Chapter 8

Active Partners in Learning: Motivating Students through a Choice-Based, Student-Led Seminar Series

VANESSA B. PUETZ AND MINGHUI NI

Introduction

The need to empower students by recognising them as 'partners', co-producers and stakeholders in their educational experience has recently received widespread attention and recognition in higher education (Bergan, 2003; O'Neill and Wyness, 2005; Scott, 2006; Campbell, 2008). The degree to which an institution succeeds to empower their students or encourages them to believe in themselves and their abilities, can play a key role in determining academic success (Ashcroft, 1987; O'Keefe et al., 2013). Students who feel empowered by their academic institutions tend to perform better in their studies, report greater student satisfaction and have higher educational aspirations (Hagerty et al., 1996; Strayhorn, 2012; O'Keefe et al., 2013; Kirk et al., 2016). However, despite increasing recognition and awareness of the important role that student empowerment plays in student engagement and satisfaction in higher education, not all programmes include teaching strategies which foster a more autonomous role for students to shape their educational experience. Practices centring around so-called 'student-centred learning' (SCL) (Scheyvens et al., 2008) focus on providing the student with active learning opportunities, in which the student is seen as a co-producer and stakeholder in their educational experience (Neary and Winn, 2009; Cook-Sather et al., 2014).

One practical way to position students as co-producers in their learning experiences is through a student-organised and student-led seminar series (Worth, 2013). In these student-led seminars, students are given a choice as to what they feel is in their educational interest and they take responsibility for the preparation and presentation of the material to their peers, resulting in a greater sense of ownership, belonging, empowerment and motivation (Casteel and Bridges, 2007). In this chapter we present a project that was conceived within the framework of the UCL ChangeMakers funding scheme (https://www.ucl.ac.uk/changemakers/), which supports student-staff projects aimed at embedding UCL's educational framework to enhance the student experience (Fung, 2017). This educational framework, the Connected Curriculum (Ibid.), consists of six dimensions of educational practices centred around helping students to learn through research and enquiry (Ibid.). The six dimensions of the Connected Curriculum are as follows:

Dimension 1 – Students connect with researchers and with the institution's research;

Dimension 2 – A through line of research activity is built into each programme;

Dimension 3 – Students make connections across subjects and out to the world;

Dimension 4 – Students connect academic learning with workplace learning;

Dimension 5 – Students learn to produce outputs – assessments directed at an audience;

Dimension 6 – Students connect with each other, across phases and with alumni (Ibid.).

This chapter presents the implementation of the student-led seminar series that aimed to focus on two of the six dimensions of the Connected Curriculum: to connect students with researchers and with the institution's research (Dimension 1) and students connecting with each other, across phases and with alumni (Dimension 6). The student-led seminar is a concrete example of a project that can significantly enhance student empowerment in the form of active learning. We provide a rationale for implementing such a student-led seminar series, followed by a description of our experience running this project. We conclude with a detailed evaluation containing a discussion of outcomes with regards to several domains of student empowerment, student and staff reflections as well as recommendations for successful implementation in other curricula. The experience of the seminar series is reported by the lead staff member and Senior Teaching Fellow, Dr. Vanessa Puetz, and the lead student, Minghui Ni.

Rationale

In order to reduce demands on scheduling as well as staff and student's time and resources, we chose to implement the student-led seminar series in an existing module *Evaluating Research Literature*. This module is mandatory, albeit formative, for our postgraduate students in the Master of Research (MRes) Developmental Neuroscience and Psychopathology that runs through two consecutive terms. The module was set as a formative endeavour as the aim was to empower students to explore ideas freely, creatively and without the pressure of being formally assessed. Within this programme, there is a focus on developmental psychopathology drawing on multidisciplinary perspectives, with a specific emphasis on neuroscience. The *Evaluating Research Literature* module mainly aims to equip students with the skills needed to critically appraise published research literature in the field of developmental psychology. Considering that observations, such as the 'replication crisis', are gaining increasing momentum amongst academics and the general public, it is essential to teach students how to critically appraise scientific work and communicate this effectively. The traditional format for this is a so called "journal club" (Dwarakanath and Khan, 2000), in which students, individually, or in pairs, evaluate a research paper according to a set of guidelines that would also apply to a 'real-world' academic peer review. Findings are then presented to the group, which encourages discussion amongst students. Traditionally, the students get to choose from a set of papers selected by the course lead that reflect a wide range of published work, usually comprising original research. Journal club has been a popular teaching method in tertiary education (Rosenthal and Rosenthal, 2017; Fleenor et al., 2018). The major aims of the journal club are to present students with new information, provide a venue for shared discussion of relevant literature, and enhance students' critical thinking skills (Alguire, 1998; Edwards et al., 2001; Clark et al., 2014; Fleenor et al., 2018).

However, despite the active learning elements in the traditional journal club, such as student presentations and peer-led discussions, this teaching format is not without pitfalls. One common pitfall is for the session to become a passive learning experience for all the students except the one responsible for presenting the article (Rosenthal and Rosenthal, 2017). In part, this is due to the focus shifting from the lecturer to an individual student rather than the group of students, thus creating a similar monodirectional learning experience, as is the case in traditional teacher-centred approaches. Other students are therefore not motivated and involved to read and appraise the article to the same degree as the student presenter. As a result, there tends to be a great amount of variance in the level of student engagement and received benefits from the discussion. In worst case scenario, the student presenter ends up summarising and paraphrasing the key points from the article, instead of critically appraising it (Ibid.). In the

absence of peer input and discussion, the journal club results in minimal benefit for all present, including the student presenter.

In addition, the list of papers is usually chosen by the course lead and can suffer from similar selection biases, as has been reported for other curricula and reading lists in higher education (Yancey, 2010), often yielding very limited potential for identification and inclusion of our students of diverse backgrounds, including those from Black and Minority Ethnic (BME) backgrounds (Singh, 2009). In addition, there is very little to no engagement with the scholars involved in the published work. While the ability to critically appraise a researcher's work is key, so is the ability to engage in a real-world debate with the institution's scholars, whilst adhering to academic etiquette (Schulz, 2008). The detachment of students from the institution's researchers in this way has been named as one of the major obstacles in developing a sense of belonging to an institution and identification with its research profile (Fung, 2017).

In the second term, the course lead decided to implement a student-led seminar series in this already existing mandatory formative module to address the shortcomings of the traditional format by focusing on the following three domains of student empowerment:

a) Student-centred learning (SCL) – achieved through independent topic choice.

b) Increased workplace skills – critical appraisal, verbal and written presentation, academic etiquette (i.e. inviting/engaging with the speakers), leadership, and discourse.

c) Creating a sense of belonging – to the institution's researchers and their work by choosing topics and speakers of non-WEIRD (Western, Educated, Industrialised, Rich, Democratic) (Henrich et al., 2010) populations (BME discussion and example).

Methods

The student-led seminar series consisted of two interactive parts, student presentations, including discussion, and presentations given by guest speakers, including both internal faculty members of the University and external professionals. Students first gathered to brainstorm about topics of interest that would fit the following theme: 'Updates on child development: Identifying new challenges and opportunities for today's youth'. This process of brainstorming and effectively negotiating the curriculum yielded a list of topics that students felt were complementary to their courses and relevant to the current political climate as well as their own experiences including: i.) mental well-being in LGBTQ + youth; ii.) developmental challenges associated with immigration and social mobility; and iii.) childhood and adolescence in the digital age. Following the selection of topics, the students divided themselves into three groups based on their preferred topic. The students in each group brainstormed independently about the outstanding questions for each topic, major discussion points, potential speakers they wanted to invite, and the order of the presentations. The first student in each group selected a paper that they would like to present based on the initial discussion. The rest of the students in the group chose papers that built on the discussion of the previous paper(s). For example, if the discussion of the previous paper inspired students to think about a particular aspect of the issue, the next student in the group could select a paper that provided further insights into that particular aspect. All selected papers had to fulfil the qualitative requirement of being published

in a peer-reviewed journal, as well as being published within the last five years. The staff member and course lead supervised the selection of papers.

Student Presentation and Discussion

Each week, the students and the course lead gathered as a group for one hour. The lead student presented the paper for 15 to 20 minutes and the remainder of the session was dedicated to discussion and critical appraisal of the work. Students were prompted to raise any questions they had about the study, critically analyse it and discuss how this paper could benefit our understanding of the current research topic. After each week's discussion, the lead student was responsible for writing a summary of the paper, as well as the students' discussion of it for their online blog. The students established this blog (https://blogs.ucl.ac.uk/dnp-seminarseries/) to create an outward facing platform on which their ideas and discussions could be made accessible to a wider audience, such as parents and teachers interested in child development issues. Within two sessions, the students had negotiated and established a curriculum for the project, that included articles to discuss and speakers to invite.

Example Session

One of the strands of topics the students had chosen to investigate further involved an enquiry into the current state of research investigating the developmental challenges associated with immigration and social mobility. The first student in the group launched the topic with an article by Hair et al. (2015) investigating the role of structural brain alterations in explaining the relationship between household poverty and academic performance. Through the discussion of this paper, students consolidated their knowledge about structural brain imaging and their understanding of the limitations of the method. From this discussion, the students set out to learn about the developmental aspects of socio-economic status on brain development. A different student then selected a paper that investigated the associations among cortical activity at birth, family socio-economic status, and infants' cognitive skills at 15 months (Brito et al., 2016). One criticism highlighted that both of the studies were based on samples in the United States, so the students set out to investigate if these findings were generalisable to other countries. The next student in the group discussed a paper on child development in rural China (Wen and Lin, 2012). The study investigated the psychological, behavioural, and educational outcomes of children who lived in rural areas of China while one or both of their parents left them to work in cities and investigated their subsequent psychological, behavioural, and educational outcomes.

Under the topic, childhood and adolescence in the digital age, students also chose research articles from different perspectives. The first student in this group was concerned about how social media – which most adolescents use nearly every day for prolonged periods of time – influenced their social and emotional development. Driven by the concern, this student selected the paper by Sherman et al. (2016) that investigated adolescent participants' behavioural and neural responses to 'likes' on social media. Another student, in contrast, was interested in how technology development in the digital age could potentially provide opportunities for child development and therefore selected a paper by Didehbani et al. (2016), which focused on how a virtual reality training paradigm might benefit children and adolescents with high functioning autism. Following the discussion about this paper, the students became curious about how new technologies could further contribute to child development more generally. Therefore, another student in the group identified a paper that focused on the contribution of developmental

robotics to the study of developmental psychology (Cangelosi and Schlesinger, 2018). Since students were provided with the chance to identify their own papers of interest for presentation, each of them brought in their own understanding of the topic. As a result, the group as a whole benefited from different perspectives and insights. This exercise outlines the way in which all students can take more responsibility for their learning and be an integral part of the education process, which is both empowering and gives them greater confidence.

Guest Speaker Presentation

The student-led seminar series also involved encouraging students to invite guest speakers who conduct research in the field of their chosen topics to share their experiences, recommendations and career paths. The students and the staff member discussed a list of potential guest speakers from inside the organisation. Upon agreement, each student in the group took responsibility for sending out an invitation to one of the potential speakers. Writing the invitations was practiced in the group and proved to be an excellent opportunity to discuss academic etiquette and professional code of conduct. Based on the guest speakers' availability, the schedule was set. In each session preceding the guest speaker's presentation, the academic speaker was first introduced by the lead student, who collected and shared information with the group on the speaker's biography and body of work. Disseminating the key information in this way ensured that all students were informed about the speaker's work and felt more comfortable engaging in the dialogue. In the following session, the guest speaker then presented their research for 45 to 50 minutes and then engaged in discussion with the students. Throughout the term, the students received very positive responses from faculty and they successfully arranged seven guest speakers to present in our seminars. For example, under the topic of developmental challenges associated with immigration and social mobility, the students invited a guest speaker whose research primarily focuses on developing a conceptual framework for the psychology of poverty and low socio-economic status. Complementary to students' presentation and discussion of papers that investigated the developmental influences of socio-economic status, this guest speaker's session enhanced students' knowledge of the psychological mechanisms underlying the impact of poverty and low socio-economic status on young persons' well-being. The student presentations and guest speaker presentations were complementary and provided different perspectives on the same topic.

Discussion

The decision to change the traditional format from a lecturer-centred format to a choice-based student-led seminar series was made to empower students by increasing active participation and engagement through student-centred learning, increasing workplace skills and creating a sense of belonging to the institution and its research by connecting with the researchers. In the following section, we will provide a more in-depth evaluation of how the project impacted upon these three domains within which student empowerment can occur.

Student-Centred Learning (SCL)

One of the most efficient ways to increase student empowerment is to shift the emphasis in the classroom away from the expert teacher to the students themselves (Barr and Tagg, 1995; Lea et al., 2003). Traditional approaches in higher education see the lecturer as the centre of the

classroom with a clearly defined role to transmit content to the students through lecturing. In this model, the student is treated as the novice and is presented with information from the expert, rather than being the constructor or co-producer of this knowledge. It has frequently been emphasised that shifting this focus from the lecturer to the student can be a successful way to increase student empowerment for several reasons (O'Neill and McMahon, 2005). First, the shift in power from lecturer to students acts as an equaliser between learners, which significantly increases the students' sense of independence, autonomy and empowerment. Second, putting students centre stage in the creation of their learning makes them active learners, which leads to increased skills development and greater engagement with the material (Estes, 2004; Brown, 2008; Wright, 2011). Thirdly, giving students greater autonomy in the classroom also implies that students get more choice in how and what they learn. This choice means that the lecturer acknowledges that the students are also experts in certain areas of knowledge. Letting students choose seminar topics, for example, provides course leads as learning facilitators with unique insights into the educational needs of their students (Donnelly and Fitzmaurice, 2005). This is a particularly important opportunity for students of diverse backgrounds (ethnicity, 'race', religion, disability, or sexual orientation), who often do not feel represented in the existing curricula (Loo and Rolison, 1986; Quaye and Harper, 2007, 2014). For these students, choice-based learning presents an opportunity to get actively involved in shaping the curricula towards more diverse and inclusive content. Placing the choice of what students learn and how they learn back into the learner's hands is then one of the core principles underlying student-centred learning (Burnard, 1999) and is in line with a greater emphasis on autonomy and independence in the modern workforce (Lewis et al., 2010; Slemp et al., 2018).

Student-Centred Learning in the Present Project

The initiative to change the traditional journal club to the student-led seminar series was unanimously welcomed by the students, who valued the freedom of choice despite the additional workload that this choice entailed. Acknowledging the relevance of student-centred and choice-based learning, the course lead and students created the seminar series around the students' ideas. Choice was placed in the student's hands from the beginning of the project by asking them to brainstorm about topics of interest that would fit the theme, 'Updates on child development: Identifying new challenges and opportunities for today's youth and negotiating the curriculum'. Students also had the autonomy to choose articles they found meaningful, interesting, and relevant to share and discuss with the group. In the seminar series, students became the active producers, instead of passive recipients, of the learning content.

Increasing Workplace Skills

The second dimension of this project was to increase student empowerment by increasing their workplace skills. Providing opportunities to acquire skills that students need in order to be competitive in the workplace is one of the major challenges faced by higher education institutions in the twenty-first century. A recently published report by Quacquarelli Symonds (QS) and the Institute of Student Employers (ISE) (QS, 2018) highlights that there is an increasing mismatch between the skills attained in university and the skills needed in the workplace. The development of soft skills, like teamwork and leadership, are as important as the technical knowledge required on the job. In their report *The Global Skills Gap in the 21st Century*, QS (2018) identify the top five most important skills for employers globally as: problem solving, teamwork, communication, adaptability and interpersonal skills. It has often been pointed out that despite the efforts made by higher education to emphasise the

development of transferable skills in their curricula, much more has to be done if students are to acquire these soft skills to the same extent as technical content (Kemp and Seagraves, 1995; Cranmer, 2006). One of the main issues faced by students then, is how to gain access to opportunities that promote these highly sought-after skills. It is widely accepted that one opportunity to teach non-technical workplace skills in higher education is through active learning events (Nealy, 2005).

Increasing Workplace Skills in the Present Project

We chose to use an approach that embeds the acquisition of workplace skills within an existing course so that the acquisition of skills felt natural and resembled a potential workplace in which students have to present relevant material and interact professionally with other scholars. Although the program has existing optional stand-alone career workshops that invite staff to talk about, for example, their experiences and career paths, we considered it important to train students on practical workplace skills. In line with research emphasising the importance of soft skills alongside the more technical hard skills, the present project focused on honing both skillsets in equal measure: a) presentation skills and critical appraisal, and b) communication.

Presentation Skills and Critical Appraisal

Through the student presentations of academic articles, we provided a platform within which students could practice presentation skills as well as critical appraisal of the research presented. Students were challenged to present the chosen article to fellow students in a clear and succinct way. They were asked to introduce the background and major aims of the research, describe the methods, results, and provide discussions for findings. The seminar series thus provided a valuable practice for students aimed at improving presentation skills. The project also encouraged students to critically appraise scientific journals. At the end of the presentation, the student presenter was required to share their critical appraisal of the paper, including advantages and limitations. The presenter also raised engaging questions based on their appraisal to lead the ensuing discussion session. During the whole-group discussion, students shared their thoughts after reading the paper and listening to the discussion. As a result, students improved their critical appraisal skills by learning from each other.

Communication

Students were encouraged to independently approach and invite potential speakers for the seminar series via email. Through active engagement with the guest speakers, students got to know faculty and, importantly, developed communication skills, in particular, professional etiquette, and also engaged in academic discourse. Throughout the series, students reported feeling more comfortable in approaching and engaging with professionals inside and outside the classroom. Another important aspect of communication that we wanted to cover was science communication. The ability to communicate scientific findings clearly and engagingly to an audience outside of academia is becoming an increasingly important skill for graduates in the digital age (Greenwood and Riordan, 2001; Brownell et al., 2013). We incorporated formal science communication training into this project by establishing a blog that served as a platform for students to disseminate their work on their chosen topics to the general public. It is important that scientific findings are reported with care and clarity to non-specialist audiences, yet students rarely receive formal training or real-life opportunities to communicate effectively with the general public (Brownell et al., 2013). Existing coursework in the program mainly focuses on academic writing. In this project, writing the blog accompanying the seminar

series enabled students to develop confidence in communicating without the use of scientific terminology and practice their communication skills in a real-world application that benefits the general public, as well as themselves, as either future creators or consumers of scientific content.

A Sense of Belonging to the Institution and Research

The first dimension of the Connected Curriculum set out by Fung (2017) is to enable students to connect with the institution's researchers and their research. Building projects and platforms for students to interact with the institution's researchers and their research is vital if the students are to develop a sense of belonging to an active learning community with research at its heart (Ibid.). In turn, helping students to cultivate feelings of belonging to the institution has consistently been highlighted as a key to educational participation, retention and success (Hagerty et al., 1992; Strayhorn, 2012; O'Keefe et al., 2013). Such changes are likely to occur via positive changes in self-perception, such as academic competence and self-worth (Pittman and Richmond, 2008). Importantly, in order to cultivate a sense of belonging for all students of the institution, in particular those of diverse backgrounds, the implementation of inclusive learning activities and having role models in academia from a shared background is vital (Cousin and Cureton, 2012; Thomas, 2016; Mountford-Zimdars et al., 2017). One of the main concerns is the lack of role models for students of diverse backgrounds (Leathwood et al., 2009; Singh, 2009; Mountford-Zimdars et al., 2017), as well as WEIRD-biased (Western Educated Industrialized Rich Democratic) curricula still prevailing in higher education (Henrich et al., 2010). One activity from the range of institutional responses that have proven to be beneficial is to 'liberate the Curriculum' by including scientific contributions from marginalised scholars into the syllabus (Mountford-Zimdars et al., 2017; see also UCL's LTC Initiative https://www.ucl.ac.uk/teaching-learning/research-based-education/liberating-curriculum). In the current project, students identified papers published by researchers from diverse backgrounds. Guest speakers invited to join the student-led seminar series also came from various cultural and ethnic backgrounds. In this way, it is more likely that students in the current project could identify role models in academia from a shared background and therefore develop a higher sense of belonging to the institution and researcher.

Increasing a Sense of Belonging in the Present Project

As mentioned above, for teachers and institutions to empower their students required the creation of a sense of belonging to the programme and learning activities for students to shape their educational experience by incorporating their culture into the curriculum and advocate strongly for a more liberated curriculum (Nel and Sherritt, 1993). One way in which the present project attempted to connect the students with the institutions' researchers and their research was by encouraging them to engage with the researchers work in the area of their chosen topic and invite them personally to present their research to the group. Students made connections with the institutions' researchers and engaged in meaningful dialogue with faculty. Moreover, in line with UCL's 'Liberating the Curriculum' initiatives (Hall and Smyth, 2016; Fung, 2017), the course lead encouraged students to seek out and deliberately include literature and speakers from diverse and marginalised backgrounds. The resulting curriculum (see *Procedure* below) resulted in a significantly more inclusive learning opportunity that proved more relevant to a wider range of students (for example, six out of seven guest speakers were of diverse and/or non-WEIRD backgrounds).

Evaluation

The formal numerical evaluation of the module via an anonymous survey of 10 questions ranging from overall satisfaction with the students learning success in the project to more fine-grained questions assessing the accessibility and clarity of the readings and materials revealed a high satisfaction with the project among the students (median score: 4/5).

In addition to the formal numerical evaluation, students were also asked to reflect on their experience in the project qualitatively (see below).

Student Reflections

Student Reflection I (Minghui)

The student-led seminar series was truly empowering for students. One major reason was that we had a much higher motivation to participate in all parts of the seminars. Instead of being assigned to present a paper as in the traditional journal club, we had the opportunity to choose papers we were interested in. Moreover, our discussion in the seminars would actually influence which papers were to be discussed next, giving us a sense of continuity and connection. The written blog posts also made us feel the concrete progress we were making through each session of discussion. As a result, the newly designed student-led seminar series promoted a strong sense of participation in us, motivating us to share inspiring research and making constructive contribution to the discussion.

Another reason was that the student-led seminar series benefited us to become more open-minded. The topics discussed in our student-led seminar series directed our attention to some relatively new research areas. We had little contact with these topics in the standard curriculum. The seminar series therefore raised our awareness of new research topics that are of relevance to child development. It might even influence our future research career. Apart from introducing us to innovative research topics, the student-led seminar series also inspired us to understand a given topic from different perspective. In a traditional journal club, all the papers are selected by the course instructor. Now, each student may introduce a different perspective to explore the given topic and bring in new knowledge. Some students chose papers because of the innovative research methods adopted in the studies. Some students selected papers to inspire the group to view the topic from a totally different lens. As a result, the papers discussed in our seminar series were diverse. Students benefited from each other and learnt to think about a given issue from different perspectives.

Inviting researchers to come to our seminar was also an empowering experience. The researchers shared their vision and first-hand research experiences, which inspired us to do innovative research that would generate real-life impacts ourselves. In the end of each seminar, we could also directly ask questions to the researchers, which might not be answered by merely reading and discussing the papers within ourselves. Moreover, the experience of inviting researchers by ourselves also helped us develop our network in academia.

To conclude, the student-led seminar series was not only designed for' us but also organised 'by' us. During the whole process, we were highly motivated to participate in

it and make our own contribution. The seminar series broadened our horizons and improved various research abilities in us.

Student Reflection II (Lisa[1])

The student-led seminar series was an enjoyable, inspirational experience in general for the students. One major reason that made the seminar series entertaining were the selected topics. The student-led seminar series covered intriguing topics that we had not covered in other courses. The seminar series explored such contemporary issues that were not covered during our traditional neuroscience or psychology courses but are still notably relevant to child and adolescent mental health. By covering these topics, the students were able to broaden their perspectives about child mental health which may be beneficial to experience before becoming future child and adolescent mental health clinicians and researchers. Furthermore, the student-led seminar series offered the students to have the flexibility to choose which journal article they wanted to discuss each week. Compared to traditional courses, where professors usually assign students which journal articles to read, students personally chose journal articles they found intriguing. The students were much more engaged and asked more questions during the seminar series as the journal articles were personally chosen by the students. The second major reason why the seminar series was enjoyable was that the students were able to host speakers in the psychology and neuroscience department from renown[ed] UK research institutions such as the London School of Economics and University College London to share their expertise. By inviting experts that explore topics such as LGBTQ, early adversity, and digitalisation, students were able to answer inexplicable questions with the experts they had while reading the journal articles. Furthermore, students were able to learn how experts in these field research and conduct studies on these unique topics. Overall, the student-led seminar series was a unique, compelling experience for the students, and it would be beneficial if these student-led seminar series would continue in the future.

Staff Reflection

In my opinion as course lead (Vanessa) who oversees the students learning process, the course has been a great success for both the students and myself. Shifting the focus away from me and towards the students, hand in hand with students making their own choices, I gained invaluable insights into the topics that the students care about and what their educational needs are from their perspective. This allowed me to see the series grow organically in terms of topic development and students gradually taking ownership over their chosen topics and learning experience. In addition, the shift in focus from a majority of the content being communicated by me, to the students taking ownership and responsibility meant that my role became more of a facilitator and resource, which made me reflect and learn how to share information with students as partners and co-producers (Neary and Winn, 2009).

Recommendations for Developing and Implementing Student-Led Seminar

---

[1] Lisa, a pseudonym, was one of the students who participated in the student-led seminar series.

Series

With regards to the implementation of this project we came across several principles that we found helpful in the design and implementation of the project; these are outlined below in the hope that it will assist others considering the development of a similar project. First, we chose to implement this project in an already existing course to reduce the burden on students' and staff's scheduling and time. In this particular scenario, we also opted for the implementation of this project in Term II, to ensure that all students had the opportunity in Term I to undergo more formal training in critical appraisal of scientific literature. Second, we opted to implement this project in a formative course for several reasons. The development of student-centred assessments can be challenging (O'Neill and McMahon, 2005) and implementing this project on a formative course allowed us to circumvent this challenge and benefit from greater flexibility in terms of curriculum negotiation. Furthermore, we chose to not assess the student-led seminars because our priority was to empower students to explore ideas freely, creatively and without the pressure of being formally assessed.

However, several considerations need to be kept in mind when designing and implementing projects like this student-led seminar series. First, due to the extensive preparation of topics through brainstorming and investigating the institutions' researchers, take-off of the formal sessions is slower than when the course lead prepares the curriculum. However, despite the observation that the student-centred approach seems to delay the formal study slightly, longitudinal studies comparing traditional and activating (student-centred) instruction found that students in the activating group developed overall better study skills (Lonka and Ahola, 1995). Due to the competitive nature of our postgraduate programme, we work with small student numbers (around 10 students per cohort), which makes the implementation of such a project more feasible in postgraduate studies than undergraduate studies. However, in undergraduate modules, projects like these can be implemented successfully in seminar groups, as has been done for example by Worth (2013). Overall, the program leads were highly satisfied with the success of the student-led seminar series and the project has highlighted areas that are currently relevant for our postgraduate students and allowed us to meet their educational needs in a way that placed the student at the heart of the teaching and maximised resources and time together in the classroom.

Acknowledgements

References

Alguire, P. C. (1998). "A review of journal clubs in postgraduate medical education". *The Journal of Internal Medicine*, 13(5):347-53.

Ashcroft, L. (1987). "Defusing 'empowering': The what and the why". *Language Arts*, 64(2):142-156.

Barr, R. B. and Tagg, J. (1995). "From teaching to learning—A new paradigm for undergraduate education". *Change: The magazine of higher learning*, 27(6):12-26.

Bergan, S. (2003). Student participation in higher education governance. Available at: https://www.coe.int/t/dg4/highereducation/Governance/SB_student_participation_EN.pdf. (Accessed: 7 March 2019).

Brito, N. H., Fifer, W. P., Myers, M. M., Elliott, A. J., and Noble, K. G. (2016). "Associations among family socioeconomic status, EEG power at birth, and cognitive skills during infancy". *Developmnetal Cognitive Neuroscience*, 19:144-151.

Brown, J. K. (2008). "Student-centered instruction: Involving students in their own education". *Music Educators Journal*, 94(5):30-35.

Brownell, S. E., Price, J. V., and Steinman, L. (2013). "Science communication to the general public: Why we need to teach undergraduate and graduate students this skill as part of their formal scientific training". *Journal of Undergraduate Neuroscience Education*, 12(1):E6-E10.

Burnard, P. (1999). "Carl Rogers and postmodernism: Challenges in nursing and health sciences". *Nursing & Health Sciences*, 1(4):241-247.

Campbell, D. E. (2008). "Voice in the classroom: How an open classroom climate fosters political engagement among adolescents". *Political Behavior*, 30(4):437-454.

Cangelosi, A., and Schlesinger, M. (2018). "From babies to robots: The contribution of developmental robotics to developmental psychology. *Child Development Perspectives*, 12(3):183-188.

Casteel, M. A., and Bridges, K. R. (2007) "Goodbye lecture: A student-led seminar approach for teaching upper division courses". *Teaching of Psychology*, 34(2):107-110.

Clark, J. M., Rollins, A. W., and Smith, P. (2014). "New methods for an undergraduate journal club". *Bioscene: Journal of College Biology Teaching*, 40(1):16-20.

Cook-Sather, A., Bovill, C., and Felten, P. (2014). *Engaging students as partners in learning and teaching: A guide for faculty.* San Francisco, CA: Jossey-Bass.

Cousin, G., and Cureton, D. (2012). *Disparities in student attainment (DiSA).* York, UK: Higher Education Academy. Available at: https://www.heacademy.ac.uk/system/files/projects/worlverhampton_2010_disa_final_report.pdf. (Accessed: 7 March 2019).

Cranmer, S. (2006). "Enhancing graduate employability: Best intentions and mixed outcomes". *Studies in higher education*, 31(2):169-184.

Didehbani, N., Allen, T., Kandalaft, M., Krawczyk, D., and Chapman, S. (2016). "Virtual reality social Cognition training for children with high functioning autism". *Computers in Human Behavior*, 62:703-711.

Donnelly, R., and Fitzmaurice, M. (2005). "Designing Modules for Learning", in O'Neill, G., Moore, S., and McMullin B. (eds.) *Emerging issues in the practice of university learning and teaching*, Dublin: All Ireland Society for Higher Education (AISHE), pp. 99-110.

Dwarakanath, L. S., and Khan, K. S. (2000). "Modernizing the journal club". *Hospital Medicine*, 61(6):425-427.

Edwards, R., White, M., Gray, J., and Fischbacher, C. (2001). "Use of a journal club and letter-writing exercise to teach critical appraisal to medical undergraduates". *Medical Education*, 35(7):691-4.

Estes, C. A. (2004). "Promoting student-centered learning in experiential education". *Journal of Experiential Education*, 27(2):141-160.

Fleenor, D., Sharma, V., Hirschmann, J., and Swarts, H. (2018). "Do journal clubs work? The effectiveness of journal clubs in a clinical pastoral education residency program. *Journal of Health Care Chaplaincy*, 24(2):43-56.

Fung, D. (2017). *A connected curriculum for higher* education. London: UCL Press.

Greenwood, M., and Riordan, D. G. (2001). "Civic scientist/civic duty". *Science Communication*, 23(1): 28-40.

Hagerty, B. M., Lynch-Sauer, J., Patusky, K. L., Bouwsema, M., and Collier, P. (1992). "Sense of belonging: A vital mental health concept". *Archives of Psychiatric Nursing*, 6(3):172-177.

Hagerty, B. M., Williams, R. A., Coyne, J. C., and Early, M. R. (1996). "Sense of belonging and indicators of social and psychological functioning". *Archives of Psychiatric Nursing*, 10(4):235-244.

Hair, N. L., Hanson, J. L., Wolfe, B. L., and Pollak, S. D. (2015). "Association of child poverty, brain development, and academic achievement. *JAMA Pediatrics*, 169(9):822-829.

Hall, R., and Smyth, K. (2016). "Dismantling the curriculum in higher education". *Open Library of Humanities*, 2(1):e11. https://doi.org/10.16995/olh.66

Henrich, J., Heine, S. J., and Norenzayan, A. (2010). "The weirdest people in the world?" *Behavioral and brain sciences*, 33(2-3):61-83.

Kemp, I. J., and Seagraves, L. (1995). "Transferable skills—can higher education deliver?" *Studies in higher education*, 20(3):315-328.

Kirk, C. M., Lewis, R. K., Brown, K., Karibo, B., and Park, E. (2016). "The power of student empowerment: Measuring classroom predictors and individual indicators". *The Journal of Educational Research*, 109(6):589-595.

Lea, S. J., Stephenson, D., and Troy, J. (2003). "Higher education students' attitudes to student-centred learning: Beyond 'educational bulimia'? *Studies in Higher Education*, 28(3):321-334.

Leathwood, C., Maylor, U., and Moreau, M. (2009). *The experience of black and minority ethnic staff working in higher education*. Available at: https://www.ecu.ac.uk/wp-content/uploads/external/experience-of-bme-staff-in-he.pdf. (Accessed: 7 March 2019).

Lewis, P., Hayward, J., and Chertoff, J. (2010). "Student interviews for radiology residency: What influences how students rank programs?" *Journal of the American College of Radiology*, 7(6):439-445.

Lonka, K., and Ahola, K. (1995). "Activating instruction: How to foster study and thinking skills in higher education". *European Journal of Psychology of Education*, 10(4):351. https://doi.org/10.1007/BF03172926.

Loo, C. M., and Rolison, G. (1986). "Alienation of ethnic minority students at a predominantly White university". *The Journal of Higher Education*, 57(1):58-77.

Mason, G., Williams, G., Cranmer, S., and Guile, D. (2003). *How much does higher education enhance the employability of graduates?* Available at: https://dera.ioe.ac.uk/4996/1/rd13_03a.pdf. (Accessed: 7 March 2019).

Mountford-Zimdars, A., Sanders, J., Moore, J., Sabri, D., Jones, S., and Higham, L. (2017). "What can universities do to support all their students to progress successfully throughout their time at university?". *Perspectives: Policy and Practice in Higher Education*, 21(2-3):101-110.

Nealy, C. (2005). "Integrating soft skills through active learning in the management classroom". *Journal of College Teaching & Learning*, 2(4). https://doi.org/10.19030/tlc.v2i4.1805.

Neary, M. and Winn, J. (2009). "The student as producer: Reinventing the student experience in higher education", in Bell, L., Stevenson, H., and Neary, M. (eds.) *The future of higher education: Policy, pedagogy and the student experience*. London: Continuum, pp. 192-210.

Nel, J., and Sherritt, C. (1993). *Teacher Preparation: A Key to the Empowerment and Leadership Development of Asian/Pacific American Students*. Available at:

https://pdfs.semanticscholar.org/c8ac/a60de46b7df54c3a46c9bb39b854e531466d.pdf?_ga=2.1788 55524.1573786043.1576931121-244293216.1576931121 (Accessed: 7 March 2019)

O'Keefe, P. A., Ben-Eliyahu, A., and Linnenbrink-Garcia, L. (2013). "Shaping achievement goal orientations in a mastery-structured environment and concomitant changes in related contingencies of self-worth". *Motivation and Emotion*, 37(1):50-64.

O'Neill, B. J., and Wyness, M. A. (2005). "Student voices on an interprofessional course". *Medical Teacher*, 27(5):433-438.

O'Neill, G., and McMahon, T. (2005). *Student-centred learning: What does it mean for students and lecturers*. Available at: http://www.ucd.ie/teaching/t4media/Student%20Centered%20Learning%20Article.pdf (Accessed: 7 March 2019).

Pittman, L. D., and Richmond, A. (2008). "University belonging, friendship quality, and psychological adjustment during the transition to college". *The Journal of Experimental Education*, 76(4):343-362.

QS (2018). *The Global Skills Gap in the 21st Century*. Available at: https://www.topuniversities.com/student-info/qs-guides/global-skills-gap-21st-century (Accessed: 7 March 2019).

Quaye, S. J., and Harper, S. R. (2007). "Faculty accountability for culturally inclusive pedagogy and curricula". *Liberal Education*, 93(3):32-39.

Quaye, S. J., and Harper, S. R. (2014). "making engagement equitable for students in US higher education", in Harper, S. R., and Quaye, S. J. (eds.) *Student engagement in higher education: Theoretical perspectives and practical approaches for diverse populations*. New York: Routledge, pp. 17-30.

Rosenthal, J., and Rosenthal, K. S. (2017). "Interactive journal club: Teaching an old dog new tricks". *Journal of Medical Education and Curricular Development*, 4. https://doi.org/10.1177/2382120517719710.

Scheyvens, R., Griffin, A. L., Jocoy, C. L., Liu, Y., and Bradford, M. (2008). "Experimenting with active learning in geography: Dispelling the myths that perpetuate resistance". *Journal of Geography in Higher Education*, 32(1):51-69.

Schulz, B. (2008). "The importance of soft skills: Education beyond academic knowledge". *Journal of Language Communication*, 2. https://doi.org/ 10.1016/0006-3207(93)90452-7

Scott, G. (2006). *Accessing the student voice: Using CEQuery to identify what retains students and promotes engagement in productive learning in Australian higher education*. Canberra, Australia: Department of Education, Science and Training.

Sherman, L. E., Payton, A. A., Hernandez, L. M., Greenfield, P. M., and Dapretto, M. (2016). "The power of the like in adolescence: Effects of peer influence on neural and behavioral responses to social media". *Psychological Sciences*, 27(7):1027-1035.

Singh, G. (2009). *Black and minority ethnic (BME) students' participation in higher education: improving retention and success: A synthesis of research evidence*. York: Higher Education Academy.

Slemp, G. R., Kern, M. L., Patrick, K. J., and Ryan, R. M. (2018). "Leader autonomy support in the workplace: A meta-analytic review". *Motivation and Emotion*, 42(5):706-724.

Strayhorn, T. L. (2012). *College students' sense of belonging: A key to educational success for all students*. New York: Routledge.

Thomas, L. (2016). "Developing inclusive learning to improve the engagement, belonging, retention, and success of students from diverse groups", in Shah, M., Bennett, A., and Southgate, E. (eds.) *Widening higher education participation*: *A global perspective*. Waltham, MA: Chandos, pp. 135-159.

Wen, M., and Lin, D. (2012). "Child development in rural China: Children left behind by their migrant parents and children of nonmigrant families". *Child Development*, 83(1):120-36.

Worth, N. (2013). "Experimenting with student-led seminars". *Planet*, 27(2):30-35.

Wright, G. B. (2011). "Student-centered learning in higher education". *International Journal of Teaching and Learning in Higher Education*, 23(1):92-97.

Yancey, G. (2010). *Compromising scholarship: Religious and political bias in American higher education*. Waco, TX: Baylor University Press.