CASE STUDY 5

Student-led Learning: Utilising Inclusive Assessment and Group Work to Promote Autonomous Learning and Student Engagement

Discipline:	Psychology
Student Numbers:	60 – divided into groups of 20 for each class

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Introduction and Context

The aim of this inclusive initiative was to engage students more fully in a 2nd year undergraduate Cognitive Psychology module by adhering to principles of Universal Design for Learning (UDL). The Cognitive Psychology module (10 ECTS) was delivered over the period of one academic year and was split 50/50 between lectures (5 ECTS) and laboratories (5 ECTS). There were approximately 60 students enrolled in the module, divided into groups of 20 (x3) for the laboratory component, with students participating in a 2-hour lecture every week and a 2-hour laboratory every three weeks. An inclusive assessment initiative was implemented in the laboratory

component of the course with a view to empowering students to become more self-directed, self-motivated, independent learners.

Conducting research is a central part of a Psychology degree, and a large number of the research studies that students learn about in Cognitive Psychology involve experiments of some kind. The process of conducting experiments and writing them up as scientific articles is often demonstrated in psychology laboratory classes, and in general the responsibility for developing and delivering experiments in the laboratories lies with the lecturer. In this case there appeared to be a general lack of motivation for students to fully engage with the laboratories - with low participation and attendance rates - and many students presented as being relatively passive observers of their education. To remedy these issues and to give students the opportunity to explore more deeply an area that interested them, responsibility was handed over to them for the running of the cognitive laboratories. Students were given a choice of their preferred topic from a list of the main topics covered in the Cognitive Psychology lectures, and worked within a small group to research and present an experiment based on their chosen topic, along with peer tuition on how to write laboratory reports (see Table 1).

Table 1. Topics & Laboratory Report Tuition Options

Group	Requirement
1a 1b 1c	— Delivery of experiment on the topic of **attention** to the lab group — Peer tutoring on **method** section of lab report
2a 2b 2c	— Delivery of experiment on the topic of **memory** to the lab group — -Peer tutoring on **introduction** section of lab report
3a 3b 3c	— Delivery of experiment on the topic of **problem solving** to the lab group — Peer tutoring on **results** section of lab report
4a 4b 4c	— Delivery of experiment on the topic of **judgement/decision making** to the lab — Peer tutoring on **discussion** section of lab report
5a 5b 5c	— Delivery of experiment on the topic of **language/reading** to the lab group — Peer tutoring on **abstract** section of lab report

By carrying out their own experiments and utilising different ways of learning such as teaching others, implementing what they had learnt, and researching something that interests them, I envisioned that students would gain a deeper knowledge of different areas of Cognitive Psychology and of writing laboratory reports. This structure provided an instructional climate of inclusive assessment and feedback by engaging all students fully, giving multiple methods of assessment, encouraging students to learn from and support each other, and providing scaffolded assessment (Burgstahler, 2013, O'Neill and McMahon, 2005). This method adheres to several of the principles of Universal Design such as developing a community of learners (by students working together as a group and tutoring each other), flexibility in use (by having options for different methods of presentation and choices around topic preference), tolerance in error (by having a relatively low-stakes option for the presentation, which also encourages risk-taking and creativity) (Meyer, Rose and Gordon, 2014).

Design and Implementation of the Initiative

The laboratory assessment brief was redesigned to incorporate assessment based on group work, independent research, and peer tutoring with a view to maximising student engagement, participation, and independent learning. Assessment grades were divided between group presentations, one group laboratory report, and three individual laboratory reports (see Table 2). The relatively low-stakes weighting for the presentation and the division of grades between multiple assignments was intended to encourage risk-taking and account for tolerance in error (Meyer et al., 2014).

Table 2. Assessment Weighting

Assessment Type	Weighting*
Group presentations – to include conducting experiment with peers & peer laboratory report tutoring (in group & on one-to-one basis)	10%
Major lab report (x1) – 2,000 words (to be written with group)	10%
Minor lab report (x3) – 800 words	30% (10% per report)
TOTAL	**50%**

*Note: the other 50% of the grade for the entire Cognitive Psychology module was assigned to an end-of-year exam

Structure of the Classes

Each week a different group presented some information on one of the topics relevant to the module (to coincide with the topic being covered in the lecture that week) and then led the rest of the group through an experiment based on the allocated topic, utilising class members as experiment participants. Once the experiment had been conducted, a debrief was provided by the presenting group for their participating classmates, and time was assigned for questions and answers. The presenting group then gave a tutorial to the class on the section of the laboratory report that was assigned to them. The rest of the class time was allocated to writing up the laboratory report based on the experiment, during which time the presenting group engaged in one-to-one peer tutoring on their assigned section of the report. Each week the lecturer also provided the class with a short presentation on different important aspects of writing laboratory reports, including: types of experimental design, American Psychological Association (APA) referencing, and how to label tables and figures (see Figure 1). These mini-tutorials were intended to give students a more in-depth understanding of the intricacies of the APA style and of aspects of psychology research that they found challenging. Time was also allocated throughout the year for peer review sessions where students could give each other feedback on their laboratory reports.

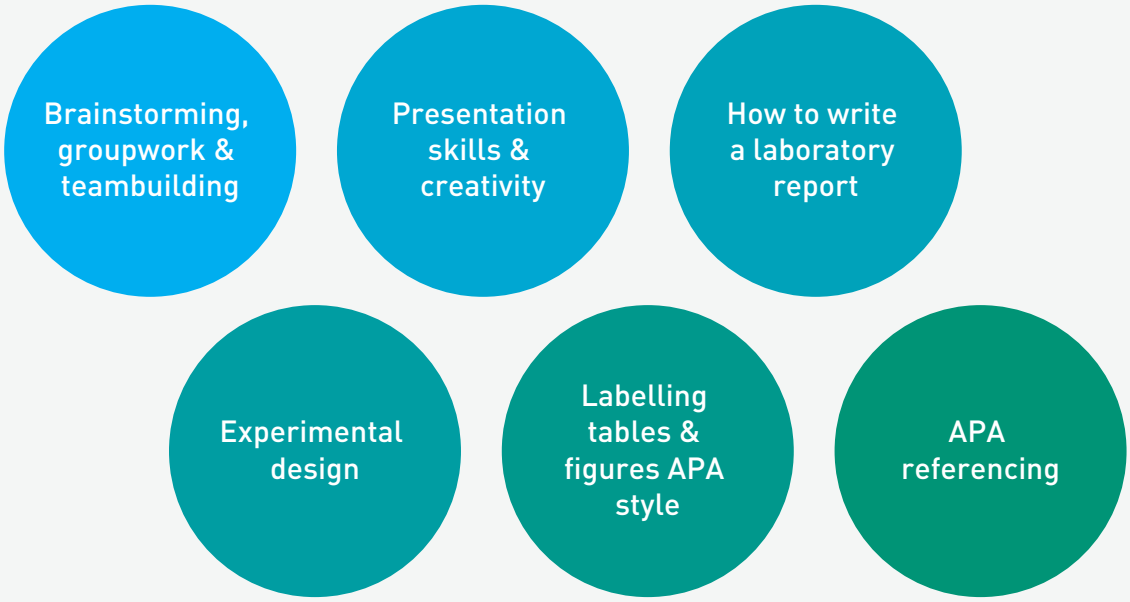

Figure 1. Mini-tutorials provided by the Lecturer

Presentations & Experiments

Students chose three to four of their peers to work with in a group for the year in order to allow them to become partners in assessment (Centre for Applied Special Technology (CAST), 2018), and were encouraged to choose their team mates based on their topics of interests. Students made their selection from the main topics covered in detail during the corresponding Cognitive Psychology lectures - attention, memory, problem solving, decision making, and language (see Table 1), ensuring flexibility in use by having a choice of topic to work on (Meyer et al., 2014). Each group was required to work together to research their topic of choice, develop an experiment based on this topic, and deliver it to their peers along with background information on the topic during the allocated laboratory class (see Figure 2). Students were required to provide enough information in their presentations to enable their peers to write up a laboratory report based on the information provided.

1	Present the class with some background information on your chosen topic (e.g. memory)
2	Lead the class through the experiment you have chosen and conduct experiment with peers as participants
3	Debrief / wrap up the experiment / answer questions from peers
4	Provide the class with some information on the section of the lab report that has been assigned to you (e.g. method section)
5	Email the results of your experiment and your slides to the lecturer after your presentation so that they can be distributed to the rest of the class via Blackboard
6	Engage in tutoring your classmates on your assigned lab report section

Figure 2. Step-by-Step Instructions for Students in Presenting Groups

The majority of students had received training in presentation skills during the first year of their degree, so the focus of presentation training in this module was on taking a creative approach and experimenting with alternative presentation formats. To further ensure flexibility in use (Meyer et al., 2014), students were given the

opportunity to choose an alternative presentation method, and were encouraged to be creative in how they delivered their presentation and experiment. The options suggested were: poetry, music, theatrical performance, dance, artwork, or posters. Students were also given the option of using a PowerPoint presentation, but were required to use some sort of prop to enhance their presentations. Team building exercises and ice breakers were carried out in the initial classes and were intended to create an atmosphere of ease between peers that would enable them to feel confident enough to step out of their comfort zone, take a creative approach to presenting, and create a community of learners.

Peer Tuition

Students were required to tutor their peers on one aspect of the laboratory report write-up (e.g. 'method' section) (see Table 1). This tuition took place after the students had made their experiment presentation. Again, students were encouraged to think creatively when choosing their method of communicating the required information, and were given the freedom to choose the form of their presentation for this aspect of the class. They were also required to be 'peer tutors' for the remainder of the class, and engaged in one-to-one tuition when required.

Laboratory Reports

Students were required to write up one major laboratory report with their group members on the experiment that they developed and delivered, and three minor laboratory reports (written individually) based on experiments presented by their peers. Each report was required to adhere to the APA format (see Figure 3) and include APA referencing throughout. This exercise was intended to provide students with in-depth practice of writing scientific research reports, and also of understanding the different components of APA journal articles and laboratory reports. The word count for the major laboratory report that students wrote with their group members was guided at 2,000 words, where the minor reports that were written individually were guided at 800 words. Each report was assigned 10% of the overall grade for the module (see Table 2).

Title	10-12 words Informative but not too lengthy Can be question or statement
Abstract	Brief overview of the report Describe small part of each section of report
Introduction	Background information What theory are you testing? State RQ & hypothesis
Method	Design Participants Materials Procedure
Results	Descriptive & preliminary Include a simple bar chart / pie chart / table
Discussion	Re-state hypothesis What do the results tell you? Support for theory?
References	List of references in APA style Use in-text references throughout

Figure 3. Laboratory Report Structure Guidelines

Group Work

Group work guidance was given to students at the start of term to encourage tolerance for error (Meyer et al., 2014) and consisted of tips on how to address any issues that might be encountered, team building exercises, and ice breakers. This assisted the group members to work together more effectively and to feel comfortable expressing themselves. Structured brainstorming sessions were also held during the first two classes, and students were given the space and time to work together on their project during each class throughout the year. Students were also encouraged to provide each other with feedback at the end of each class on their experience of working with their group on that day. These methods aimed to create a community of learners amongst the class (Burgstahler, 2018).

Results and Evidence of Impact

This initiative solved many of the problems identified as it ensured that all students were engaged with at least some, and in many cases all, aspects of the laboratories. They were required to work consistently across the academic year, to work with their peers to achieve their academic goals, and to pursue their passions and discover new interests in different topics covered on the module. There was an increase in independent learning amongst students, improved attendance, and improved student engagement, thus demonstrating Universal Design for Learning in action (CAST, 2018).

The success of this initiative was illustrated through increased attendance at the laboratories, positive feedback, and an increase in engagement within the class. Feedback was obtained via a feedback form at the end of the year, and during class time on a regular basis by speaking with students and through observing their interactions, levels of motivation, and energy in the classroom. Feedback was generally very positive and I noticed an increase in student enjoyment in the lectures as well as an improved rapport and improved depth of understanding of the subject material, as demonstrated by the quality of the assignments submitted. Students expressed how they enjoyed being able to engage more with a subject they were interested in and receiving tuition from their peers (see Table 3).

"I really enjoyed these labs. I liked doing the lab write-ups – they're good practice for 4th year, and it's good to get presentation experience"

Table 3. Examples of Student Feedback

What was your overall experience of the Cognitive Psychology laboratories?

— "I found them very interesting and each one was quite different. Easy to follow and overall enjoyable"

— "Fun, enjoyable – walked out each time knowing I had actually learnt something"

— "I thought there was a lot of feedback and help throughout. I enjoyed these labs and the CA [continuous assessment] a lot.

— "I enjoyed being taught by my peers and working with my friends"

— "I thought it was an interesting approach to learning"

What was the most enjoyable part of the laboratories?

— "The way that an experiment was held in each lab made it easier to understand the topic"

— "Interacting with the class and learning by teaching each other"

— "Participating in experiments that were peer organised"

— "They were all very different and interesting, and I liked that they were quite casual and made fun"

— "My favourite lab was the lab I presented myself. I liked it because it was a topic I'm particularly interested in"

There was a real sense of achievement from students after they delivered their experiments and made their presentations as they were able to feel proud of having developed their own experiment and sharing it with their peers. They also gained a deeper understanding of the process of writing a laboratory report through the peer tuition system, as it required that they fully understand their assigned section in order to be able to tutor their peers in it. Although the success of the classes was largely dependent on attendance, surprisingly this was generally not an issue and attendance rates were high. Once students realised that they were responsible for running the laboratories, they were generally extremely reliable and took their role seriously, with marked improvements in attitude towards to the labs in general and a genuine desire to participate more fully. The atmosphere in the class was markedly improved, and students appeared to work well together and encounter relatively little difficulties working as a group.

Advice to others for Implementation

Overall, I found that by handing over a certain amount of responsibility and freedom and enabling students to take more control over their learning, students engaged in deeper research on their chosen topics, became more self-directed, and developed a desire and passion to learn more about the subject. Although there was a lot of planning involved in drastically changing the structure of the laboratories, I found that the time invested was efficacious in relation to the benefits for students.

Future Planning

I would highly recommend to those who wish to implement this practice that they allocate enough time to plan accordingly. Some things that I would take additional time to plan for include:

- Building in time for additional teambuilding/ice-breaking exercises in week two to accommodate students who missed week one.
- Having a set of step-by-step instructions of the structure of the laboratories available in week one so as to better address any confusion about exactly what was required.
- Allocating a grade weighting towards the peer assessment element, as many students did not participate in this and thus did not obtain peer feedback on their reports.

— In future years I also plan to bring in some of the students from previous years to demonstrate their presentations so as to provide a physical demonstration for incoming students.

Clarity

Some students missed the first class and hence missed the induction to the laboratories that was designed to set them up for the year. It was difficult to remedy this effectively, as there was a lot of team building and ice-breaking during the first class. In future I plan to remedy this by sending an email to all students prior to the first class, emphasising the importance of attending. I also plan to send out an overview of the first class to students who were absent and to encourage them to speak to their peers or lecturer about the content and context of the laboratories before attending the next one. Some students also seemed a little confused and apprehensive about the alternative layout of the laboratories initially, and had many questions and queries about what exactly was expected of them. It was difficult at first to encourage them to take risks with their learning and to convince them to try something new. To remedy this confusion and apprehension, I set out a step-by-step list of instructions about what they had to do, and ran a 'sample laboratory' so that they had an idea of what was expected of them. I also developed additional instruction in creativity and ran additional team building exercises to help build confidence within the class. It did take some time for students to feel comfortable with the format, but I found that staying patient and believing in the process paid off eventually, and the majority of students got on board and enjoyed the alternative format.

Space Considerations

The space in which the laboratories took place had a great effect on the quality of the classes - a room that is too large, for example, makes it difficult for less confident students to be heard when presenting. The large computer room that I started the classes in was unsuitable for teambuilding and group work activities, which required a space free of the distraction of computers, with suitable room for students to move freely and engage in ice-breakers and team building activities. For the presentations, a small computer room was required so that students (a) had access to computers for computerised experiments, and (b) had access to computers for writing their laboratory reports. Ideally, a 'breakout' room would also be available for groups to work in together. This is not something I had fully considered before implementing this initiative, and in future years I plan to secure more suitable rooms.

References and Resources

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