**Why do female students leave philosophy?**

**The story from Sydney**

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The anglophone philosophy profession has a well-known problem with gender equity. A significant aspect of the problem is the fact that there are simply so many more male philosophers than female philosophers among students and faculty alike. The problem is at its starkest at the faculty level, where only 22% - 24% of philosophers are female in the United States (Van Camp 2014), the United Kingdom (Beebee & Saul 2011) and Australia (Goddard 2008).<1> While this is a result of the percentage of women declining at each point throughout the standard career trajectory, recent large-scale studies in the United States (Paxton et al. 2012) and Australia (Goddard et al. 2008) have identified a key drop-off point as the transition between taking introductory classes and majoring in philosophy. So why do disproportionately few female students choose to major in philosophy?

 There has already been a helpful discussion about possible causes. Any particular influence could stand out as the key cause, or it could be that multiple influences combine to form a “perfect storm” (Antony 2012). We will discuss these hypotheses only briefly here, since we have reviewed them in greater detail elsewhere (Dougherty, Baron and Miller forthcoming). We think it is helpful to divide the hypotheses into two broad families, according to when the relevant *effects* are felt by students.

 The first family, the “classroom effects hypotheses,” point to effects felt by students while they are at university. These include the claims that courses’ content does not include women or women’s interests (Walker 2005; Superson 2011; Friedman 2013); that philosophy courses poorly accommodate female students’ learning styles (Dodds & Goddard 2013); that philosophy classes have an adversarial style (Cooklin ms; Hall 1993; Moulton 1993; Dotson 2011; Wylie 2011; Friedman 2013; Beebee 2013); that philosophy courses have an unfriendly climate for female students (Haslanger 2008; Morganson et al. 2010; Beebee & Saul 2011); that female students’ intuitions differ from those of male students that get valorized in class as correct (Buckwalter & Stich 2014) and that female students lack role models in philosophy (Hall 1993; Paxton et al. 2012).

 The second family, the “pre-university effects hypotheses,” posit influences that have their effects on students before they arrive at university. These hypotheses have received less attention, but have been put on the map by Cheshire Calhoun (2008). Drawing on the work of Virginia Valian (1998), Sally Haslanger (2008) proposed that there are gender schemas, which code philosophy as male.<2> Haslanger claimed that the schema for being a woman is in tension with that for being a philosopher and as a result female students. In light of this claim, Calhoun speculated that female students might “find it harder to imagine themselves as philosophy majors, or at least suspect that being a philosopher and being female is a less pleasant, or less promising, option than other academic options” (Calhoun 2009, p. 218; see also Saul 2013; Beebee 2013). Two further pre-university effects hypotheses are: (i) female students arrive at university disproportionately considering philosophy to be unhelpful for achieving their life goals, particularly in the context of a gendered workforce (Calhoun ms) and (ii) female students are disproportionately averse to taking unfamiliar subjects, of which philosophy may be one.

 These are empirical hypotheses. So what evidence is there for evaluating them? We can find some indirect evidence in the literature on female under-representation in the so-called STEM subjects of science, technology, engineering and mathematics (Hill et al. 2010). But currently, there is only a little evidence specific to the philosophy profession.<3> In an ideal world free of resource constraints, the best way to remedy this would be to conduct studies uncovering fine-grained data at multiple universities throughout the profession. But given the practical constraints involved, a more feasible way of proceeding would be to follow the example of STEM fields, in which the problem of under-representation has predominantly been illuminated by studies that focus on uncovering fine-grained data at single universities. The hope would be that several such studies could provide rich detail on the profession as a whole.

 At the University of Sydney, we have tried to contribute to this broader strategy by testing the classroom effects hypotheses and the pre-university effects hypotheses by surveying students taking their very first philosophy course in 2013.<4> methodology and 5 Our method was to survey first-year students before and after an introductory 13-week course, which had components in ethics, metaphysics and aesthetics. It involved two large weekly lectures, and a weekly discussion section in classes of 20 to 25 students. Since it was a large course, we had a sample size of 123 students completing both surveys—a sample that was large enough to generate statistically significant results.<6> The survey asked students the extent to which they agreed with statements like "I can imagine myself becoming a philosopher", so that we could look for any gender differences in students' levels of agreement. By surveying students in the first lecture, we could look for gender differences that were the result of pre-university effects. By surveying them in the last lecture, we could compare their responses in the first and last lectures to see whether the course had a differential impact on the attitudes of students of each gender.

 In our study, the pre-university effects hypotheses were supported by two pieces of evidence. The first came from looking at the numbers of students intending to major at the first lecture. Almost two thirds of the students in the class were female. So if there were no pre-university effects, then we would expect a similar fraction of students intending to major to be female. But when we looked at the gender ratios of students intending to major in the first lecture, we found the statistically significant result that slightly less than half were female. The second piece of evidence for pre-university effects was the statistically significant gender differences in students’ attitudes in the first lecture: female students were less likely to believe that they could do well in philosophy, were less able to imagine themselves becoming philosophers, predicted they would be less comfortable participating in classroom discussions, and found philosophy less interesting than male students.

 Which pre-university effects hypothesis does this support? We found no evidence that female students considered philosophy disproportionately unhelpful for achieving their goals in life. But the hypothesis that students come into the classroom with a gender schema pertinent to philosophy was supported by certain clustering effects. What we discovered, using a broad correlational analysis, was that female students’ reduced interest, reduced confidence, reduced ability to self-conceive as a philosopher and reduced comfort in class all predicted one another. This clustering of responses is what we would expect if a gender schema were operative, since such a schema would likely encode a set of interrelated attitudes toward philosophy of this kind.

 As noted, the classroom effects hypotheses were not supported by any statistically significant evidence in our results. Overall, the gender ratio of students intending to major did not change significantly between the first lecture and the last lecture and we did not find any gendered patterns when looking at how students’ attitudes to philosophy had changed throughout the course. Insofar as we found gendered differences in students’ beliefs about themselves in relation to philosophy, these differences remained stable throughout the course.

 That said, it is perhaps notable that we equally did not find the classroom *positively* altered women’s perception of philosophy.<7> This could be significant because one might think that if the classroom experience were gender-neutral, then female students’ attitudes would become more positive, since exposure to philosophy would disabuse female students of their unfounded negative prior views about philosophy and their philosophical capabilities. Thus, there may be a sense in which the classroom had the effect of perpetuating the status quo.

 There are various reasons for caution concerning how much to infer about our failure to find evidence of certain classroom effects. It may be that a 13-week course is too short for certain classroom effects to occur. For example, it may be that some female students drop out as the result of the accumulation of many “micro-inequities” which are individually minor but add up over a long period of time to produce a significant effect (Brennan 2013). It may be that we were not testing the right attitudes, or that our methodology did not properly test the attitudes that we aimed to test.<8> It may be that there was something idiosyncratically female-friendly about this particular course. Alternatively, the results may be biased because we did not survey a random sample of students, but only those who turned up for the lectures.

 Moreover, even if the pre-university effects hypotheses explained why women did not major at the University of Sydney, there remains the all-important further question of whether this university is representative of either the Australasian region or the anglophone philosophy profession. Much further investigation at other universities would be needed to answer this question, and it would be premature to conclude either that pre-university effects are a significant part of the explanation throughout the Anglophone profession or that classroom effects are not. Here we only hope to have provided one piece in the larger puzzle.

 Where a significant cause of female under-representation is the existence of a gender schema that influences students before they arrive at university, what would this mean for tackling the problem? Even if this under-representation is not caused in the classroom, it might still be redressed by interventions in the classroom (Mackenzie & Townley 2013). We might disrupt gender schemas (Calhoun 2009), e.g. by improving the gender-balance of authors on syllabi or teachers in the classroom (Dodds & Goddard 2013; Saul 2013), or by placing female philosophers’ pictures in departments and on websites (Saul 2013). Alternatively, we might try to disrupt other stereotypes of philosophers, e.g. as poorly socially skilled, in case these features are particularly off-putting to women (Calhoun ms). Alternatively, we might try to neutralize the effects of gender schemas on students, by encouraging students (Saul 2013) or by protecting them from gendered stereotypes by designing activities that require them to reflect on personally important values (Schouten ms).

 But the existence of pre-university effects would underscore how serious these measures would need to be. Even if we include as many female authors on syllabi and female teachers in the lecture hall, “leveling the playing field” may not be enough to rectify a pre-existing gender imbalance.<9> Or it might do a lot. It is hard to know from the armchair. What we need is some data that tests how successful these interventions are.<10> One strategy might be a co-ordinated multi-university investigation. It would be interesting to look at the before-and-after gender ratios of intending majors in first year courses at many universities, and compare these with the gender ratios of syllabi and teachers. If universities with more gender-balanced syllabi retained more female students, then that would be evidence that this is an effective intervention.

 We will end with one last musing. A striking feature of the discussions about female undergraduate under-representation in philosophy is that these tend to focus only on the discipline of philosophy. The questions typically posed are: “What are we philosophers doing wrong?” or “Why are female students put off philosophy?” But this focus strikes us as too narrow. These students are not choosing between majoring in philosophy and staring vacantly at the wall for four years. They are choosing to major in other subjects instead. So it would be helpful to get a sense of where these female students are going.<11> This suggests that we should be asking not so much “Why don’t female students want to major in philosophy?” but instead a contrastive question like, “Why do female students prefer majoring in these disciplines to majoring in philosophy?” Answering this would require investigating not just philosophy, but the other disciplines as well.<12>

Notes

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1. For further detail on female under-representation in the profession, see Supporting Information 1.

2. A gender schema is “a set of implicit, or nonconscious, hypotheses about sex differences” which “are usually unarticulated” and their “content may even be disavowed” (Valian 1998, p. 2).

3. For testimony, see <http://beingawomaninphilosophy.wordpress.com>/. There are also 4 pieces of quantitative evidence. First, Paxton et al. (2012) found evidence that role models have an effect, finding a correlation between the number of female majors and the number of female teachers. Second, Calhoun (2009) finds evidence of pre-university effects at Colby College, for whom the gender ratio of students intending to major in philosophy when they entered university was virtually identical to the gender ratio of students who actually majored. By contrast, in our third piece of evidence, Helen Beebee and Jennifer Saul (2010) find that in the United Kingdom there is only a slight effect of pre-university effects: students choose their majors while still at high-school and 46% of the students who choose to major in philosophy are female. Fourth, at Georgia State University, Morgan Thompson, Toni Adleberg, Sam Sims and Eddy Nahmias (ms) found evidence against the hypothesis that philosophy classes are problematically adversarial or unfriendly, and found evidence in favor of the hypothesis that philosophy is perceived as impractical, the hypothesis that the content of courses is problematic in virtue of not having enough female authors on the reading lists and the hypothesis that gender schemas cause female students to be less interested, to be less self-confident and to find it harder to imagine themselves as philosophers than male students.

4. For further information on the course and survey participants, see Supporting Information 2.

5. For more detail on our results and analysis, see Supporting Information 3.

6. For a power analysis that shows the sample to be large enough, see Supporting Information 4.

7. Thanks to an anonymous reviewer for this point.

8. By probing students’ conscious beliefs, this methodology would neither detect changes in their implicit attitudes nor classroom interactions that students were unaware of (e.g. subtly discriminatory treatment.)

9. Also the actual gender balance can differ from the perceived gender balance. In our experience, students often use the pronoun “he” to refer to female authors.

10. An excellent example is the follow-up study of the Georgia State University investigatory team (Thompson et al. ms). From personal communication, we understand they are re-running their investigations, having improved the gender balance of the syllabus.

11. For demographic evidence concerning undergraduates, see Calhoun (ms). For indirect evidence in the form of demographics at the PhD level in the United States, see Supporting Information 5 which follows the analysis of Kieran Healy (2011).

12. For a discussion that approaches the issue, re-framed in this way, see (Calhoun ms).

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