Flipping the Classroom Effectively:
Evaluation Results from a Course
at the University of Queensland

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Abstract: The flipped classroom is regarded as a valuable approach to engage students more deeply in the learning process and as a strategy to promote active learning within the classroom. As more educators resort to it to enhance teaching and learning, it is important to assess its effectiveness and determine its pedagogical value. This paper examines the results of the evaluation of a flipped psychology course. The evaluation process was comprised of interviews, surveys and the analysis of clickstream data. The evaluation included the students, tutors and the course creators and it highlighted the aspects that were successful and the improvements that can be made in future editions of the flipped course.

1. Introduction

The flipped classroom is in many aspects, a student-centred model. In flipped courses the students assume the responsibility to review the content prior to attending the class and thus preparing independently (DeLozier & Rhodes, 2017). In a flipped classroom the content that is conventionally delivered in the classroom is made accessible to students with the assistance of technology, prior to the classroom, freeing the in-class time for discussions and practical application of the content (Foster & Yaoyuneyong, 2016). This application of knowledge is achieved via the development of active learning activities with real life relevance and aim to drive the students to a profounder understanding of the content (Natividad, Mayes, & Spector, 2015).

According to Abeysekera and Dawson (2015), the flipped classroom requires further research, a deeper focus on its evaluation and additional supporting theory. Nonetheless, there are reports of its positive effect at the level of content comprehension, learners' performance and particular skills development (Foster & Yaoyuneyong, 2016). The flipped approach empowers students to learn at their own pace, by allowing them to review the materials anytime and anywhere and to revisit them if necessary (Mok, 2014). Moreover, the flipped classroom's popularity is deeply connected with its ability to increase the amount of time that can be used for engaging activities (Milman, 2012).

This paper will begin by briefly outlining the main characteristics of the flipped classroom, its advantages and challenges and the issues related to its evaluation. It will then describe the process of flipping a course and introduce the methods that were used to evaluate it. It will conclude with the presentation and the subsequent discussion of the results of the evaluation.

2. The Flipped Classroom

There are several definitions of what constitutes a flipped classroom, but primarily this model entails the inversion of the events that ordinarily are allocated to the inside and the outside of the class, with the support of technology (Kim, Kim, Khera, & Getman, 2014). In the words of Mok (2014, p. 7) the "passive learning activities such as unidirectional lectures are pushed to outside class hours, to be replaced with active learning activities in class.". Usually, this model requires the students to review online lectures prior to attending the class in order to prepare for its learning activities (Mortensen & Nicholson, 2015).

The flipped classroom is connected to a variety of benefits that are driving educators to implementing it in their courses. From the viewpoint of the students, they become more in control of their education (O'Flaherty & Phillips, 2015); they can establish their own learning pace (Bergmann & Sams, 2014); they have the possibility to engage more actively in the classroom (Hutchings & Quinney, 2015); their learning outcomes can be improved (Thai, De Wever, & Valcke, 2017); in class, they can benefit from an increased support of the teacher and their colleagues (Danker, 2015); and they can elaborate on the resources and interact with them more intensely (Kurtz, Tsimerman, & Steiner-Lavi, 2014). From the perspective of the teachers, in the flipped classroom their focus shifts from the presentation of content to the guidance of the students in the application of the knowledge that they

acquired in the pre-class preparation (Lasry, Dugdale, & Charles, 2014). Also, the pre-class content delivery allows the teacher to have more time to promote student discussion and to assist the students that present more difficulties (Kurtz et al., 2014). In the flipped model the teachers' interaction with the students is increased (Danker, 2015).

Despite its benefits, the flipped classroom faces several challenges: teachers may require assistance in preparing the video lectures and other pre-class resources as well as the in-class activities for active learning (Moffett and Mill, 2014); teachers may experience some difficulty in creating high quality video lectures; not all students are successful independent learners; it is not guaranteed that the students will view or understand the lectures (Milman, 2012); it requires a significant amount of time to assemble the video lectures and other resources (Mok, 2014); teachers' perceptions about a decreased relevance of their role (Limniou, Schermbrucker, & Lyons, 2018); and the students may not be able to access the materials due to internet connection limitations (Danker, 2015).

The evaluation of flipped classrooms provided by some studies fails to specify which features of this approach have rendered more positive results, which would be valuable information to have in order to improve their design (Kim et al., 2014). In addition, direct and objective evidence of the flipped classroom's superiority in relation to the conventional model is lacking. The differences of implementation that exist for the flipped classroom approach and the wide array of in-class and outside the class activities constitute impediments of its evaluation (DeLozier & Rhodes, 2017).

Thai et al. (2017) compared the flipped classroom with three classrooms in different formats, traditional, blended learning and e-learning and concluded, through the application of a pre-test and a post-test, that the students had a higher learning performance in the flipped environment. The authors also measured the students' intrinsic motivation, their self-efficacy beliefs and their perceptions of flexibility, via two surveys (pre and post study). While the flipped classroom positively impacted their intrinsic motivation and their self-efficacy beliefs, their perceptions of flexibility remained unaltered in all four classroom formats. In contrast, Jensen, Kummer, and Godoy (2015) attribute the effectiveness of the flipped classroom to the adoption of an active learning, constructivist teaching approach. Through a quasi-experimental design, the authors compared student satisfaction and deep and low-level conceptual knowledge within a traditional active classroom and an active classroom that was flipped. Their conclusions show that both the students' satisfaction and the their deep and low-level of conceptual knowledge were similar in both classrooms.

Moraros, Islam, Yu, Banow, and Schindelka (2015) conducted a study about the effectiveness of the flipped classroom by asking the students to complete three separate surveys, one at the beginning of the course, the second one halfway through the course and the third at the end. The authors findings showed that there was no link between those who perceived the flipped classroom to be effective and their final results. In contrast their perception of effectiveness did positively impact their overall satisfaction with the course. Ferreri and O'Connor (2013) conducted course evaluations to collect the opinion of the students and reflective sessions and self-assessments to gather the viewpoints of the teachers. The students reported an overall satisfaction with the possibility of being actively engaged in the class, they had higher grades and they improved their verbal communication competences and their proficiency in team work. The teachers had a positive experience, but they demonstrated the reservations that they had due to the time that would be necessary to restructure the course.

3. Flipping PSYC1030

PSYC1030 is a course from the University of Queensland, Australia that was flipped during the 2016-2017 academic year. The course, entitled, Introduction to Psychology: Developmental, Social & Clinical Psychology, was traditionally organised into face-to-face lectures and tutorials. In its flipped version, it included Small Private Online Courses (SPOCs) for sections of the course (i.e. Social Psychology, Developmental Psychology, Clinical Psychology and Research Methods) where the content was delivered online with 1 hour of weekly face-to-face contact in either a workshop or a tutorial. The SPOCs replaced the lectures completely and constituted, hence, the only method of content delivery. Students were also required to complete a timed 10 minutes quiz and a tutorial worksheet each week. The schedule of the weekly online content, the tutorials/workshops and the assessment activities are detailed in Table 1. The final assessment item was a lab report with tutorials held to allow tutors to review and provide feedback on the students' work. In the workshops, the students were required to work in groups to produce a response to a topical question that was graded by the tutors.

Table 1: Schedule of weekly online content, tutorials/workshops and assessment activities used in PSYC1030

Week	Online Content and Activities	Tutorial/Workshops	Assessment
Week 1	Nonverbal Communication / The Self	Workshop - Introduction (data collection)	Weekly Quiz
Week 2	Social Cognition / Attitudes	Tutorial - Report topic	Weekly Quiz and Worksheet

Week 3	Persuasion / Research methods	Tutorial - Introduction section	Weekly Quiz and Worksheet
Week 4	Prejudice, Stereotyping/Aggression, Prosocial behaviour	Workshop - Social	Weekly Quiz and Group Written Test
Week 5	Psychological therapies/Anxiety & mood disorders	Tutorial - Critical Thinking	Weekly Quiz, Worksheet and Report Draft
Week 6	Schizophrenia / Stress and coping	Tutorial - Writing clearly	Weekly Quiz and Worksheet
Week 7	Mid-semester break		
Week 8	Health in later life/Measurement & intelligence	Tutorial - Method and Results	Weekly Quiz and Worksheet
Week 9	Personality	Workshop - Clinical	Weekly Quiz and Group Written Test
Week 10	Infancy / Attachment	Tutorial - Discussion section	Weekly Quiz and Worksheet
Week 11	Language Development / Adolescence	Tutorial - Report Writing Feedback	Weekly Quiz and Worksheet
Week 12	Social Development / Moral Development	Tutorial - Report Writing Feedback	Weekly Quiz and Worksheet
Week 13	Cognitive Development / Later life development	Workshop - Developmental	Weekly Quiz, Worksheet and Final Report

As per the recommendations from previous research (Guo, Kim, & Rubin, 2014), the video lectures were split into 3 minutes segments with online activities interleaved between videos. On average video segments were 3 minutes long with the overall duration of content estimated to be approximately 2 hours. The different types of video included in the online course are listed in Table 2.
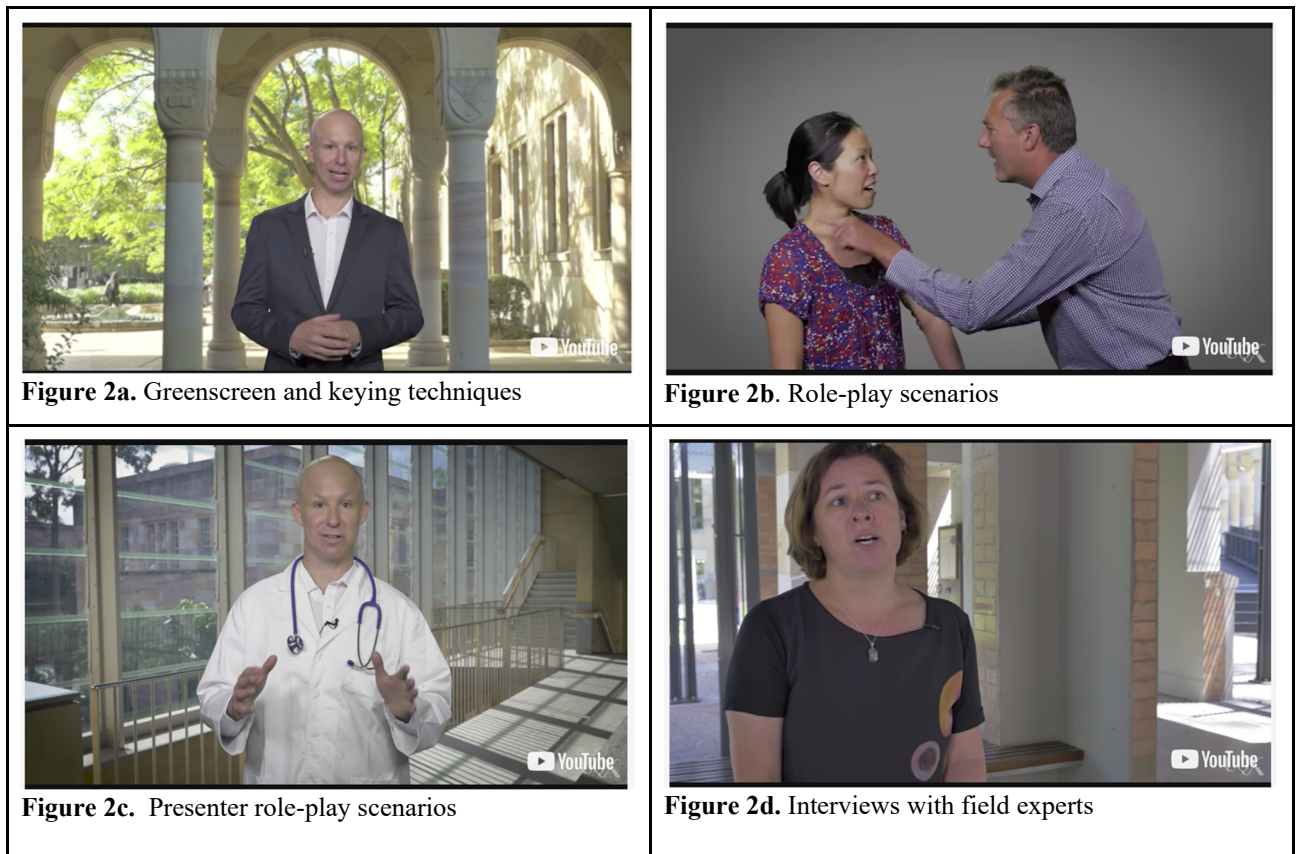
Table 2.Various Video Examples used in the PSYC1030

Figure 2a. Greenscreen and keying techniques

Figure 2b. Role-play scenarios

Figure 2c. Presenter role-play scenarios

Figure 2d. Interviews with field experts

Collaborative activities were embedded in the online courses using discussion forums, social polls and word clouds. Forums are valuables tool to foster communication and discussion (Miranda, Isaias, Costa, & Pifano, 2013) and they are a common feature in Massive Open Online Courses (MOOCs) to offer students with means of interaction (Miranda, Isaias, & Pifano, 2015). Activities also included the use of social polling in the form of word clouds generated from learners' responses and polls. Figure 2 shows the students' responses to the question, "What is the difference between a real smile and fake smile?". Advanced activities were also built to help the learner experience Psychology experiments such as Impression Formation (Figure 3) and Asch Conformity (see Figure 4). In the Impression Formation activity, learners where split into two group, they were shown different character traits and then asked to evaluate a person's level of generosity. The results were then displayed for learners to analyse the differences. In the Asch Conformity activity, learners were asked to evaluate the length of lines, but they were shown false responses from other learners. The results of the Asch Conformity activity were also included for learners to analyse at a later stage in the course.

Figure 2. Word cloud social polling

The in-class time in the workshops and the tutorials was structured to develop active learning activities. The workshops were designed to engage the students in group discussions and expected them to apply the knowledge that they had acquired in the SPOCs. Working in groups, the students were asked to write a joint response to a problem given to them a week in advance. The tutorials had the central goal of assisting the learners in the completion of their laboratory report, which was assessed.

The flipped PSYC1030 was the result of a team effort that gathered different expertise and functions and was composed of: a lead academic (course coordination, scripts, slides, video content and assessment), the course academics (presenting videos), the media team (video recording, editing, and video content creation), the technical team (tool and interactives development for formative assessment); a learning designer (video scripting and creation of formative assessment activities for the SPOCs); a faculty project officer (video scripts, quiz development, video content creation); and a team of beta testers (SPOCs revision).
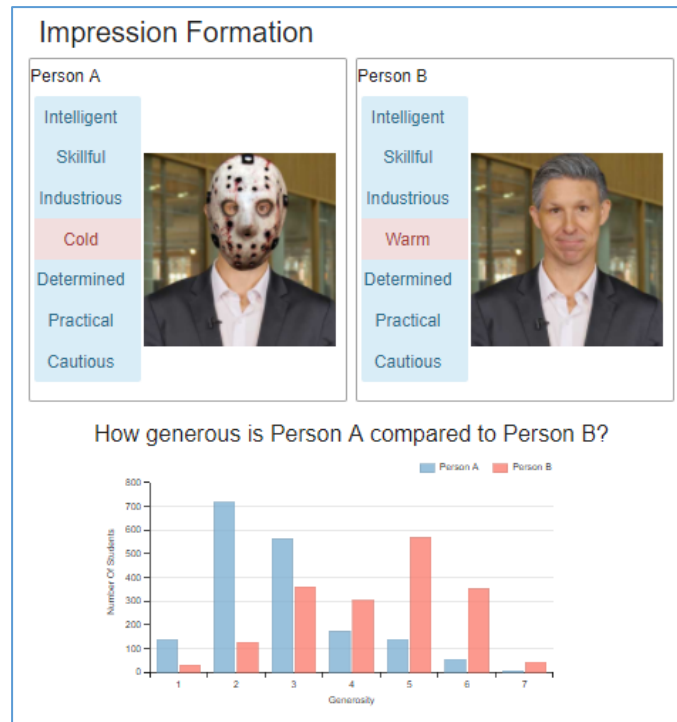
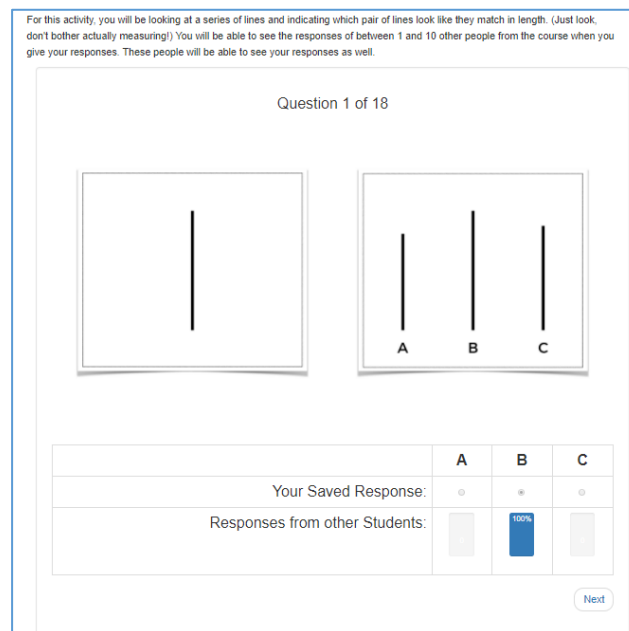**Figure 3.** The Impression Formation activity

Figure 4. The Asch Conformity activity

4. Methods

The assessment of the flipped PSYC1030 aimed to provide an encompassing depiction of the views of the three main stakeholders: course creators, tutors and students. In their evaluation, all the participants were required to reflect on the most and the least positive aspects of the course and recommend improvements for prospective editions. Using a mixed methods approach, the evaluation was composed of both qualitative and quantitative data collection instruments.

The course creators' evaluation of the flipped course was measured via semi-structured interviews. The tutors' appraisal derived from data collected from a survey with Likert scale items and open-ended questions, and semi-structured interviews. Students evaluated the course in an experience survey with Likert scale and open-ended questions, three surveys that were distributed after each of the course's main content blocks. The learner

clickstream data from the access to the SPOCs was also analysed. The quantitative sections of the surveys were analysed through descriptive statistics and the analysis of the open-ended questions and the interviews was performed with qualitative content analysis.

5. Results

This section presents the results of the different instruments that were used to collect data about the opinions of the course creators, the tutors and the students.

5.1. Course creators' interviews

In total, the course had 3 course creators who were all interviewed about the core aspects the flipped experience. Their views reflected, mainly, the perspective of the course development. Figure 5 summarizes the main findings of their semi-structured interviews.
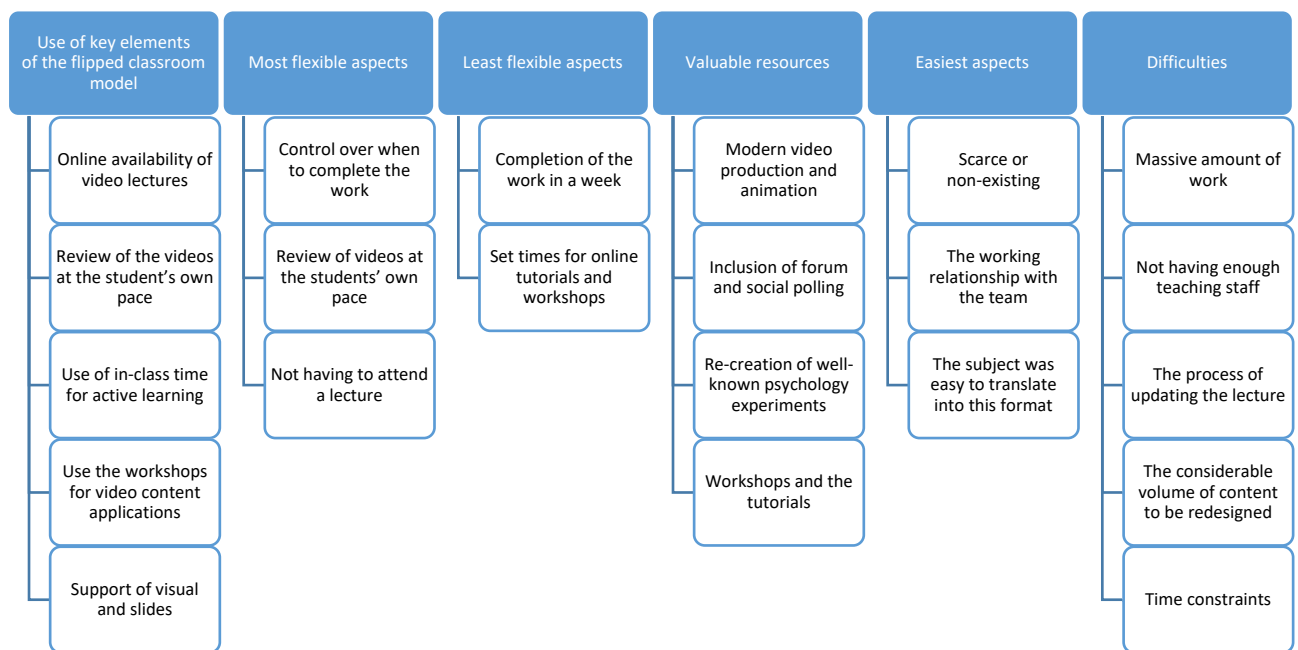
Use of key elements of the flipped classroom model	Most flexible aspects	Least flexible aspects	Valuable resources	Easiest aspects	Difficulties
Online availability of video lectures	Control over when to complete the work	Completion of the work in a week	Modern video production and animation	Scarce or non-existing	Massive amount of work
Review of the videos at the student's own pace	Review of videos at the students' own pace	Set times for online tutorials and workshops	Inclusion of forum and social polling	The working relationship with the team	Not having enough teaching staff
Use of in-class time for active learning	Not having to attend a lecture		Re-creation of well-known psychology experiments	The subject was easy to translate into this format	The process of updating the lecture
Use the workshops for video content applications			Workshops and the tutorials		The considerable volume of content to be redesigned
Support of visual and slides					Time constraints

Figure 5. Highlights from the course creators' interviews

According to the course creators, the flipped PSYC1030 course included the key characteristics of the flipped classroom format, namely the creation of online video lectures for the pre-class preparations and the use of the in-class time for active learning. On the one hand, the control that the students had over the completion of their work was one of the aspects that the interviewees found more flexible in this format. On the other hand, the fact that the work had to be completed in a week was one of the aspects that they found to be least flexible. In terms of the resources that were used, the participants highlighted the use of modern video production and animation, the possibility to include text to reinforce key concepts of the narration, the inclusion of social technology to promote interaction among the students and between the students and the teachers, and the workshops and tutorials for active learning. Furthermore, with respect to space, since the students face the front in lecture halls and these do not promote student discussion, tutorial rooms as well as rooms that could be reordered, were used to allow discussion. In the respondents' assessment of the flipped format, it was difficult for them to identify the easy aspects, but they ultimately highlighted the team work and the fact that the subject was easy to convert into the flipped model, since not all subjects are effortlessly converted into this approach. In terms of the difficulties that they felt during the process, they pertained mainly to time limitations, not having sufficient teaching personnel, and a massive amount of work, namely due to the need to ensure that the content was adjusted to fit the flipped approach. It was important to guarantee that the content was updated, that it looked professional and that is was copyright compliant.

At the end of the interviews the course creators were asked to suggest recommendations that could enhance the student experience in a future edition of the course. Their responses identified several elements that could be improved. Firstly, to assist students in their transition to this format, it is advisable to reduce the number

of topics covered at the start and to direct the students into using different learning strategies and addressing the work they do online like a combined lecture package. Secondly, it is essential to promote more discussions on the forums and use features to support them. Thirdly, the interviewees argued that to improve the learner's experience the teachers should identify the areas where the students present more difficulties and revise the manner in which they are delivered. Fourthly, more time needs to be assigned in the workshops to include a discussion of the content, rather than having the students pressured by or excessively focusing on assessment and not benefiting from a true conversation about the content.

5.2. Tutors' experience survey

9 of a total of 14 tutors of this course were surveyed about their experience with the flipped model that was implemented. The survey included both Likert scale questions and open-ended questions. The Likert scale questions regarded the workshop/tutorial learning experience, namely student preparation, learning activities and application of knowledge; the affordances of the integrated learning environment, in particular the suitability of the teaching spaces and their teaching experience; and the support granted to the students, specifically in terms of their queries, the provision of feedback and the access to the course materials. The results of the data analysis reflect an overall positive evaluation.

Only 33.3% of the tutors consider that the students in class were better prepared and that, within the face to face tutorial and workshop activities, the students successfully applied their knowledge and were able to participate in high level discussions with their peers. While 100% believe that the workshops were designed to incorporate learning activities involving high level discussions, problem solving, critical thinking and analysis of research study findings, solely 44.4% have the same opinion about the tutorials. Also, 100% consider that watching the pre-tutorial online videos, participating in the online activities and completing the pre and post quizzes provided students with a good understanding of fundamental course concepts. Around 77% agree that learning key foundational content prior to attending face to face tutorials and workshops prepared students for higher level in-class activities (discussions, problem solving, critical thinking and analysis of research study findings).

With regards to the affordances of the integrated learning experience, 88.9% believe that the teaching space is suitable both for the tutorials and the workshops and 77.8% enjoyed teaching the course and consider that co-teaching the workshops with other tutors and academics helped them to teach more effectively. In terms of student support, 88.9% consider they have addressed the students' course and assessment queries in a timely manner and that they were able to provide personalized feedback to students within the tutorials and workshops, and via the lab report draft. Approximately 66% of the tutors agree that the structured activities in the tutorials and workshops allowed them to more effectively help the students to achieve a higher level of understanding of the content. Moreover, 88.9% of them believe that the students were able to easily access the course materials.

The results of the open-ended questions revealed that the tutors elected the weekly quizzes, the tutor meetings and providing students with feedback on their draft laboratory reports as the most effective aspects. In contrast, the lack of tutorial engagement, the additional student support that is required for the laboratory report and the fact that more feedback should be given to students in the workshop were deemed as being the least effective elements. For future editions of the flipped course, the tutors recommend providing more engaging activities/content in tutorials and to enter feedback for workshop responses, in order to enhance their own experience. To improve the student experience, the tutors suggest creating more engaging tutorial activities, content and discussions.

5.3. Tutors' semi-structured interviews

With concern to the results of the semi-structured interviews, illustrated in Figure 6, reflect a comparison between the flipped model and the previous traditional editions of the course.
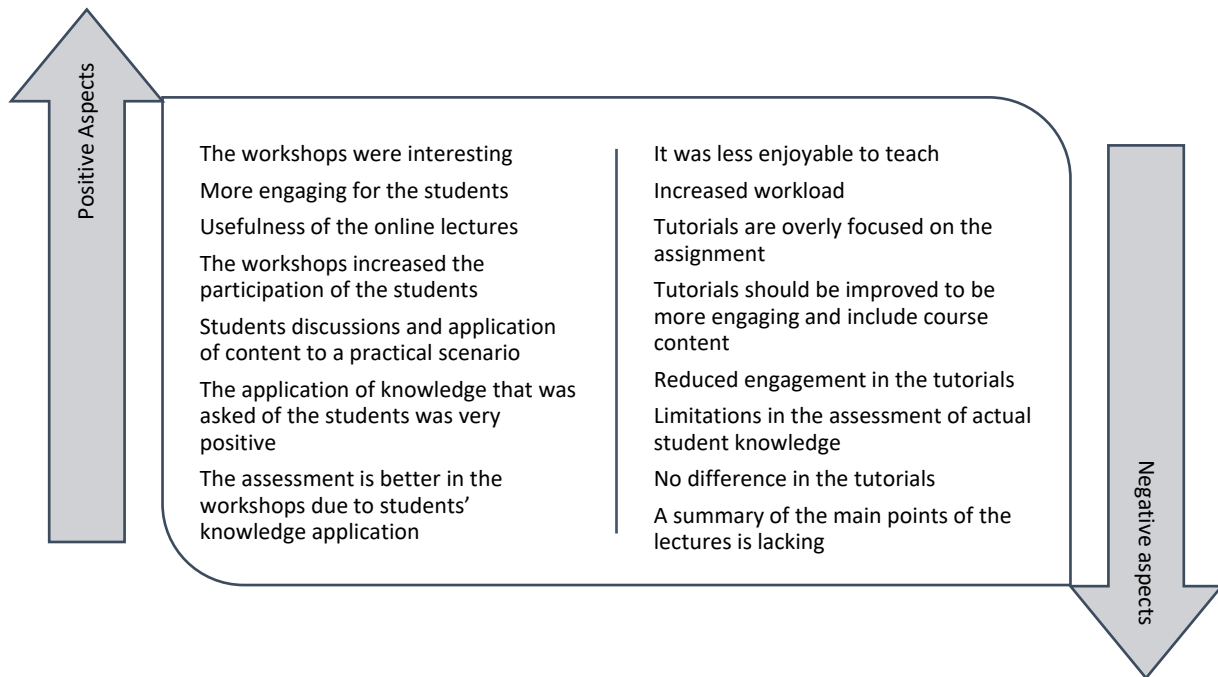
Positive Aspects (left arrow, upward)

- The workshops were interesting
- More engaging for the students
- Usefulness of the online lectures
- The workshops increased the participation of the students
- Students discussions and application of content to a practical scenario
- The application of knowledge that was asked of the students was very positive
- The assessment is better in the workshops due to students' knowledge application

Negative aspects (right arrow, downward)

- It was less enjoyable to teach
- Increased workload
- Tutorials are overly focused on the assignment
- Tutorials should be improved to be more engaging and include course content
- Reduced engagement in the tutorials
- Limitations in the assessment of actual student knowledge
- No difference in the tutorials
- A summary of the main points of the lectures is lacking

Figure 6. Summary of the tutors' interviews

The viewpoints of the tutors connect most of the positive aspects with the workshops and the majority of the negative aspects relate to the tutorials. The workshops were praised, mostly, for being interesting, for allowing the application of knowledge to practical scenarios and for allowing student discussion. The online video lectures were equally commended for their usefulness. In contrast, some negative aspects of the tutorials were noted, including reduced engagement, excessive emphasis on assessment and the lack of content discussion. Considering that it was a design decision to not include course content in the tutorials because that is what the workshops focus on, firstly, due to the lack of tutorial engagement, the tutorials should have more engaging activities and discussion. Secondly, they should be improved to be more interesting and valuable. Thirdly, they should be restructured to focus more on practical activities. Overall, the tutors also believe that the course was less enjoyable to teach, that a summary of the lectures is missing and that this format resulted in an amplified workload.

5.4. Student's experience surveys

The student experience survey received 237 valid responses. A more detailed analysis of these results can be consulted in Isaias, McKimmie, Bakharia, Zornig, and Morris (2017). The survey used Likert scale and open-ended questions, where the students were asked to compared PSYC1030 with other courses, using six indicators: course engagement, flexibility, assessment, instructional methods, interaction and collaboration and course format.

In terms of course engagement, 67.3% of the students claim that compared to other courses, PSYC1030' learning resources were more interesting. On the other hand, only 32.9% think that it offered more engaging classroom time and 31.2% believe that it enabled more face-to-face collaborative group work. Flexibility had more positive results: 77.1% of the respondents claim that it offered them more flexibility in terms of time management, 79.3% consider that it endowed them with additional flexibility with respect to organising their schedules and 70.1% argue that it was responsible for an easier access to the resources of the course. Similarly, the assessment indicator reflected a positive evaluation of the flipped format. Circa 77% of the students claim that the weekly quiz helped them to check/understand their material and 74.4% feel that they really understood the material. Furthermore, 80.8% believe that the assessment items prevented them from falling behind and 75.3% consider that the weekly quiz scores gave them a good indication of their level of understanding. In terms of assessment anxiety, only 36.5% claim that the assessment made them feel more anxious.

With concern to the instructional methods the students reported varying degrees of effectiveness. Around 59% thought that the instructional methods gave them the opportunity to apply their knowledge and increase their learning and 48.2% said that the instructional methods contributed to their preparation to interact with their peers and the teachers. At the same time, 74.1% said that the lecture content, activities, tutorials, and workshops increased their knowledge and understanding of the course content. With regards to interaction and collaboration,

47.4% believe that it simplified the consultation and interaction with the teachers in tutorials and workshops and only 36.9% thought that it facilitated additional interaction with their colleagues. Similarly, only 36.6% of the students said that it permitted more communication with the teaching team and 42.2% highlight that it supported further interaction in the online forums. Finally, considering the course format in general, 56.4% said that overall they preferred the new flipped format, while 7.1% indicated no preference and 36.4% preferred the traditional format.

In the open-ended questions, the students posit that the most effective parts of PSYC1030 were the online lectures, the weekly quizzes and the duration of the videos. According to the students, the online lectures offered them schedule flexibility and assisted them in managing their time. They also characterise them as being interesting, engaging, of high quality and easily accessible. The weekly quizzes were preferred by the respondents over a final exam, since they decreased stress and assisted the students to remain on track. According to the students, the duration of the videos (3 minutes on average) was equally suitable and they found the ability to pause, take notes and download the transcript useful. With regards to the least effective parts of the flipped PSYC1030 the students state that watching the online lectures and taking their own notes required a substantial amount of time (sometimes between 3 to 6 hours). Also, they believe that there was a lack of interaction with their colleagues and the teaching team and that the tutorials could be improved to be more interesting and valuable.

5.5. Student Surveys for Each Block

With concern to the student surveys of each block, the social block received 538 valid responses, the developmental block received 249 and the clinical block received 595. In terms of the learning goals for the three blocks, the students agree that they have all been achieved (the goals had levels of agreement between 81.2% to 94.7%).

The students were equally asked about particular aspects of the course: clear understanding of the aims and goals, clarity of assessment requirements, their learning in the course, the value of the learning materials, the videos and the feedback, and if the course was intellectually stimulating and well structured. All aspects received high agreement rates in the three blocks and insignificant disagreement rates with the exception of the appropriateness of the duration of the videos and the helpfulness of the feedback, that ranged between 11.49% and 24.3% through on the three blocks.

Overall, in the social block over 84% of the students rated the course lecturers as being outstanding or good and the overall course was considered outstanding or good by 83.08%. For the developmental block the student rating was equally over 84% and the overall course 86.1%. In terms of difficulty, the students consider the social block to be difficult 25.46%, 62.08% are neutral and around 10% believe it is easy. For the developmental block, 20.9% claim it is difficult, 63.3% are neutral and 12.5% consider it easy. With respect to the clinical block 23.2% deem it as difficult, 63.59% are neutral and 12.08% consider it as being easy.

5.6. Online Content Clickstream Analysis

The final results derive from the analysis of the online content clickstream of the students' visits to each of the SPOCs. In brief the patterns of student engagement with the SPOCs appear to indicate that the access was greatly influenced by the students need to prepare for the quizzes. Nonetheless, these levels of engagement are higher when comparing them with those of previous editions of the course in a face-to-face format. In the flipped format, the access to the SPOCs was superior to the attendance of the students in previous editions of the traditional approach.

6. Discussion

The fact that the evaluation of the flipped PSYC1030 included the course creators, the tutors and the students provided a comprehensive insight into what needs to be improved. In the majority of the aspects, the several viewpoints coincided. Their contribution resulted into a set of core recommendations for future flipped projects.

Hence, for prospective flipping ventures it is important that teachers become aware of the massive amount of work that flipping the classroom requires. The students' adaptation to the flipped model should be supported by the use of different learning strategies. Also for a better transition, the number of initial topics at the start of the course should be reduced, allowing the students more time to adapt to this new teaching and learning approach. In terms of the use of social technology and interaction, some respondents argue that more discussion on the forums should be promoted.

With regards to content, the evaluation showed that it is important to identify the areas where the students present more difficulties. The assessment of the content, through the application of weekly quizzes, should be maintained for the positive reviews that they obtained. While the workshops and the tutorials were useful, there are certain aspects that require improvement. The assessment revealed the need to provide more engaging activities, discussions and content in the tutorials. The workshops should be reorganised to include more time to

discuss the content. Moreover, the teaching team should enter feedback for the workshop responses and videos should be created to debrief the content.

CONCLUSION

The popularity of the flipped classroom approach needs to be substantiated with evidence of its effectiveness. The complexity of performing objective evaluations of this educational approach shouldn't be a deterrent of its application and assessment. Educators should design their flipped courses to include a comprehensive assessment of their experience to contribute to a growing body of research.

This paper focused on the process and evaluation of the flipped PSYC1030 course to provide a depiction of the procedures that were followed by the multidisciplinary team and to offer an encompassing assessment of the flipped experience. The fact that the evaluation of the course included the views of three main stakeholders, endows this research with a richness of viewpoints that illustrates several aspects of the flipped course and different concerns and suggestions for future editions.

Prospective research efforts should focus on applying the recommendations that derived from this experience to formulate best practices that can guide educators in their initiatives of flipping their courses. Also, in future studies it would be valuable to use focus groups composed of the different stakeholders and engage them in a direct discussion of their different viewpoints.

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