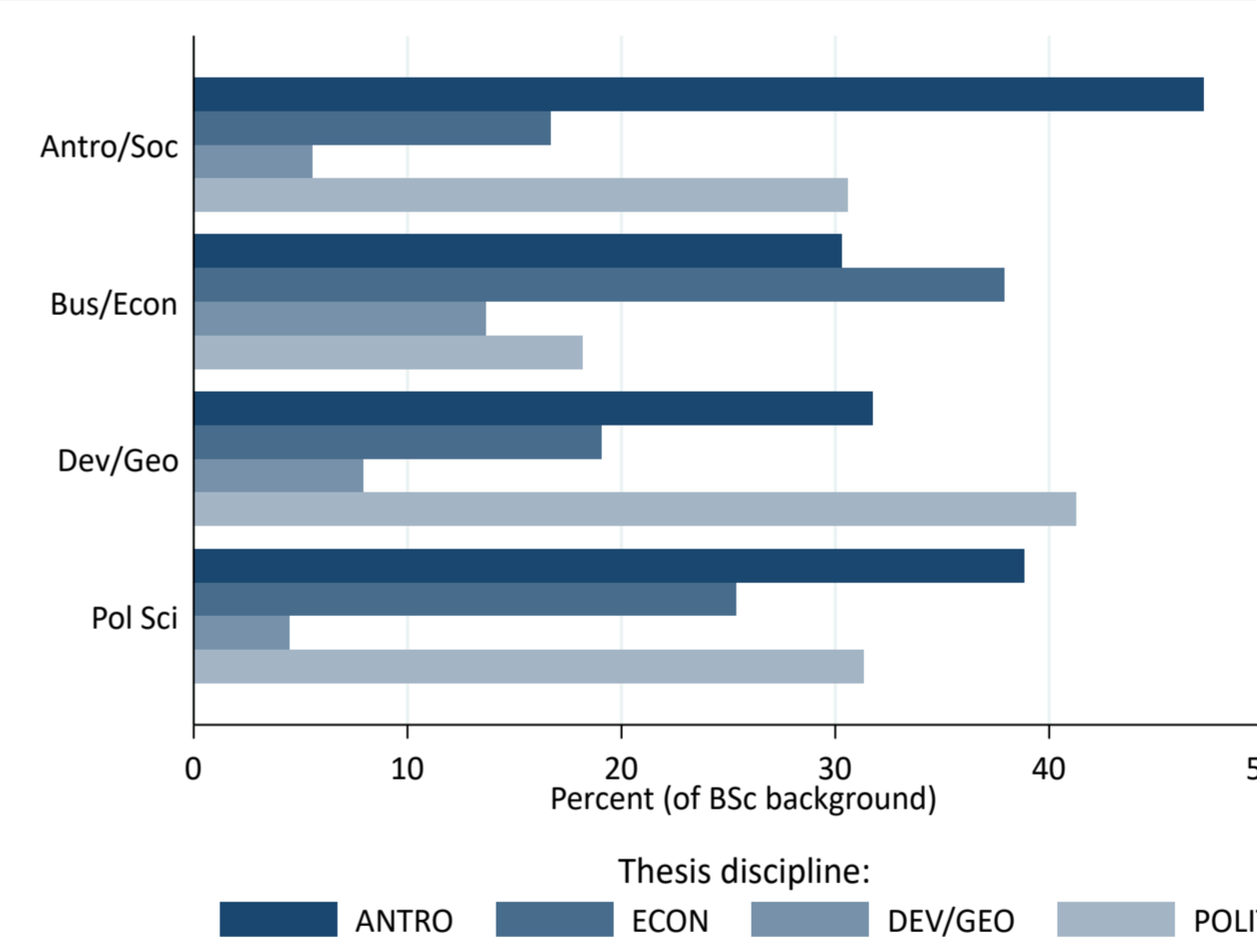


Figure 3. Disciplinary homophily: Does the choice of the MSc thesis area depend on the BSc background?

3.2.1 Methodological integration

Students have difficulties with econometric methods as the transition from the basic to the advanced level (needed when writing the thesis) is not smooth. I enquired about a possibility to formally require that students include both qualitative and quantitative methods in their course projects and theses (as now they should choose the most suitable method for the question they investigate). A shared perception across departments is that the Global Development students are not at the same skills level as single-discipline students. At the Department of Economics, students are advised to include some qualitative data to supplement the quantitative results to increase the quality of their thesis. The reverse – that a qualitative-based thesis is enriched by statistical analysis – does not take place. In fact, strengthening the quantitative components of MSc theses would pose challenges for qualitatively inclined supervisors. The mixed method mandate seemed like a reasonable idea only to lecturers from Economics and students with background in economics. None of the other backgrounds found this attractive. Even the students with economics background writing their theses outside economics were also not supportive of the mixed methods mandate.

3.2.2 Disciplinary fragmentation

Students show high awareness about different disciplines and this is considered to be one of the necessary conditions for crossing disciplinary boundaries (Fortuin and Bush, 2010). However, in many courses, perspectives from different disciplines seem to run in parallel and there does not seem to be much effort from teachers to integrate their disciplinary knowledge, which would in line with Klein's (1990) notion of interdisciplinarity promote an interdisciplinary learning environment and support students in achieving interdisciplinary thinking (Spelt et al., 2015).

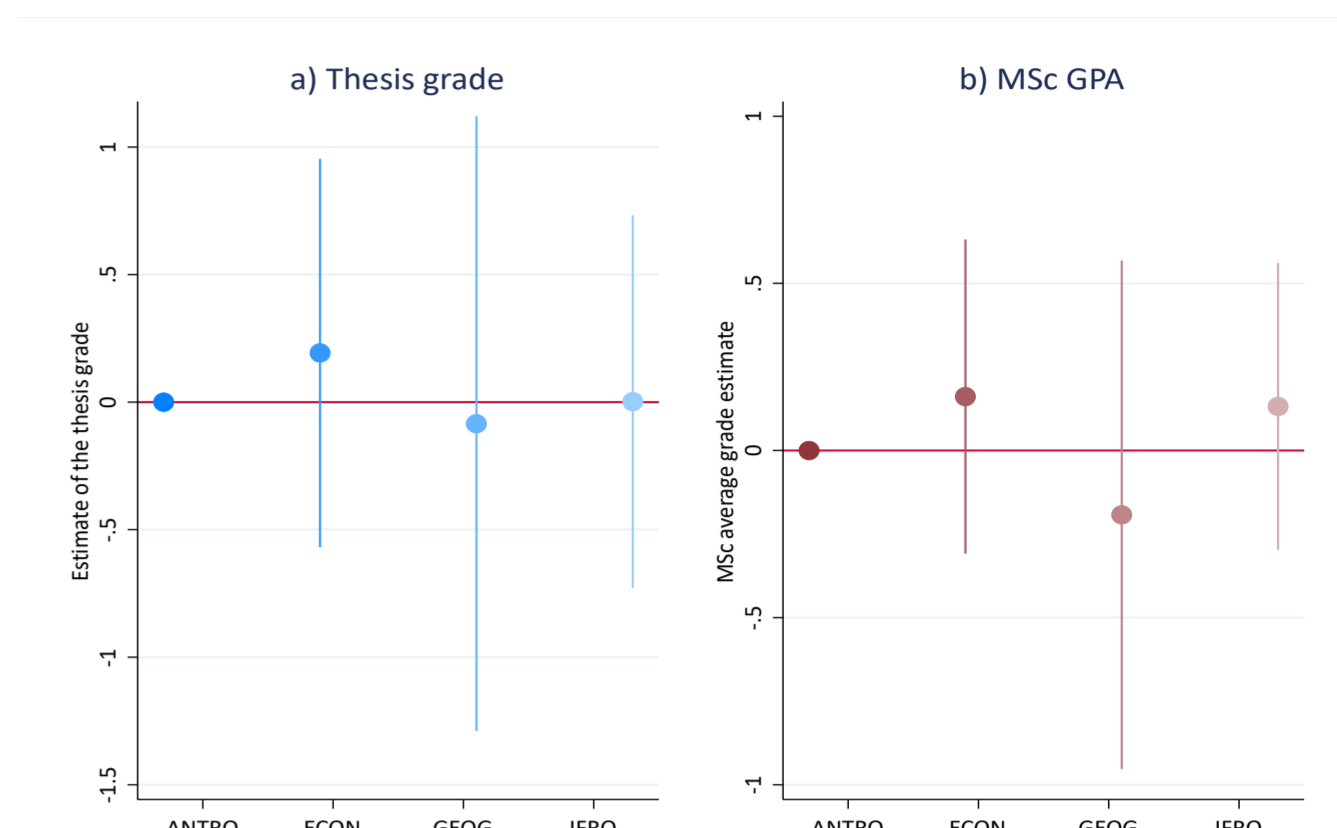


Figure 5. Do the MSc GPA and thesis grade depend on the department where the thesis was written?

A major stumbling block seems to be confrontational attitude towards other academic disciplines, described by one student as follows:

'Sometimes I think professors themselves were not the best proponents of interdisciplinarity because they found it hard themselves and it was not always a source of inspiration. If they don't recognize the other professor or the methods or in the classroom, that is quite detrimental for the whole purpose in itself.'

While the 'agonistic-antagonistic' approach to interdisciplinary collaboration can be fruitful (Barry et al., 2008), it may also hamper learning, as students may "fail to perceive ... the overlapping values or questions raised by different disciplines" (Ivanitskaya et al., 2002). The interviewed programme graduates emphasized a large role of the group work in resolving disciplinary antagonism, which entailed close collaboration with students from other academic disciplines. One student describes it as the '... most fruitful way of getting to the bottom of the problem', which is perceived as very helpful when working with other disciplines in the future. As professionals working in mixed teams, former programme graduates facilitate collaboration by 'translating' concepts, ideas and methods between colleagues with different backgrounds.

3.3 Surf or a deep dive?

For some, understanding the intuition, or as one lecturer stated 'surf[ing] over the issues' and combining qualitative and quantitative methods would be sufficient, while for others, the objective is for students to understand philosophical foundations of disciplinary differences. Both require a different kind of engagement from lecturers compared to current practice. Students felt a need for more teaching on how to integrate qualitative and quantitative methods. Lecturers emphasized a need for additional teaching of conceptualizations and philosophy of science assumptions in different disciplines. This is reflecting their awareness of the need for more sophisticated epistemic positions '... to accommodate complex pluralism of multiple disciplinary perspectives' (Golding, 2009). However, the programme focuses on educating professionals (University of Copenhagen, 2013b), not necessarily future academics, so implementing these additional components requires a highly pragmatic approach. Moving from antagonistic to more integrative collaboration between disciplines is perceived as highly desirable.

4. Conclusion

The quantitative results indicate that the Global Development programme shows high interdisciplinarity potential along several measures. Interdisciplinary learning occurs through antagonistic mode of disciplinary teaching, which can in the future evolve into a more integrative approach. Group work involving mixed student backgrounds enables not only the active student learning but also a good foundation for future professional life.

Other interdisciplinary programmes can incorporate some lessons:

- Promote active learning through group work with mixed student backgrounds.
- Replace antagonistic with integrative approach to interdisciplinarity.
- Balance the expectations about the level of methodological and theoretical disciplinary knowledge having in mind that the programme educates future practitioners, not academics.

References

- Barry, A. et al. (2008). *Economy and Society* 37, 20
 Boix Mansilla, V. and Duraising, E. D. (2007). *The Journal of Higher Education* 78, 215
 Bradbeer, J. (1999). *Journal of Geography in Higher Education* 23, 381
 Brint, S. et al. (2009). *The Review of Higher Education* 32, 155
 Fortuin, K. & Bush, S. (2010). *International Journal of Sustainability in Higher Education* 11, 19
 Golding, C. (2009). *Integrating the Disciplines: Successful Interdisciplinary Subjects*, University of Melbourne
 Honicke, T. & Broadbent, J. (2016). *Educational Research Review* 17, 63
 Ivanitskaya et al. (2002) *Interdisciplinary Learning: Process and Outcomes Innovative Higher Education* 27, 95
 Jacob, W.J. (2015). *Palgrave Communications* 1, 1–5
 Klein, J.T. (1990). *Interdisciplinarity: History, Theory, and Practice*, Wayne State University Press
 Richardson, M. et al. (2012). *Psychological Bulletin* 138, 353
 Spelt, E. et al. (2015) *European Journal of Engineering Education* 40, 459
 University of Copenhagen (2013a) *Master of Science (MSc) in Global Development*
 University of Copenhagen (2013b) *Profile and Career - MSc in Global Development*
 Van Noorden, R. (2015) *Nature News* 525, 306