

## SPECIAL SECTION: EQUIPPING STUDENT LEADERS AS PARTNERS FOR SUSTAINABLE HUMANITARIAN ACTION

## RESEARCH ARTICLE

**Students as co-producers: Establishing the conditions for a successful partnership within an undergraduate research scheme**

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## ABSTRACT

To engage students with academic research is recognised as a high-impact activity that supports the development of valuable critical thinking skills. Various approaches have been developed to promote student research both in and outside the curriculum. By incorporating the perspectives of both students and academics, this qualitative study evaluates the extent to which a research partnership is formed through an institutional research scheme called the Junior Research Associate. Our findings indicate that it is critical to move beyond the entrenched academic hierarchies of supervisor/supervisee to develop a negotiated research relationship. Challenges identified include the short timeframe to establish the conditions for successful partnership and differential expectations of partners at the outset of the scheme. It is also important to safeguard against such initiatives being instrumentalised by academics seeking to further their personal research agenda. The findings help to inform strategies to scale up such initiatives.

## KEYWORDS

co-producers, research partnerships, shared values, structures and working arrangements, attitudes and behaviours

The integration of undergraduate students in academic research activity has matured since initial calls to make research-based learning the standard (Boyer Commission on Educating Undergraduates in the Research, 1998). Engaging students in research activity is recognised as a high-impact activity internationally (Kuh, 2008, Council on Undergraduate Research, 2021; University of Leeds, 2021), creating linkages at the nexus of teaching and disciplinary research and developing students' critical thinking skills (Healey et al., 2014). Scholars have outlined different approaches to partnership including mainstreaming research in the undergraduate

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curriculum through final-year projects and dissertations (Fung, 2017), as well as initiatives outside the curriculum (Healey & Jenkins, 2009).

Several models have been advanced to explain the multi-dimensional nature of undergraduate student research (Healey & Jenkins, 2009; Levy, 2009). Our study focuses on student research outside of the curriculum as part of a national undergraduate research initiative. It contributes to the limited literature related to disciplinary research partnerships (Mercer-Mapstone et al., 2017). Whilst not all examples of students as researchers involve partnership (Healey et al., 2014), this study seeks to illuminate the conditions for partnership between students and faculty on research projects and the extent to which partnership was achieved through a student researcher programme. The findings demonstrate that differential expectations between students and faculty can create barriers to establishing a student-staff partnership. The findings of our study will be of interest to those who seek to deploy and scale similar student research initiatives.

## BACKGROUND

Our research centres on the Junior Research Associate (JRA) scheme, a local initiative aligned with the national Posters in Parliament (PiP) programme, organised by the British Conference of Undergraduate Research (BCUR). PiP is an annual event at Westminster where undergraduates showcase their research to policymakers and researchers nationwide. The JRA is a competitive programme offering bursaries for undergraduates to collaborate with faculty on research projects during the summer break between their second and final year. This reflects an elite model of student research partnership (Healey et al., 2014) with selection based on proposals that students submit to the JRA committee.

The Junior Research Associate is advertised across the university as a scheme that allows selected undergraduate students to take part in a summer research project under the guidance of an academic. The faculty were invited to join the scheme via general announcement email and were informed that “successful [JRA] applicants will receive a bursary to undertake an eight-week, full-time research project over the summer months, working alongside faculty to support the faculty’s existing research efforts.” (University of Sussex Business School JRA coordinator, personal communication, February 17, 2020) Hence faculty participate in the scheme by inviting students into a project that they are already working on.

On the other hand, students who were interested in postgraduate studies and research were invited to take part in the scheme and to “approach faculty in your department to learn what research projects are currently underway on campus and whether you are able to join any of these as a JRA.” (University of Sussex, 2021, Step 3: Find a Supervisor). Hence, students develop a research question based on the faculty member’s research project and submit a proposal to receive a bursary. By the end of the period, students prepare a poster based on their research findings to present at a university-wide exhibition, during which two students are selected to represent their university at the PiP event.

The scheme is different from traditional student-supervisor relationships in which students are the main beneficiaries. Here instead, the emphasis is on a mutually beneficial relationship in which students undertake independent research within the parameters of their supervisor’s ongoing project. In this way, students contribute to the creation of knowledge within

a larger body of work while gaining the experience of independent research. The name of the scheme emphasises the collaborative aspect of the research partnerships by referring to students as research associates rather than research assistants.

In the programme under consideration, the pairing between faculty and students was facilitated by a third-party JRA coordinator who matched the interest groups using a two-way ranking system. This gave all participants equal opportunity of pairing, based on a shared research interest. During the 2020/21 academic year, 166 students at the university applied to the scheme across all schools of study, and around 48% were awarded a bursary. This study focuses on students who were from the business school because this is the largest subject grouping for undergraduate enrolments in the UK with 530,460 students enrolling in 2020/21, representing 17% of overall enrolments (HESA, 2023). It is, therefore, an important site for research. Out of the successful applicants to the JRA scheme in question, 11 students were from the business school.

Given the short time frame of the scheme, rather than seeking to co-write a journal article with faculty, students were required to prepare a poster of their work for a university-wide exhibition towards the completion of the 8-week period. This gives students some agency over the output and enables them to share their work with the wider academic community. The JRA scheme included two workshops to give students guidance for preparing their posters. Since the preparation and submission of posters occurred beyond the 8-week research experience, receiving feedback from faculty on the posters was not an integral part of the scheme. The PiP event was interrupted from 2020 to 2023 due to COVID-19, even though the cancellation was not announced in advance. Hence, the participants we spoke to from the 2020/2021 JRA scheme were not aware whether the PiP would take place for their cohort.

## LITERATURE REVIEW

A variety of terms are used to describe partnerships. Some scholars argue that these terms are almost interchangeable (Bovill, 2019) whilst others argue that there is nuance in the terminology (Matthews, 2017). Some emphasise partnership in research and inquiry and refer to students as researchers and inquirers (Healey & Jenkins, 2009), students as producers (Neary, 2012), students as collaborators and producers (Taylor & Wilding, 2009), students as co-producers (McCulloch, 2009), and students as co-authors (Healey et al., 2013). Fundamentally, partnership is a process (Healey et al., 2014), implying that both the roles and engagement of participants fluctuate throughout the duration of the partnership (Bovill, 2017).

Traditional academic hierarchies are reframed by partnership learning communities where both the academic and the student are working together in a research setting (Healey et al., 2014). The extent to which the relationship reflects the attributes of partnership working can influence the way in which students develop an affinity, or sense of belonging, within the institution. This is important as research shows that feelings of belonging are a contributor to academic success (Thomas, 2012; Smith & Watson, 2022). Several common features of successful learning communities have been identified in the literature (Healey et al., 2014), including the structure and working/learning arrangements, shared values, and attitudes and behaviours. In addition, a number of challenges have also been outlined, including issues of inclusivity and scale (Bovill et al., 2016), power relationships (Eady & Green, 2020; Matthews, 2017), reward and

recognition (Mercer-Mapstone et al., 2017), transition and sustainability (Marie & McGowan, 2017), and identity.

### **Structure and working/learning arrangements**

Effective mentoring is critical to the success of undergraduate research activity (Shanahan et al., 2015). Scholars have identified a tension between freedom and control in the mentoring relationship to ensure that the student is expertly challenged yet still supported (Walkington et al., 2020). There have been calls for a greater focus on the matching process, enabling a dialogue between participants (Kushwah & Navrouzoglou, 2022). The context of the project is an important factor that can affect how the partnership is formed, for example, whether students are paid, whether the activity takes place during term time or vacation, or whether it is embedded in the curriculum or outside of it (Healey & Healey, 2018). As a result, the bilateral nature of research partnerships focus attention on the processes that can be replicated.

### **Shared values**

The literature on partnership and on research mentorship both highlight the importance of establishing the foundational values of the partnership at the outset (Cook-Sather, 2014; Healey et al., 2014). These intrinsic values have been explored by a number of scholars and typically map well to Healey et al.'s (2014) detailed typology of authenticity, inclusivity, reciprocity, empowerment, trust, challenge, community, and responsibility (see also Cates et al., 2018; Cook-Sather, 2014; Luo et al., 2019). For example, in undergraduate research contexts, the authenticity of the project has been linked to supporting student wellbeing (Walkington & Ommering, 2022). Although most of the research to date has been undertaken from the student perspective, there is some evidence to suggest that similar values are required in staff participants (Ali et al., 2021). Additionally, scholars have recently started to focus on how these values link to the stages of a partnership project (Smith et al., 2021b), recognising the dynamic nature of the process.

### **Attitudes and behaviours**

Student motivations for engaging with the partnership process have been found to be varied, ranging from skill development (Chang & Ramnanan, 2015), enhanced employability (Dollinger et al., 2018), and remuneration (Healey et al., 2014). For some, the opportunity to work with researchers supports their desire to continue their studies beyond undergraduate level. Staff motivations for engaging with partnership are also varied, ranging from making a difference to advancing their career and professional development (Mercer-Mapstone et al., 2021). There are clear benefits for faculty engaging with the JRA scheme and working with a funded research assistant, as it may allow them to progress their work at a faster pace or undertake additional work that they may not have the capacity to do under normal circumstances. These benefits should be weighed against the costs of mentoring a young researcher and setting up efficient working arrangements. Nevertheless, the scheme is vulnerable to instrumentalisation with students engaged to work for faculty members rather than with them as part of the learning process. This is often also reflected in the publishing process where the student's contribution may not be acknowledged (Abbott et al., 2020).

## Challenges

Student-staff research partnerships are often challenged by the hierarchical nature of the master/apprentice model (Dysthe, 2002), which is reflected in the inherent power relations (Grant & Graham, 1999; Grant, 2005) and the degree of supervisory support offered (Blanchard & Haccoun, 2020). Bringing students into academic communities of practice (e.g., research settings) can place pressure on students to conform to pre-existing norms. In common with dissertation supervision, a bilateral negotiation takes place at the outset to outline expectations and identify constraints (Smith & Smith, 2022). The success of this negotiation will depend on how well the values of partnership working have been absorbed by both parties, and either side can resort to the “careless use of power” (Grant & Graham, 1999, p. 81) to the detriment of the other party.

## RATIONALE FOR THE STUDY

Our study investigates the expectation and experience of faculty and student researchers participating in a research initiative outside of the curriculum. We seek to understand the conditions for successful partnership to inform the scaling of research partnerships so that a wider number of students can experience “live” academic research. This study of a local implementation of the national BCUR scheme allows us to generate some insights into how differential expectations can hinder the process of establishing the conditions for partnership between students and faculty. This study offers unique insight into the expectations of both students and faculty in relation to research partnerships and how this influences the success of partnered scholarship.

## METHODOLOGY

We adopted a qualitative research methodology to examine the perceptions of both student and faculty partners in the JRA scheme. Online semi-structured interviews were conducted with students and staff who had participated in the 2020/21 scheme. We interviewed seven students and five staff who participated in the scheme at a UK business school. One of the authors was the coordinator of the JRA scheme in the school, and all the authors were, at the time of the study, based there. Ethical approval for the project was obtained from the authors’ institution (reference ss706/20).

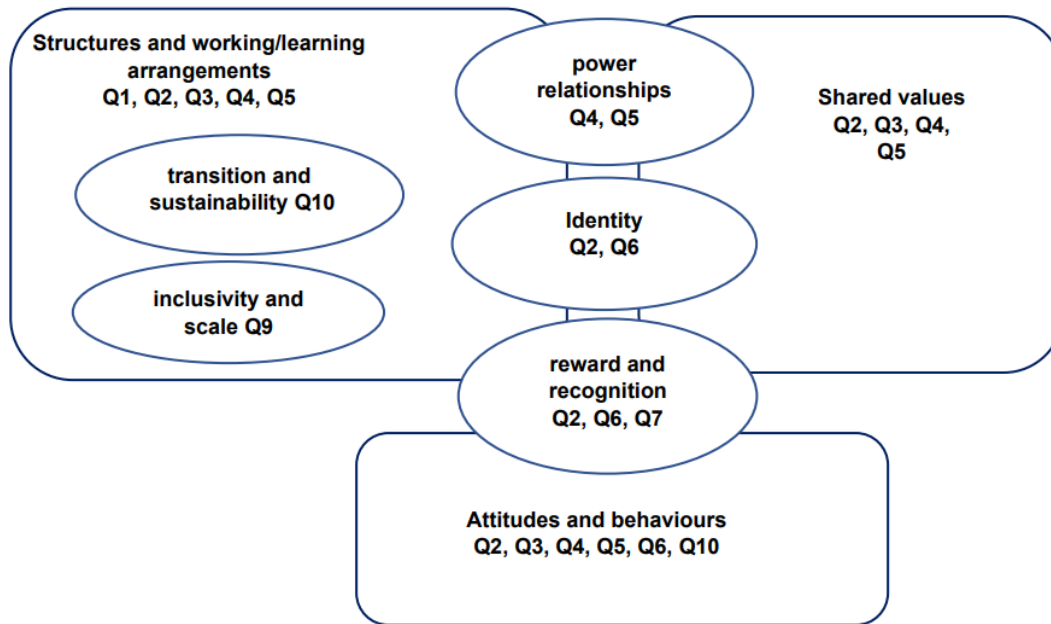
Participant recruitment was conducted over email. The JRA coordinator contacted all students and staff from the business school who had participated in the scheme, inviting them to be interviewed about their experiences. After the initial agreement and prior to conducting the interviews, we issued participants with an information sheet about the study and asked them to sign a consent form. In line with the institution’s ethics procedures, we reminded participants that their participation was voluntary and that their anonymity would be ensured in the research output. In total, seven students and five faculty partners agreed to be interviewed, out of which we were able to evaluate five student-faculty partnerships.

We developed two separate but related interview schedules<sup>1</sup> for our interviews with students and faculty participants. The questions were based on the features of partnership working identified by Healey et al. (2014) Figure 1 below outlines the mapping of the interview

questionnaire to the literature. The questions invited students and faculty to reflect on their experience of these features in practice (see Appendix 1). Due to the small number of participants in the business school's JRA scheme, piloting the interview questions was not feasible. Prior to conducting interviews, the researchers met and read through the interview schedules aloud to refine the framing of the questions to elicit open-ended responses.

### Figure 1. Evidence for features and issues associated with partnership in the JRA scheme

Figure 1 - Evidence for Features of and Issues Associated with Partnership in the JRA scheme



The interviews with students and faculty partners each lasted approximately 30 minutes and were recorded at the consent of participants. One author was selected to interview the students as she was a PhD student, and we perceived that the distance between herself and the student interviewees would be less than if a faculty member interviewed the students (Grenness, 2022). On reflection we feel that this approach elicited more candid responses from student participants in the study. The two interviewers transcribed the interviews they had conducted to enhance their familiarity with the data.

### Data analysis

Reflexive thematic analysis (TA) recognises “the potential for inductive (data-driven) and deductive (theory-driven) orientations to coding” (Braun & Clarke, 2021a, p. 39). We adopted a codebook approach to reflexive thematic analysis, a process within which themes are developed early on but “can be refined . . . through inductive data engagement” (Braun & Clarke, 2021b, p. 333). As outlined by Braun and Clarke (2023), codebook approaches “combine some of the more structured procedures of coding reliability with some of the qualitative research values of reflexive TA” (p. 2). We commenced our data analysis deductively, by mapping our participants’ responses directly to our questions, which were informed by Healey et al.’s (2014)

features of successful partnership. The features, used as our set of pre-determined codes, included working arrangements, values, and attitudes and behaviours. After we had coded deductively, we met again to engage with our data inductively, refining our codes to include our reflections on where there were differential expectations between students and faculty partners in order to explore barriers to establishing partnership.

## FINDINGS

The findings are arranged around the three areas of investigation: structures and working/learning arrangements, shared values, and attitudes and behaviours as defined in Healey et al. (2014). We consider how these three areas inform the conditions for successful research partnership. In our findings, we denote student partners with *S* followed by a number, (i.e., *S1* to *S7*) and faculty partners with an *F* (i.e., *F1* to *F5*) (see Appendix 2). At times, we use the term supervisor to refer to the faculty partner. This is to reflect the terminology naturally adopted by the students in the interviews, even though we are assessing the scheme as a practice of partnership.

### **Structures and working/learning arrangements**

The joint decision making in the partnerships occurred in two stages: (a) agreeing on the common purpose and (b) negotiating responsibilities. Participants' perceptions of whether they were working towards a common goal during the scheme varied significantly. Among the faculty partners, some believed that there was a shared objective because students displayed a strong motivation and an immediate connection to the research project, despite the project's inflexible parameters. On the other hand, some faculty partners mentioned that a common research interest was established through fluent dialogue with their student partner. Irrespective of the level of motivation exhibited by student partners, supervisors in certain cases were sceptical about the existence of a common goal. This scepticism arose either due to the strict structure of the project (*F3*, *F5*) or because they felt that students joined the scheme without a clear understanding of its purpose (*F1*).

Most students reported having a common purpose with their supervisors during the scheme that stemmed from working on a shared research topic. For instance, student *S3* mentioned that a common purpose emerged because the faculty wanted to research a particular topic thoroughly and the student had a genuine interest in it. This curiosity led them to explore the research topic collaboratively. Student partner *S5* knew they shared a common goal with their supervisor because they understood the significance of their contribution to the wider project. Their awareness of the value of their work fostered a sense of working together towards a common goal. In some cases, students perceived that, in addition to sharing a common research interest, their career aspirations were also part of the common goal of the partnership. However, sharing a research interest was not always sufficient for students to perceive sharing a common goal. For instance, *S7* further explained that they were not sure whether they shared a common goal with their supervisor, despite knowing that the goal of their partnership was to explore a topic that they shared an interest in. This student was unsure how their work served their supervisor's research.

In terms of joint decision making at the stage of shared practices, in all cases we found evidence of collaboration and the dissolution of power through shared practices. The practices were varied, depending on the type of project and the relationship between the participants, with some negotiating responsibilities from the start (F2 and F3) and then adapting the pace of the work as appropriate (F1 and F4). Even where there was a need to closely monitor students' progress and mentor them, there was flexibility with the number of tasks to be completed during the scheme (F5). Most students met weekly with their supervisor, recognising this as an important "commitment" to the research partnership on the part of their supervisor. In between meetings the students could "decide the pace" of their work (S5). For many, this freedom was perceived as a "step up" from previous working arrangements, and some enjoyed this more than others.

To summarise, the differential experiences suggest that a shared research interest does not necessarily translate into a shared goal between faculty and student partners. Based on our findings, it is clear that knowing how the students' work will inform the broader research agenda of the faculty partner helps them establish a sense of working towards a common goal. On the other hand, we observed that understanding the extent of students' contributions and aspirations for the scheme let supervisors have a sense of working towards a common goal. Despite differing degrees of clarity regarding a shared common goal, in all the partnerships both parties were engaged through joint decision-making processes, which we believe is due to constructive attitudes and behaviours.

### Shared values

Healey et al. (2014) recognise the value of authenticity when "all parties have a meaningful rationale for investing in partnership, and are honest about what they can contribute and the parameters of partnership" (p. 14). The JRA programme partially embeds authenticity by promoting the scheme as a collaboration of students on faculty members' ongoing research projects, which is intended to work well for both students and supervisors. We started the interviews by asking our participants about their motivation to get involved with the scheme. The responses reflect congruous rationales for investing in the partnership. Students were clear on what they would get out of the scheme, for example, a bursary as well as a research experience that they considered important for deciding their optimal career paths. Among the students, there were two who were also interested in the topic of the research they were getting involved with. Faculty, on the other hand, sought help with their research and were willing to share their research interest with a junior researcher but also valued the opportunity of mentoring an aspiring researcher and sharing their gained experiences with them. An interesting observation was that in one of our faculty-student partnerships, both partners referred to the social aspect of the partnership as their purpose for participating in the scheme (S3-F5). Both parties valued the research-related discourse that the project generated.

Values of authenticity, respect, trust and responsibility were significant conditions for purposeful student contribution to the partnerships. For example, those who had established the values of partnership working adapted their interactions over the period of the scheme, and students' conceptual contributions towards the project often increased over time as they gained both confidence and experience. Some examples of increased contributions included giving the student "more responsibilities from reading articles to thinking about a research question based



on the reading" (F2). In the case of F1, this involved their student moving beyond learning how to work with an instrument to developing the content for the instrument by "fine tuning of [survey] questions" and, in the case of F3, adding on more cases to investigate during the partnership. This faculty member explained that "we started with the priorities and added on." F4 adopted a similar approach with their student and increased their student's contributions by converging towards a common interest, starting from the student's overly ambitious analysis plan. These flexibilities in working arrangement also point towards the necessary attitudes and behaviours in a successful relationship and the willingness to meet the partners where they are.

Our data reveals how shared values contributed to establishing a common purpose. Faculty (F1, F2, and F4) were keen to foster reciprocity in achieving individual goals during the partnership, helping their partnership converge towards a common goal. S2 recognised this effort on the part of their supervisor and said that at the beginning of the project they "didn't try to be included just because like [they] didn't understand the nature of the project." However, over time, "[they] realised that like every time [F2] sent [them] something they always like ask [their] opinion." F2 felt a connection with their student partner who took responsibility for their own work.

### **Attitudes and behaviours**

The third feature of a successful partnership identified in Healy et al.'s (2014) conceptual framework concerns attitudes and behaviours of the partners. We assess whether partners' experience of interpersonal relationships met their expectations in the JRA scheme, and which attitudes and behaviours helped partners agree on the contribution and the allocation of work.

From the faculty partners' perspective, F2 expected less hierarchical communications and felt their student (S1) initially treated them as an authority figure. Interestingly, their student admitted that, on reflection, "I wouldn't have minded being told just to do these things," which gives some insight into their expectation that they would be working under the direction of, rather than collaboratively with, their supervisor. Similarly, F3 admitted that the interpersonal relationship with their JRA resembled an internship with limited autonomy from the student's side and that they "expected more initiative from [the] student" in the research partnership. This might reflect a lack of alignment in the partnership values at the outset. For the other faculty partners, their expectations were better aligned with students' expectations, given the capacities of their projects, and these faculty partners adopted a flexible attitude towards recognising their workplan contribution. For instance, F5 had clear expectations of their student's contribution to the outcome of the project from the outset, mostly in terms of the type of work they envisioned for the student partner: "I had in mind what sort of steps, important steps needed to be done." F5 also involved the student partner in the decision-making process: "I didn't want to be taxing therefore [the steps and schedule of work] was agreed." Despite such alignment, there were costs involved for faculty to engage with students through this scheme. For instance, F1 did feel that the scheme "is quite time consuming for the academic" partner because they needed to ensure their students "have enough to do."

For all of the students, the scheme was their first experience of being invited into a partnership with a faculty member, some of whom had taught them on their modules. Some of the students were acutely aware of the hierarchies between them and their supervisor and expected these to continue in the partnership. For example, S4 said that "it was just incredible"

to work with their supervisor but “scary too because [they are] so smart and so academic, and like I’m just like a little [name of degree subject] student. . . . I was just like constantly in awe.” Despite this, their supervisor, F1, gave them a high level of autonomy to design the survey instrument for their research and felt their student “exceeded expectation.”

Sharing a commitment to continued learning is among the constructive attitudes and behaviours that lead to successful partnership (Healey et al., 2014). The JRA scheme aims at promoting this through the poster presentation and competition. This can be a rewarding experience for students and faculty to celebrate their successes.

Regardless of differential expectations in terms of attitudes and behaviours, our data shows that faculty partners embodied an open and flexible attitude towards their student partners’ contributions to the project. A negotiated approach to agreeing on the contribution and/or working arrangements stood out as the most effective attitude in establishing partnerships. Supervisors recognised that contributions should account for students’ existing study commitments. They communicated openly about deadlines, workloads, and the frequency of meetings and shared their motivation to explore the topic. This approach was valued by students, as S2 commented:

it was really nice ‘cause we always like reach a middle ground then I didn't feel like scared of [them] in the professor-student way, like I felt like we were actually working together rather than just like having [them] be authoritative over my work.

Partnerships S2-F2 and S3, F5 went on to continue their partnership, as the faculty partner went onto supervising student partners’ undergraduate dissertation. Clearly, the combination of shared values and alignment of attitudes and behaviours formed the basis of a less hierarchical relationship and effective partnership for the student. The partnerships were equally fruitful for the supervisor, who shared their students’ view that the partnership had been a success.

## DISCUSSION

The JRA scheme involves students in an ongoing project whose principal investigator is a member of faculty, while encouraging students to find a common research interest and take ownership of their research activities and, as such, participate in creation of knowledge (de Bie et al., 2019). This potentially creates an imbalance in the distribution of power from the onset, making co-production challenging (Healey et al., 2014). In line with prior findings, we found that students often viewed staff as authority figures, despite faculty’s best efforts to shed this identity (Dollinger et al., 2022; Salazar, 2021). However, the relationship has the opportunity to transcend the more traditional supervisory relationships that faculty members will be accustomed to, removing the requirement of marking students’ work and the associated inherent power, which enables a true participatory alignment to be developed (Aitken et al., 2020). As a result, care should be taken during the formation phase of each partnership to establish the foundational values that then facilitate empowerment and trust as the partnership progresses (Smith et al., 2021a). Although most students reported freedom to manage their own deadlines and the balance of power shifting somewhat as they became more confident, when it came to confidence in contacting supervisors, we observed from faculty responses that there was an idiosyncratic

experience among students. This suggests a persistent power imbalance in the relationship that led directly to stalled work until the following meeting and reflects Dollinger et al.'s (2022) observation that in cases of co-producing knowledge where faculty's research agenda dominates, "faculty and students are not partners, although they collaborate"; therefore "the ideal of 'equal' contributions is perhaps just that—an 'ideal'" (Dollinger et al., 2022, p. 10).

Secondly, we find that the scheme is vulnerable to instrumentalisation by the faculty member who may seek a means to engage a funded research assistant rather than engaging with the learning aspects of the relationship. The scheme embeds a mechanism for students to publicly share the result of their research collaboration in form of a scientific poster. However, some of the students chose not to engage with this process, and it was unclear what the role of faculty was in supporting students to produce such output. As such, producing a scientific poster was not an effective mechanism to safeguard the partnerships from instrumentalisation. Instead, the authenticity (Healey et al., 2014) of faculty engagement is a critical foundational value in establishing the partnership and could be strengthened by establishing training for faculty partners to reinforce the scheme's aims. Despite this challenge to establishing true partnership, in the instances where partnership development was wholly or partially achieved, we found that students benefitted in multiple ways from the experience of working with staff, including in skills development (Curran & Millard, 2016; Marie & McGowan, 2017), confidence enhancement (Mercer-Mapstone et al., 2017), and remuneration.

Challenges exist in scaling up the scheme beyond a handful of students in each school across the university. By seeking to work outside the curriculum with faculty, this approach seeks to establish the value of authenticity at the outset. However, we found that despite the application process, not all students wanted to do research; some just wanted a paid experience, and in one case the student did not finish the scheme. This mismatch undermines the value of authenticity in research partnerships. The experience was time consuming for faculty members, thereby limiting the ability to scale the scheme in its current form. As a result, the scheme is fragile where either group is unprepared. The efficacy of the scheme in realising effective partnership with students could be further enhanced by including structured training for the staff partners to make them aware of how to establish the values of partnership with their JRA and to ensure that a common understanding of faculty role is established at the outset. In most cases, it was unclear to the faculty what their role towards students' poster presentation was and, as a result, the partners did not perceive a sense of shared reward from publicly sharing the outcome of their partnership. Among scalability challenges, it is also important to outline the associated time commitment required by faculty to ensure that they have the capacity to co-produce research with the JRA student and are not seeking to instrumentalise the scheme for their own ends.

## CONCLUDING REMARKS

Our findings add to the existing literature on student research partnerships by reflecting both students' and faculty's perceptions of the projects that formed as part of an institutional undergraduate research scheme. Our work reveals the importance of creating an environment in which the participants seek to move beyond the traditional academic hierarchies towards a more negotiated relationship. In line with prior findings, we observe that staff were often viewed

as authority figures, despite their best efforts to shed this identity. The authenticity of faculty engagement and their motivation to share research experience with junior researchers is a critical foundational value in establishing the partnership, safeguarding the scheme from instrumentalisation by the faculty member who may seek a funded research assistant. With students' understanding of the benefits of the scheme beyond a paid summer experience and a shared interest in the research topics, the scheme led to establishing successful research partnerships. Values of authenticity, respect, trust, and reciprocity played significant roles in facilitating meaningful student contributions to the partnerships. As students embraced partnership values, their conceptual contributions to the projects increased over time. Flexibility and constructive attitudes and behaviours in joint decision-making processes were crucial for a successful relationship between students and faculty partners.

Furthermore, our findings revealed that differential experiences existed regarding a shared research interest and a common goal between the partners. Knowing how the students' work would inform the broader research agenda of the faculty partner helped establish a sense of working towards a common goal. On the other hand, understanding the extent of students' contributions and aspirations for the scheme allowed supervisors to perceive a shared goal. Despite varying degrees of clarity regarding a common goal, joint decision-making processes were evident in all partnerships due to the partners' constructive attitudes and behaviours.

The study highlights the importance of exploring the role of producing a shared output in research partnerships. Students were not always fully aware of how their work would inform their supervisor's research and contribute to the overall output of the project. Additionally, the lack of direct supervisor involvement in preparing research posters led to the perception that the posters were solely students' intellectual property, rather than a collaborative effort. Further research is needed to delve into this aspect of research partnerships.

Overall, this research offers valuable insights for institutions seeking to enhance student engagement with academic research through research partnerships. By building on these findings and addressing the importance of producing shared outputs in research partnerships, institutions can create guidelines and best practices to foster authentic and impactful collaborations within the academic community. Embracing shared values and developing flexible and constructive attitudes will help bridge the gap between students and academics, promoting a more collaborative and inclusive research culture that enriches both students' learning experiences and the collective knowledge of the academic community.

*Institutional ethical approval was granted for the conduct of the research (ER/SS706/20).*

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## NOTES

1. Also referred to as interview protocols.

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#### APPENDIX 1: INTERVIEW QUESTIONS

QUESTION NUMBER	QUESTIONS FOR STUDENT PARTNERS	QUESTIONS FOR FACULTY PARTNERS
1	What was your motivation to get involved?	What was your motivation to get involved?
2	Tell us what you expected, how your experience compares to your expectation?	Tell us what you expected, how your experience compares to your expectation?
3	Did you feel that there was a common purpose? Please explain your response. YES: How did you come to this agreement? NO: What were the challenges?	Did you feel that there was a common purpose? Please explain your response. YES: How did you come to this agreement? NO: What were the challenges?
4	How did you negotiate the allocation of work on the project? Describe the process with examples e.g., who decided tasks, timelines	How did you negotiate the allocation of work on the project? Describe the process with examples e.g., who decided tasks, timelines
5	How were you included in decision-making processes about the project? Provide examples How did this make you feel about your work/the project output beyond the poster?	Describe how your JRA contributed to your research? Provide examples where possible Did the JRA contribution change over the course of the project e.g. by task or time
6	Did you find the experience rewarding? In which way?	Did you find the experience rewarding? In which way?
7	N/A	How do you feel the scheme is recognised in the research community and institution?
8	Will you recommend this experience to other students? (transition and sustainability)	N/A

9	Describe the selection process. Why do you think you were successful?	Describe the selection process. Why do you think you were successful?
10	NA	Outline what you feel you gained by participating in the scheme. Would you participate again? Why/Why not

## APPENDIX 2: FACULTY-STUDENT PARTNER PAIRS

STUDENT PARTNER	INTERVIEWED	INTERVIEW DURATION	FACULTY PARTNER	INTERVIEWED	INTERVIEW DURATION
S1	8/04/2022	24 minutes	F1	11/19/2021	33 minutes
S2	25/02/2022	28 minutes	F1	11/19/2021	33 minutes
S3	10/03/2022	25 minutes	F2	11/16/2021	31 minutes
S4	15/03/2022	31 minutes	F3	11/22/2021	35 minutes
S5	15/04/2022	30 minutes	NA	NA	NA
S6	08/04/2022	15 minutes	NA	NA	NA
S7	26/04/2022	28 minutes	F4	11/23/2021	24 minutes
NA	NA	NA	F5	11/12/2021	20 minutes