

## Vertical Enhancement of Second-Year Psychology Research

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Wakefield L. Morys-Carter, Aspasia E. Paltoglou and Emma L. Davies,

### Abstract

Statistics and research methods modules are often unpopular with psychology students; however at Oxford Brookes University the seminar component of the second-year research methods module tends to get very positive feedback. Over half of the seminars work towards the submission of a research-based experimental lab report. This article introduces and reflects on some of the recent changes made to improve this coursework by increasing the similarities with staff research, specifically targeting the areas of supervision, ethical review, peer review and dissemination. These developments are aligned with the teaching fellowship project, Vertical Enhancement of Statistics and Psychology Research, and aim to encourage second-year students to treat their group experiments as part of the department's research activity, rather than simply as pieces of coursework. Enhancing this research-based aspect of the student experience teaching will hopefully, in turn, lead to higher quality third-year dissertations by increasing student enthusiasm for academic research.

### Introduction

At Oxford Brookes University, the seminars for the first and second-year research methods and statistics modules are organised and run by a team of three full-time psychology demonstrators. The team has been awarded a two-year teaching fellowship to support a project called Vertical Enhancement of Statistics and Psychology Research (VESPR). The main aims of VESPR are to improve the quality of student research and statistical understanding by enhancing the vertical links between different stages of the teaching and learning experience, both by increasing the continuity between consecutive methods modules and the encouraging interaction between cohorts. One aspect of the project is the development of a single knowledge base which can be used by students and alumni of all levels, including alumni. This virtual 'learning space' (Kolb & Kolb, 2005) has been created in an open Moodle platform, and contains resources

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and forums divided into the different stages of psychology research: review, ethics, research, analysis, writing and dissemination with an additional careers section which focusses on enhancement through volunteering and internships.

The second main aspect of the VESPR project is to support activities which encourage students to feel part of an active research community by increasing the correspondence between their research-based coursework and the studies they read in peer-reviewed journals. Third-year dissertations already have many similarities with postgraduate research, so the focus of the present article is a coursework component of the second-year quantitative module, worth 50% of the module mark. This is a research-based piece of coursework, for which students have to design, conduct and write up a simple experimental study, working in groups of five or six. They are not restricted to a particular area of psychology but their chosen study does have to be an experiment (manipulating at least one variable) needing only "light-touch" ethical approval and two to three weeks for data collection. It also needs to lend itself to analysis using ANOVA and the prediction of a two-way interaction.

Enthusiasm and interest in a subject is an important predictor of academic performance (Valiente, Swanson & Eisenberg, 2012), and this is often lacking in statistics modules (Davies, Morys-Carter & Paltoglou, in press; Davies & Jackson, 2014). As their first experience of conducting their own research, we believe that this second-year experimental study is a key step towards their understanding of psychology as a research-based science. It is therefore important to make this experimental study as engaging as possible, so that the students actively want to find the answer to their research question and think of their study as part of the larger body of academic work rather than treating it simply as a necessary piece of coursework.

The purpose of this article is to introduce and reflect on some of the ways we have tried to improve this coursework in recent years in order to increase the research expertise of our students. Some of these changes have occurred as part of the natural evolution of the module, and others have been more overtly connected to VESPR. However, apart from catering for networking and writing events, the changes we

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have made have no ongoing costs and should be sustainable beyond the lifetime of the project.

Demonstrators as supervisors.

Each seminar class has around forty students. In previous years, the students organised themselves into groups of four to six and were asked to decide the topic of their experiment with guidance rather than explicit direction from the demonstrators. During the semester, we (with additional postgraduate research students) would assist the groups as their needs arose. Some students rose to this challenge, but others found the process very challenging and wanted more direction. In addition, it was too easy for us to spend too much time engaged with the more innovative and interesting studies, potentially overlooking groups that were struggling and not asking for help.

Now, however, each demonstrator gives a very brief outline of their research interests (which broadly cover social, health and cognitive psychology) and the students then submit their preferences, in a form similar to the one used for third-year dissertation choices. The students are allocated equally to the demonstrators, who subdivide them into the normal group sizes based on their preferred topics. In each seminar class, we then work primarily with our own groups, ensuring that all groups are supported.

This change does seem to have improved enthusiasm towards the experiments, both by the students and the supervisors. For example, following demonstrator encouragement, one group recently conducted a study on the mooted benefits of walking meetings on creativity. They compared performance on a mental arithmetic task with a creativity task, with some participants standing and some walking while performing the task. Unlike most groups, who collected data on campus, this group made an extra effort to improve their study's validity by recruiting participants in Oxford city centre. Even though they found no significant effects of walking versus standing on their tasks, several months later one of their number demonstrated his continued enthusiasm for the topic by sharing a new study he had come across that successfully found a benefit of walking on creativity using similar methodology (Oppezzo & Schwartz, 2014).

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### Building on previous research

A key feature of academic research is that no publication stands alone. Each one builds on what has gone before and helps shape what comes after. Although our undergraduates do conduct literature searches in order to frame their research questions, the results from previous year groups are unpublished and therefore absent from their searches. In our institution this has often led to experiments being repeated from one year to the next, based on similar literature, with little regard to previous conclusions. As part of the VESPR project, we are seeking ways to actively encourage this progression of knowledge. While concerns of plagiarism would make it undesirable to make the actual coursework available to the following cohorts, the attachment of each group to a single demonstrator means that they can more easily adapt the outlines of their proposed research topics based on the results from the previous year. For example, one group working on creativity was informed by the previous study on walking meetings. This helped them design a study which showed significant effects of walking on creativity (although not when doing two creative tasks at once). In another group, a methodology involving temporary tattoos was employed that had been considered but not used during previous year.

### Ethical review

Since the second-year experiments are designed by students, and involve human participants from outside the module, they are subject to our university ethical review process. However, by avoiding vulnerable populations and sensitive issues, this review process is “light touch” so that once a study has been submitted for review it can be signed off straight away rather than having to be submitted to the university research ethics committee. A recent change in this area is to ask each group to do an oral presentation of their study in front of the whole class and the module leader (who does not otherwise attend the seminar classes). She then has an opportunity to assess the students’ understanding of their proposed experiment as well as their experimental material and participant information sheets. Explaining one’s study to someone who has not been involved in its creation is intended to give a much-needed experience of public speaking as well link to

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the more in-depth written ethics review process needed for third-year dissertations.

### Peer review

Peer review is an important stage in publishing research and its presence in the module helps make parallels between the steps towards submitting the coursework and the steps taken by academics for their own research. Students who attend peer review sessions are perceived as beneficial for their understanding (Stone, Mead and Watling, 2012). However, in common with Stone et al., we have experiences disappointingly low attendance, apparently because the students are unwilling to attend if they haven't finished their own draft. We encourage our students to pace their writing, but despite this most seem not to start writing until the final week before the deadline. This year we added a writing week to the seminar series, enabling us to move the peer review session into this final week, which did seem to result in somewhat higher attendance. Also, as part of the VESPR project, third-year students were invited to support the peer review sessions. Verbal feedback from students suggested that they appreciated this development. However, this seemed to be as much about giving the second-years an opportunity to ask questions about third-year dissertation topics as being focussed on the task in hand.

### Publication

As part of the VESPR project, third-year students were encouraged to apply to present posters of their dissertations at the BPS conference. The deadline for poster abstracts was early January so a writing retreat was organised in December to give interested students a focussed opportunity to write their abstracts with support from two of the demonstrators. Furthermore, in the second-year research methods module, three of Wakefield's groups had investigated different aspects of prejudice towards tattoos and we felt that the results were novel and interesting enough to consider publication. After the coursework had been marked, a selection of students who had received at least second class marks were invited to attend the December writing retreat with the goal of reworking the three studies into a single 1000 word journal article suitable for submission to Psych-Talk, the BPS student magazine. Despite the date of the retreat being last Friday

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before exam week, the response to this invitation was excellent and four students across the three groups attended. The student who had been awarded the highest mark was given the role of lead writer and asked to work on the introduction and discussion, while each of the others wrote method and results sections for their own experiments. Given that each of the original pieces of coursework had been around 2000 words, and the article they were working on had to cover all three, most of the writing was done from scratch.

Another group of students had studied prejudice towards facial piercings. During the semester, they had worked well together and chosen to go beyond the minimum requirement for the module by conducting a study with a two by three design. One of the students in this group was awarded a first class mark for his coursework, and the group was invited to the retreat in order to help rewrite his work, editing it down from 2000 to the target 1000 words. Four out of five of the students invited attended the retreat and earned their places as co-authors of the submission.

A room was booked for the writing retreat in a different building on campus, to take the students and us away from our normal environment. Catering was provided to make the day feel more special. The students provided their own laptops and each writing team worked together sat around a single table (in the same room as the third-years). At the end of a single day of writing, drafts of both articles were ready for final edits and submission to Psych-Talk for review. Both lead writers have volunteered to co-present their results at the 2015 BPS West Midlands Annual Conference in September.

### Student feedback

The following student feedback illustrates the viewpoints of the experimental coursework and some of the changes described above.

I thought that the choice element in the module was really useful because being able to choose our own study definitely helped with motivation on collecting the data and writing up the report because it felt like more of our own work, like we were actually contributing something to the field of psychology rather than just aiming for a grade.

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*Tom Smejka, second-year student*

I attended peer review for stats and found the experience very valuable, it gave me confidence in an area I didn't have much confidence in, particularly a subject that is so important for psychology.

Being a third year student I realise how important it is to take all that you can from statistics so that's helpful for dissertation work. So my advice would be take all you can from second year statistics!

*Katie Hannam, third-year student*

The demonstrators are excellent as well as the lecturers. Helped me to wrap my head around statistical concepts that I previously thought inaccessible. Got a chance to run first ever experiment which, was exciting and difficult but in a good way

*Anonymous module feedback, 2014*

Emma Davies was very helpful and excited about our Lab report. Making me motivated to work harder.

*Anonymous module feedback, 2013*

### Reflection

Research methods and statistics are taught at Oxford Brookes University using inquiry-based learning, as advocated by Healey (2005). The second-year group experiments are an example of research-based learning where the students conduct experiments of their own devising in collaboration with teaching staff and a vehicle for learning about the experimental method, ANOVA and interactions.

The VESPR project has already had a positive impact student engagement with this module, helping them feel that their work can have value beyond its grade. We will hopefully be able to build up a portfolio of student publications based on research conducted during the module, so that future students can both directly benefit from the previous work, and be inspired to conduct studies worthy of publication themselves. We do not yet have evidence of the impact of this publication experience on the students' dissertation grades, but next year we will be able to check whether participation was a significant predictor.

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The peer review sessions still need further development to encourage higher attendance. The quality of the experiments may also benefit from the improved communication between second and third-year students that we are encouraging through VESPR.

From our perspective as demonstrators, these changes have made teaching on the module a more rewarding experience. We each get more directly involved with the studies we support, supervising in areas that are more closely linked to our own interests. Publishing in collaboration with students is also an exciting opportunity, since by overlapping teaching and research we are able to increase the total time available for each separately.

## Conclusion

Students find this module enjoyable, which is sometimes unusual for research methods, and with the innovations described above we hope to harness this enthusiasm and use it to support their journey to the dissertation and beyond. Second-year group experiments have the possibility of being part of the department's research activity, either by acting as pilot studies or by producing publishable results in their own right. Treating them simply as a statistical exercise for course credit is a wasted opportunity in an academic world where time is precious, and time for research even more so.

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