



Undergraduates as Researchers – the Impact of Active Participation in Research and Conference Presentation on Psychology Undergraduate Identity and Career Aspirations

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ABSTRACT

Although research-led teaching has been identified as an important part of psychology curricula in the United Kingdom, less is known about the impact of undergraduate research collaborations with academics, culminating in a conference presentation. The present study was a qualitative investigation into the experience of student-staff collaboration from a student perspective. We conducted semi-structured interviews with five psychology students who worked together with staff conducting research during their undergraduate degrees, disseminating the findings at an academic conference. The interviews were analysed using a thematic approach. We identified three themes, which were around the relationship with their tutor, career aspirations, and identity as a researcher/psychologist. Overall, the interviews indicated that undertaking research and attending academic conferences has a positive impact on future career aspirations, and helps students to feel that they are part of an academic community. Academic staff teaching in research-led psychology programmes should consider giving students opportunities to immerse themselves fully in the research process, ideally leading to a conference presentation for academic audiences.

Keywords: Research-led teaching; staff-student research collaboration; conference presentation; qualitative interviews.

Introduction

Research-led teaching has been identified as an important part of the undergraduate psychology curriculum in the United Kingdom, and has the potential to create a learning community in which both staff and students are generating new knowledge via collaborative research (Roberts, Ertubey, McMurray, & Robertson, 2012). In this process, rather than passively acquiring factual knowledge, students join a community of scholars. Although students may not always see the benefits themselves (Brewer, Dewhurst, & Doran, 2012; Robertson, Teoh, McMurray, Roberts, & Sochos, 2011), active participation in research does have the potential to increase undergraduate employability skills and raise career aspirations (Seymour, Hunter, Laursen, & DeAntoni, 2004), improve retention (Gregerman, Lerner, von Hippel, Jonides, & Nagda, 1999), and result in cognitive and personal growth (Hunter, Laursen, & Seymour, 2007). However, the benefits of research-led teaching depend on the level of participation in the research. Students who participate in a research-led curriculum may feel that they are recipients of knowledge, but are not necessarily active producers (Zamorski, 2002). Therefore, it may be that an active creation of knowledge, working in partnership with academic staff, is needed in order to reap the benefits of research-led pedagogy (Healey & Jenkins, 2009).

As part of the active creation of knowledge, it is important to complete the research cycle by disseminating the results (Spronken-Smith et al., 2013). Dissemination of research findings is an important aspect of student-staff partnership, and presenting collaborative research to professional audiences could have multiple benefits to the student. Although research has identified dissemination of results as an important component in the formation of an academic identity at a postgraduate level (Adler & Adler, 2005; Mantai, 2015; McAlpine, Jazvac-Martek, & Hopwood, 2009), there is a lack of research investigating the effects of conference presentation at an undergraduate level, probably because it is a less common practice in academia for undergraduates to present at academic conferences. The one study that we found suggested that undergraduates who presented at a conference had a positive impact in terms of readiness for future subject-specific careers (Hill, Blackler, Chellew, Ha, & Lendrum, 2013). Most studies on undergraduate presentations have focused on student conferences in which presentations are often parts of an assessment strategy, rather than being an extra-curricular activity.

Research that has looked at undergraduate presentations at events aimed at students has positive findings. Students who present at a student conference have increased confidence in presentation and communication skills, more pride in their research, and more confidence in professionalism (Hill & Walkington, 2016; Lund, 2013). Also, presentations can help to clarify future career goals (Seymour et al., 2004). In summary, findings from both postgraduate and undergraduate academic and student conferences indicate that disseminating research has a positive impact on identity formation, directions of future careers, as well as increased confidence in transferable skills.

Undergraduates as Researchers – the Impact of Active Participation in Research and Conference Presentation on Psychology Undergraduate Identity and Career Aspirations

We wished to add to the sparse literature exploring undergraduate psychology students' experiences of undertaking research and attending academic conferences. In particular we sought to investigate the meaning students placed on their experiences. Therefore we took a qualitative approach to our study (Creswell, 2009). While our focus was the influence, if any, of research and conference attendance on participants' professional identity or career aspirations, we were keen to utilise a data collection process that allowed participants to describe their perspectives (Cousin, 2009).

Method

The University in which this study took place granted ethical approval for the study. An invitation to take part was issued by the administration support team to all Psychology students, and £20 in cash or retail tokens was offered as an incentive. It was determined that some of the respondents might be known to one of the researchers through her undergraduate teaching. Therefore, in order to protect anonymity, responses went directly to the other researcher who had no prior contact with them. The inclusion criteria for this study were that participants had been involved in research and presentation at a minimum of one academic conference as an undergraduate psychology student. For this study, it was not specified whether the research projects and conference presentations were part of the assessment process. No maximum time between the conference attendance and the interview was set. Most had participated 1-2 years previously, although one participant said she had first participated around 3 years earlier. There were no exclusion criteria. There were five participants in this small-scale study, two men and three women. All volunteered to participate in the research following the call to Psychology students. They met the criteria for the study and were willing to talk to us about their experiences.

Data were collected through semi-structured interviews, using an interview guide. The guide provided topics to be covered with additional prompts that could be used if needed (Cousin, 2009). For example, one question asked the participants to describe the process of undertaking their research. Prompts focused on what they did, how they felt throughout the process, and whether they worked collaboratively with others. The interviews were between 18 and 28 minutes in length. They were anonymised, saved onto a password-protected computer and then transcribed verbatim by a third party.

For analysis of the interview data we drew on the work of Braun and Clarke (2006), and Lichtman (2013). In their article on thematic analysis in psychology, Braun and Clarke suggest this approach is helpful in providing "rich and detailed" accounts of interview data (2006, p. 78). Similarly, Lichtman supports thematic analysis, advocating a "systematic approach" (2013, p. 246) to enhance interpretation of qualitative data. Our approach to data analysis drew on Braun and Clarke's 6 phases of analysis (2006, p. 86) and Lichtman's three Cs of codes, categories and concepts (2013, p. 251), and is described below.

First, we read each interview transcript while listening to the recording of the interview, marking any necessary changes on the transcript. This helped us to begin to get a sense of each interview. Next we read and re-read the transcripts in order to familiarise ourselves with the data prior to any coding. Then we began coding the individual transcripts, applying labels to words or phrases that appeared important, identified either by the way in which the participant talked about a topic, or in relation to our research questions. We revisited this initial coding "removing redundancies, renaming synonyms or clarifying terms" (Lichtman, 2013, p. 253). At this stage we tried to be alert to anything surprising in the data including aspects that might not appear to be linked to our research questions but might help to illuminate the experience of participating in research as an undergraduate. In the next stage we searched for themes across the interviews. This was an iterative process and we moved backwards and forwards through the interviews reviewing and renaming our themes until we felt satisfied with our analysis and interpretation.

In the next section we present some key themes that were identified through this systematic process of data analysis. We have made extensive use of quotes from the interviews in order to fully illustrate our themes. Pseudonyms have been used to protect the anonymity of the participants.

Results

We identified three main themes, each of which had sub-themes associated with them. In addition, we identified positive and negative aspects of undergraduate research and conference presentations.

Theme one: relationship with tutor/research project supervisor

One theme that was discussed by the study participants was the role played by undertaking research and conference attendance in building stronger personal and professional relationships with academic staff (specifically their tutor/research supervisor, hereafter referred to as the tutor). Within this theme, some participants identified the opportunity to get to know, and be better known by their tutor, as a strong motivation for undertaking a particular project, while others had a research topic in mind that influenced who they wished to work with:

I moved to a Learning Cognition laboratory mostly because I liked the professor...there was another professor who was amazing and somebody I wanted to get to know and her topic was Women's Health Behaviour. (Anna)

Undergraduates as Researchers – the Impact of Active Participation in Research and Conference Presentation on Psychology Undergraduate Identity and Career Aspirations

I put underneath who I'd like to work with, which was [tutor], because I liked the area she worked in. (David)

For Anna the desire to establish a working relationship with a particular tutor had influenced her choice of research project. In his interview, David indicated that it was the area of research that influenced his choice of tutor. However he added a description of the nature of the relationship that was built through the research supervision process:

It was a lot more personal on that level. You got to know them a lot more, and they got to know you.

Previous research has shown that for undergraduates involved in research, close relationships with tutors, especially those who take a mentoring approach, can be as important as the tasks associated with the research project in influencing the decision to pursue a research career (Adedokun et al. 2012), and this seems to be supported by our study.

Staying with the theme of student/tutor relationships, all of the participants talked positively about working collaboratively alongside academic staff. Again, David and Anna's interviews provided examples of this:

They [the tutors] would give a lot of the time, fleshing out their rationale. Fleshing out the design of the study was done collaboratively. (Anna)

It was really good, it was really useful, and you felt like you had a bit of...you felt like you were needed, in a way, because...and a bit professional, especially because you're always, like, communicating through emails. (David)

These quotes suggest this aspect of their participation in research supported feelings of being 'professional', and building a more equal working relationship with tutors than had previously been the case. Another participant commented:

It was really nice working with staff...you really get a one-to-one contact with a member of staff...to actually be able to sit there and to plan to work together. (Belinda)

All of the participants talked about the support they had received from their tutor. This was valued and appreciated. The tutors provided encouragement and motivation:

she told me that I was capable of doing a PhD, and nobody had sort of indicated that at the time, so then that started me thinking and now I'm sitting here doing a PhD so that quite nice. (Eddie)

This quote shows how the support provided by Eddie's tutor had been influential in the development of his career ambitions. By suggesting that he could be successful in this regard, the tutor had provided at least part of the impetus to Eddie's ambition to pursue further research-based study. In other instances, tutors had provided encouragement and support in relation to conference attendance and presentation specifically:

my advisor [Dr X], she really encouraged me and she was always there, emailing back and forth saying 'hey I heard about this conference, you should submit your project to go to this conference'. (Catherine)

[the tutor] approached me and asked if I wanted to do it because [research topic] has never been researched with the detection of lies before, so she said it would be good to show your research to others. So yeah, we started off from there. (David)

Tutors also provided practical support in the form of supporting the students' research and helping them to prepare for conference presentation:

I was nervous, but at the same time confident that if I had any questions I would be able to ask for help and they would guide me in the right direction, and they did. (Catherine)

The professor really wanted us to get what we were saying correct and be really knowledgeable and be able to field questions, and she practised giving us questions that we were able to field and stuff like that. (Anna)

In this theme, our interview data point to the important role that the student/tutor relationship can play in the development of students' consideration of research as a potential career. Undertaking the research project facilitated an opportunity for close professional relationships between students and academic staff to flourish, while working collaboratively in turn provided opportunities for tutors to suggest a research career to students as a possibility for them. In addition, tutors were in a strong position to provide practical support and encouragement for students in relation to academic conference attendance.

Theme two: preparation for a career in research

A second theme that we identified from our analysis of the data was the ways in which undertaking research and conference attendance as an undergraduate had prepared the study participants for becoming involved in research in the future, possibly as a career. For example, the participants described how their involvement in undergraduate research and conference presentation had built skills:

I think it opened up a different avenue for me and a different skills set than I previously used. (Eddie)

Undergraduates as Researchers – the Impact of Active Participation in Research and Conference Presentation on Psychology Undergraduate Identity and Career Aspirations

They [the tutors] would be running these novel studies, which would give the students an opportunity to practise research skills as well so you would be familiar with consent and informing, running participants, kind of trouble-shooting the things that would go wrong in a research study as well. (Anna)

In addition, Eddie noted the value of getting “different perspectives”, stating “I guess what it taught me, I think, is that you don’t have to know everything”. This statement is linked to how participating in research and attending academic conferences had built confidence, one of the sub-themes in this study. Indeed, all of the participants talked about building confidence through their experiences, sometimes from a position of nervousness and lack of self-belief at the start of their involvement in research. The following quotes, taken from different parts of David’s interview illustrate this well:

It was daunting because I’ve never done it. In first and second year you don’t really do that much research, especially on your own. It [3rd year research project] was quite independent.

I didn’t know what to expect, and I’d never done anything like it. But once it got accepted [abstract for conference], I was excited to start the work that I was going to present, and once I got my study finished and I knew what my results were, that’s when I knew ‘right, I can go somewhere with this in the conference’.

I’d say it gave me a lot more confidence to put myself out there and speak to people who are actually interested in my work. I know I can actually make a contribution in some way.

Catherine’s and Belinda’s interviews provided further confirmation of how the students in this study moved from feelings of nervousness to increased self-confidence:

I was very nervous because I don’t...I’ve gotten a lot better after doing presentations...very nervous about speaking in front of people... I just think that presenting in itself helped give me confidence as a professional person and a researcher, knowing that it’s something I could do. (Catherine)

It was daunting to start with but actually I picked it up quite easily. It was nice to do. I quite enjoy it now, and hence I carry on doing it! (Belinda)

Practising research as a support to decision-making was a sub-theme of the preparation for a career in research. This overlaps with theme three (below) in that they are both about the role of undertaking research and conference attendance in shaping future careers. Here the focus is how providing practice in the tasks of research, as well as insight into research as a career, supports decision-making. Eddie stated explicitly that undertaking the research project had been “quite useful,” and described his hope that it would “provide useful experience moving on into the future”. In the longer quote below he elaborated on this:

I think what my experience to date has helped me do is actually to generate my own research questions, and I think that’s been really helpful. So, I guess that’s what an academic does, isn’t it? (Eddie)

In his interview, Eddie talked about his role as a class representative, identifying that responsibility as another contributory factor in his decision to pursue an academic career. He “was more involved in the administrative aspects of being an academic from a course design perspective” which he suggested gave him an insight into academic work “that had a balance of research and also facilitating learning in some way”.

For Catherine too, participating in research had supported career decision-making, but this was alongside talking to other students who were preparing for a career in a clinical setting:

Well...it was...like all decision-making process, a process. Beginning with, speaking to the masters students in counselling and just thinking about the reality of...being in a counselling profession for the rest of my life and considering being in research as well, and I really did enjoy the research process.

Both Anna and Belinda talked about how their experiences had provided insight into the reality of choosing research as a career:

I felt much more prepared for what research would actually take from you, like you know, you say ‘I love to do research’, and then you might not have a concept of what that would be, and actually getting your hands dirty for a while, and practising scheduling that into your laboratory hours and practising interfacing with participants and scheduling meetings and times and having them cancel and it’s awful, like it really gives you an idea of the pitfalls and spikes of research, so I think that was really helpful. (Anna)

Yeah, I mean...I wanted to go [to the conference] because also it was me seeing if academic life worked for me and as I said it ended up being one of three conferences and they were three very different conferences...that I went to across the year, and I really got a feel for what I liked out of academic life and what I didn’t. (Belinda)

In this theme, participation in research as well as conference attendance had provided some preparation for a career in research. The study participants identified the development of specific research skills and increased confidence as important aspects of this preparation. In their study of three honours-level courses in bio-sciences, McCune and Hounsell (2005) identified “ways of thinking and practising (WTP) in a subject area” (p. 257) as an important aspect of undergraduate learning. In our study, it could be argued

Undergraduates as Researchers – the Impact of Active Participation in Research and Conference Presentation on Psychology Undergraduate Identity and Career Aspirations

that the latter quotes from Belinda and Anna suggest that involvement in the research process and working closely with academic staff, had provided insight into the ways of thinking and practising as a researcher in psychology.

Theme three: career aspirations and identity as a researcher and/or psychologist

Some of the study participants talked about their career aspirations, as undergraduate students prior to undertaking research and later, after their conference attendance. In some instances these aspirations had changed over time, in part because of the experiences of participating in the research. For example, Anna described how her career ambitions had evolved over the period of her undergraduate study:

Yeah, I really wanted to do Clinical Psychology. I can't say I knew a whole lot about Clinical Psychology, I just knew that that was the hardest one, and I was a bit ambitious.

Later in her interview she stated:

It [conference attendance] kind of showed me...it reminded me of what I was signing up for, so, like, saying "I'd love to do a PhD in Clinical Psychology", I would have been really unprepared to even be competitive academically for that, had I not had such a research conference presentation experience, and even though I didn't get to Clinical Psychology, even though I chose more of a research psychology, I still felt like I was well prepared, that I knew what I was taking on, that I was confident that I had skills that could be useful and would help me to that end, and those were shaped by my experience in my undergraduate department.

In contrast, Eddie had begun with a clear plan that was linked to work in academia: "I was keen to pursue an academic placement." However, his research project introduced him to some of the challenges of research that almost put him off:

I think I was on a path...there were certain points during the final year project where I thought 'Maybe'. You know, just the drudge of actually doing things, you know? I'd done my...I'd designed my surveys in paper-based format and, like, putting 200 surveys in was a huge drudge. I was heading towards a career in academia sort of...it made me think about it a little bit more.

Gardner, Forrester, Jeffrey, Ferzli, and Shea (2015) explored how joining a "science community of practice" (p. 62) was experienced by a group of incoming students that took part in a research project, prior to beginning their undergraduate studies. In their study, the participants identified "a redefining of their own perceptions of what it means to practice science" (p. 63), including that working in a lab can be monotonous. Gardner et al. acknowledge the short-term nature of the research projects in their study. However they note that, while the motivation to study science was mostly reinforced, some aspects such as confidence and intrinsic motivation decreased. The students in Gardner et al.'s study were at the beginning of their academic studies, and as such were at a different stage in their academic journey from the participants in our study. However, Gardner et al.'s study is interesting in the sense that it highlights how participation in research can provide students with important insights into what undertaking research involves. In our study, Eddie did pursue a career in research in the end, and it could be argued that this was a more informed decision that it might have been without the experience of his undergraduate project, albeit not all of this was positive.

Other participants' responses indicated that their decisions about careers were complex, and highlight that there are likely to be a number of additional contributory factors to career aspirations, as well as experience of research and conference attendance. For example, talking to others including the tutor helped decision-making:

Well at that time I was waffling between wanting to go either into counselling psychology or social psychology. One is very...person counselling, you're dealing with people all the time, listening, not a whole lot of research, and then social is very research based, and going through that research process, I suppose, and talking to other people on the counselling program, not related to the research but...it helped sort of...what's the word I'm looking for? I guess solidify the thought and made me sure that I wanted to go into research. (Catherine)

Catherine added that her tutor "had a big influence on me in that area," while for David, a practice-based placement helped confirm his interest in research:

I worked in a mental hospital for only two weeks, full time, just voluntary, seeing the different illnesses, and...the aspects of it and how the...I was more working with the nurses, the mental health nurses...to see how they coped and how they handled them.

A sub-theme of the influence on career aspirations in this study was the link described by the study participants between their early experiences of research, and their emerging identity as a researcher and/or psychologist. The quote below from Catherine's interview provides an example:

I don't know if I feel like I know enough to call myself a psychologist with all the...I guess all the PhD published researchers who have been doing this all their lives...I would call myself a researcher, as I do research. (Catherine)

This quote highlights the fragile nature of Catherine's nascent identity both as a researcher and a professional in psychology. In contrast Belinda was much clearer about where her identity lay:

Undergraduates as Researchers – the Impact of Active Participation in Research and Conference Presentation on Psychology Undergraduate Identity and Career Aspirations

Now I identify more as a psychologist than an actual human being. So it's like 'what are you?' 'A psychologist' and it's become very much a sense of identity for me.

The interview data that we have included in this section illustrate the ways in which participation in the research as well as conference attendance supported and informed the participants' developing identities as researchers in psychology. However, it is not possible to be sure of the extent of the impact of conference attendance, as distinct from the experiences of participation in the research overall, especially as some time had passed between the experience of presenting at a conference and the interview. The data show too, how this was part of a complex process that included a number of other contributory factors.

Views of research and academic conference attendance

It is important to acknowledge that this was a small-scale study and that the participants described both positive and negative views of undertaking research and conference attendance. In particular, Anna discussed one challenging aspect of her undergraduate experience, expressed in strong terms. She had enjoyed her involvement with the research and her close contact with the tutors, and had been very successful. However she felt that this had given her an unrealistic view of how easy it would be to find employment in psychology after graduation: "My undergraduate kind of screwed me over, because I was a rock star while I was in there, and then I came out and I was nobody." Anna was employed in a coffee chain for one year after graduating but had then been accepted onto a Master's programme and at the time of the interview was optimistic about pursuing a career in research. However her comment does raise the question of a possible role for academic staff in better preparing undergraduate students for the competitive nature of finding employment post graduation. Perhaps more could be done to support students to recognise and highlight to potential employers the skills they have developed through their participation in research.

David, too, had found an aspect of his conference attendance challenging:

Because of the conference timing, it was at the same time...it was a week before my final exams. So that was the only negative I'd say, I was a bit stressed, because I was like 'should I really be doing this because I've got final exams.'

However, David did add "I definitely think it was worth it". Indeed the participants were enthusiastic about their experiences overall, as the quotes below illustrate:

Yeah, definitely. I mean for me it had a very positive effect and people I've spoken to, who've also presented; it seemed to have a positive effect on them as well. (Belinda)

That it [conference presentation] was a really useful experience. (Eddie)

Discussion

All the themes identified in the present study indicate that the deeper engagement in research, culminating in a conference presentation, had a major positive impact in the development of professional relationships with the tutors, preparing for future careers, as well as the development of an identity as a researcher. A recent review of literature acknowledged that mentoring is a crucial part of successful preparation of undergraduate students for research careers (Linn, Palmer, Baranger, Gerard, & Stone, 2015), and our results speak for the same. The encouragement and advice from academic tutors is a major source of inspiration for students especially in supporting aspirations to present at a conference, as well as in terms of future careers in academia.

Theoretically, these results can be interpreted via the Social Cognitive Career Theory (Lent & Brown, 2013). According to this theory, different influences (such as participation in research, or being mentored by an academic) increase self-efficacy, which results in willingness to pursue a career in the chosen field. We found that undergraduate students who participated in research as active producers had increased self-efficacy in terms of skills and knowledge, which could spark an interest in a career in psychology research. Research skills and self-efficacy has been identified as important in career aspirations of undergraduate students in STEM subjects (Adedokun, Bessenbacher, Parker, Kirkham, & Burgess, 2013). With regards to the relationship with an academic tutor, research on doctoral students has found that mentoring has a positive influence on increased career aspirations (Curtin, Malley, & Stewart, 2016). Our results indicate that the benefits of mentoring can start as early as during the undergraduate studies, and could be crucial in terms of preparing students for future careers in academia. Conducting and disseminating research in collaboration with academic staff is likely to have a positive influence on self-efficacy, which, in turn, is likely to affect future career aspirations.

Participants in our study also discussed the development of identity as a researcher. It is possible that working alongside a tutor, producing research of publishable quality is important for professional identity in psychology undergraduate students. Our results mirror the previous quantitative findings by Robnett, Chemers, and Zurbriggen (2015), who concluded that research experience leads to self-efficacy, which has a positive impact in the identity as a researcher. According to our qualitative findings, presenting at an academic conference has a further beneficial impact on researcher identity of undergraduates.

Overall the participants in this study were positive about their experiences of research and conference attendance as an undergraduate psychology student. However, it should be borne in mind that in this small-scale study all of the students who agreed to take part in this study had continued with their studies at either Masters or doctoral level. This could mean that they were higher

Undergraduates as Researchers – the Impact of Active Participation in Research and Conference Presentation on Psychology Undergraduate Identity and Career Aspirations

achievers academically, and interested in research. Further investigation, especially with those who did not continue with their research, would help us to better understand the role that research and conference attendance played in their professional choices and identity.

To our knowledge, this study was the first qualitative investigation into psychology undergraduate experience as researchers presenting at academic conferences. We suggest that having the opportunity to produce new knowledge in research, in collaboration with the academic tutors, has a major positive influence on undergraduate students career aspirations, as well as their identity as a researcher. Psychology, in common with other research-focused disciplines, lends itself well to staff-student collaborations, which can be beneficial for both parties. Academic staff with responsibility for the provision of research-led programmes should consider giving students opportunities to immerse themselves fully in the research process, ideally leading to a conference presentation for academic audiences. This kind of experience could be crucial for development of future researchers and academics.

Biographies

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Undergraduates as Researchers – the Impact of Active Participation in Research and Conference Presentation on Psychology Undergraduate Identity and Career Aspirations

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