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Exploring Co-Creation as a Facilitator of PhD Supervisory Relationships

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Using Co-Creation to Facilitate PhD Supervisory Relationships

The supervisory relationship is widely understood as central to the experience, success and wellbeing of PhD students. However, complex issues and struggles are frequently reported as associated with it. Although an extensive literature recommends useful, practical changes to improve supervisory relationships, current approaches generally focus on ameliorating difficulties within existing supervisory paradigms, rather than challenging or offering fresh perspectives on them. The co-creative approach has been successful in higher education, mostly at undergraduate level and in small-scale settings, providing opportunities for collaborative exploration of issues and development of solutions. Building on this, we explore the use of co-creation within the post-graduate research setting, bringing together stakeholders to unpack and address common issues experienced within the supervisory relationship. In order to assess the value of co-creation in tackling supervisory issues, we conducted a three-staged study involving PhD students and supervisors. Through qualitative and quantitative data (interviews and surveys), we identified specific issues linked to the supervisory experience. We subsequently hosted small and large scale co-creative workshops to encourage PhD students and supervisors to collaborate for addressing these identified issues. As a result, this paper argues that co-creation is an effective tool for enhancing the supervisory relationship and for co-solving problems associated to it. In addition, we present qualitative evidence supporting our novel use of the methodology and of the process of co-creation itself in addressing key identified issues within the supervisory relationship including isolation, a desire for community and improving communication skills.

Keywords: Co-creation; supervisory relationship; doctoral experience, doctoral supervision, postgraduate research students.

Introduction

Doctoral students' satisfaction is widely acknowledged as closely linked with completion rates and academic progress, in turn influencing successful funding applications, university league table positioning and student wellbeing (Dericks et al. 2019). Researchers have scrutinised the student-supervisor relationship (Bastalich 2017) identifying a positive supervisory experience as the "largest predictor of PhD student

satisfaction” (Dericks et al. 2019, 1062). However, PhD students and supervisors report significant barriers in building and maintaining positive and successful working relationships (van Rooij 2019). Barriers include supervisory models not tailored to the individual student (Manathunga 2005; Harrison and Grant 2015); a lack of clarity around the roles and responsibilities of supervisors (Dericks et al. 2019; Manathunga 2005); misalignment between student and supervisor expectations of supervision (Harrison and Grant 2015; Moxham et al. 2013); power imbalances within the supervisory relationship (Cartera and Kumar 2017); and external pressures such as, undertaking compulsory training (Jones and Blass 2019), producing research outputs and making funding applications (Browning et al. 2014).

Prazeres (2017) encourages supervisors to make practical changes such as providing positive re-enforcement to students, organising regular supervision meetings, discussing coping, critical thinking and problem-solving skills, assisting students with applications for funding opportunities and using their powers of influence within the department to reduce part-time workload enabling students to focus on their thesis. Practical solutions targeting students have also been extensively reported (Finn 2005; Tanggaard and Wegener 2016; Phillips and Pugh 2010), including highlighting students’ individual responsibility in forming a positive relationship with supervisors, taking the initiative to raise concerns and ensuring clear communication between parties. Although other literature recognises the doctoral process as an institutional responsibility, here too it is often framed in terms of departments being responsible for providing student opportunities for “planning, developing and facilitating their *own* professional development” (McAlpine 2013, 266).

Supervisory training (Kiley 2011) is widely advocated as a key part of academic departments’ discharging their responsibilities around doctoral student success and

providing robust supervision pedagogies and models of supervision (McCallina and Nayar 2012). Raffing et al's (2017) empirical study found that three quarters of supervisors were keen to undertake training around their roles and responsibilities. However, Lee (2008) found that extensive training can lead to fatigue and demotivation amongst academics, negatively impacting the supervisory relationship, recommending a streamlined approach, centrally managed with training responsibilities distributed appropriately across the university.

Although there is extensive literature recommending useful, practical changes to improve the supervisory relationship, solutions predominantly fall into three categories - (i) supervisor focused, (ii) student focused and (iii) departmental focused - with most placing emphasis on individual responsibility. Moreover, these solutions are typically designed to improve existing one-to-one or team supervisory paradigms, rather than challenge them. Where new approaches are considered, they are typically designed to fit into the current supervisory strategy, and thus do not create a broader challenge to existing models and styles and consequently their contribution to improved supervisory relationships, student satisfaction and quality of academic work is limited.

Supervisory Models

Supervision is described by Lategan (2008; 4) as “the active engagement of a supervisor in assisting the postgraduate student in identifying a line of inquiry, delineating the scope of a project within that line of inquiry, and providing guidance for successful completion of the project and the dissemination of results.” Supervision models have an established tradition in a number of disciplinary fields including counselling and guidance, psychology and some areas of education particularly teaching training. There is much less conceptual clarity and practice consensus around supervision models within the doctoral space. Many writers (see for example Gurr,

2001 and Manathunga et al., 2009) focus more on supervisory style, emerging from individual attitudes and approaches, with successful supervision resulting from the alignment of the supervisee's needs with the supervisor's style (Gurr 2001). Such alignment model requires active engagement between the student and supervisor, most commonly in the form of a one-to-one discursive relationship.

The work of Dysthe (2002) outlines three supervision models – the teaching, partnership, and apprenticeship models. The teaching model draws on the traditional teacher-student relationship characterised by asymmetrical power relations which place the supervisor in a position of control offering direction to the student. The apprenticeship model similarly elevates the power position of supervisors (as 'masters' in the field) over students who learn under their supervisor's direction and guidance. The partnership model is characterised by more symmetrical power dynamics and positions dialogue as its core feature. The central importance of more even power dynamics and dialogue (as noted by Gurr, 2001) are confirmed in the observations of Dysthe that "equate dialogue with good supervision" (2002; 522).

Dialogue and more even power dynamics as features of quality supervision are further reinforced by Gatfield (2005) who identifies four models of doctoral supervision - Pastoral (Low structure, High support); Directional (High structure, Low support); Laissez-Faire (Low structure, Low support) and Contractual (High structure, High support) - finding (albeit in a very small scale study of 12 supervisors) that more highly-rated supervisors adopted the contractual model characterised by more friendly support.

Van Rooij et al. (2020) identify cohesion in the relationship between supervisors and students as crucial to the PhD process and student satisfaction. They call for consideration to be given to finding a 'match' between candidates and their supervisors. The practicalities of achieving this are challenging. As Mainhard et al's (2009) research

demonstrates, supervisors and students are not always aware of their actual style and in many instances, perceive themselves to use a different style to the one they adopt in practice. Moreover, in matching supervisors and candidates, universities may risk reducing cohort diversity and undermining the importance of working alongside people who are different from themselves.

Although dialogue, cohesion and more symmetrical power relations are identified as desirable features across a range of doctoral supervision models, there is little consensus (in terms of identification of a particular supervisory model that best delivers these) across the sector. In reality, the supervisory relationship is complex and fluid making a ‘one size fits all’ supervisory model solution unlikely not least because good supervisory practice depends on a wide variety of factors including the nature of the participants engaged in the relationship, the expectations of each, the field of study and stage of study. Indeed, fluidity of approach may also be required within the same relationship over time and under different circumstances or at different stages as appropriate. Regardless of these difficulties, the challenge of creating supervisory encounters which are cohesive, rich in dialogue and with more even power dynamics remain. This study contends that co-creation has a role to play here and explores the contribution of co-creation within the supervisory relationship.

Co-Creation

In the past decade, there has been an increased interest in research and practice around co-creation and ‘students as partners’ within the higher education setting (Cook-Sather et al. 2014; Dunne 2016; Mercer-Mapstone et al. 2017). Bovill et al. (2016: 197) reflect that “one way to conceptualise co-creation is as occupying the space between student engagement and partnership, to suggest a meaningful collaboration between students and staff, with students becoming more active participants in the learning process,

constructing understanding and resources with academic staff.” Co-creation is therefore a collaborative process that can be utilised within the *pedagogical* arena, concentrating on learning and teaching experiences, or with a *political* focus, working on university governance and solving institutional issues (Bukley 2014).

There are a broad range of co-creation activities reported across a variety of institutions, encompassing students co-developing curriculum with teachers, to students collaborating with staff in developing institutional policies (Rock, Foster and Lamb 2015; Delpish et al. 2010; Deeley and Bovill 2017). Within this body of co-creation work, students are enabled to adopt a variety of roles including representative, consultant, co-researcher, and co-designer (Bovill et al 2016).

As result, the co-creation process enhances students’ agency, their active participation as well as negotiation and decision-making abilities (Dollinger, Lodge and Coates 2018) and facilitates student-staff relationships allowing them to connect, collaborate and work together.

Importantly, via co-creation, diverse staff and student knowledge, experience and resources interact to yield a more joined-up approach to problems as well as more relevant outcomes than if the two groups acted in isolation (Frow et al. 2015). Hence co-creation is identified as useful in collaboratively engaging stakeholders in discussions of shared issues and their resolution (University UK 2018).

The possibility of utilising co-creative approaches for developing more integrated solutions was pertinent to us as an institution because, despite implementing many of the solutions suggested in the academic literature, students and supervisors continued to report persistent issues with the supervisory relationship. Therefore, drawing on the success of the co-creative approach in higher education institutions at undergraduate level (Bovill 2020) and the reported plentiful benefits of co-creation in

exploring issues and developing solutions (e.g. enhancing students' agency, improving participants communication and team-work skills; Dollinger, Lodge and Coates 2018), we sought to utilise co-creation to bring together stakeholders to unpack and address the supervisory issues experienced. In so doing stakeholders were not only invited to identify issues within the supervisory relationship but also have a crucial role in developing solutions.

Summarising, the research question that underpins this study is: “Can co-creation be used as an effective tool for tackling supervisory issues within the PhD experience, and as a means of developing solutions to the main issues associated with it?”

Structure of the Co-Creation Study and Method

This research was structured as a multi-stage study, undertaken in 2019-2020 in a large, Russell-Group University in England. Our aim was to explore if the application of co-creation processes and techniques provides a means of developing solutions to the main issues associated with the supervisory relationship within the PhD experience, involving the voices of all stakeholders. In responding to this research question, we first needed to identify the main supervisory issues present among students at our institution. Hence the first stages of our study (Stages 1 and 2, see below) focus on developing an understanding of the key issues within the supervisory relationship and the PhD experience more generally.

The study comprised three key stages. The first two stages focussed on capturing the knowledge and lived experience of PhD students and supervisors, and drawing out experiential understandings of the supervisory relationship, identifying its related challenges. The third stage sought to engage students and supervisors in co-creative, collaborative encounters to co-produce understanding of issues and co-develop

recommendations to the identified challenges/barriers within the supervisory relationship and wider institutional context.

The research question was explored throughout the three stages following a mixed-methods study design (Venkatesh, Brown & Bala, 2013). Such a method allowed us to develop rich insights into the topic of interest that could not have been fully understood using only a quantitative or a qualitative method. It allowed us to initially identify, via in-depth conversations and the collection of a set of qualitative data, the main issues experienced by PhD students (Stage 1), to verify the prevalence of such issues via a quantitative, large-scale survey (Stage 2) and finally to respond to the research question via collection of qualitative data from co-creation workshops (Stage 3). We collected demographic data throughout the three stages of the study for evaluating the characteristics of our sample against the overall University PhD population.

Ethical approval was obtained by the Humanities & Social Sciences Research Ethics Committee. The research was conducted in accordance with the ethical requirements of the University with students and staff providing informed consent to participate in the focus groups, semi-structured interviews, surveys, and co-creation workshops. Consent for the recording and transcribing of the activities as well as for the eventual use of anonymised verbatim quotations from the focus groups, semi-structured interviews, survey and co-creation workshops for the publication of the study were also obtained. Informed consent was gathered from participants via paper forms prior to them participating in focus groups/interviews and online forms were used with participants prior to them accessing the survey and when registering to the co-creation workshops. In terms of ensuring confidentiality, during focus groups and co-creation workshops, the researchers renamed each participant with a research participant number and asked participants to refer to each other utilising the numbers. If by mistake a

participant referred to another participant making any reference that could lead to participant's identification, this information was omitted in the transcription. At every stage of the study, participants were provided with information about how to withdraw from the study, how confidentiality was ensured, data collected, analysed, handled, and stored. Before taking part in the study, participants agreed to this as part of the consent forms.

Stage 1: Identifying Issues

This first stage of the study focused on identifying the main issues associated with the PhD experience and supervisory relationship for students and supervisors at our institution. In particular, we sought to understand in depth the expectations around the supervisory relationship of PhD students and supervisors; the main issues impacting the supervisory relationship; the perceived scope of their respective roles; barriers and enablers of a positive supervisory relationship; and initial suggestions for enhancing the latter.

Stage 1 was largely conducted using small focus groups allowing us to capture detailed supervisory experiences and narratives (Nyumba et al. 2018). Where participants were unable or preferred not to take part in focus group discussions, their views were captured via participation in an individual semi-structured interview (Parker and Tritter 2006). We decided to organise small focus groups and semi-structured interviews as this allowed us to create safe spaces and develop meaningful, extensive conversations with the participants about sensitive topics. This small-scale, qualitative approach yielded the desired outcome of obtaining in-depth information and rich qualitative data about the main issues experienced in the supervisory relationship.

Students and staff were invited to participate via university mass emailing and communication channels specific to PhD students, including invitations from the

Doctoral College and the Student Union Postgraduate Office. Fifteen PhD students participated in three focus groups (five students per group) and nine supervisors, and ten PhD students participated in individual semi-structured interviews. We ensured that similar numbers of participants, both supervisors and supervisee, from across the three institutional faculties were included in this study's stage, to capture experiences across different disciplinary settings. We also captured a range of student and staff voices across different ethnic backgrounds and nationalities enriching our understanding through the sharing of a more diverse and inclusive range of experiences. Focus groups and semi-structured interviews were coordinated and facilitated by two members of the research project team neither of which had any prior relationship with any participants. The researchers used focus group and interview guides to structure each focus group and interview discussion which were recorded and transcribed.

A thematic analysis was executed following a recognised six-phased method (Nowell et al. 2017, Braun and Clarke 2006) with themes being derived from the data.

The analysis of qualitative research data can be conducted using a number of established approaches. Our methodological choice here was undertaken to secure a rigorous and methodical approach (Nowell et al. 2017) allowing us to systematise and increase the traceability and verification of the thematic analysis and yield meaningful and useful results. The data were coded separately by the two researchers using Excel, each working systematically through the entire data set, giving full and equal attention to each data item. Individual extracts were coded as many times as considered relevant and bi-weekly, minute-recorded research meetings among all researchers were held during the coding process to facilitate peer-briefing and cross-checking and to ensure coding consistency. Using template analysis (King 2004) and through an iterative process of comparison and classification, repeated until all researchers were satisfied

(Nowell et al. 2017), the codes were grouped into three main themes, each containing a series of sub-themes (Table 1) as specific, recurrent issues underpinning each main theme. A draft of findings was shared with participants for gathering their comments and feedback. The initial findings from Stage 1 were used to inform the second stage of the research and shared internally in a report to the Doctoral College.

Stage 2: Understanding the Prevalence of Issues

Stage 2 aimed at establishing the incidence of the issues identified in Stage 1 in our University PhD population, confirming the relevance of the data collected and analysed via qualitative methods as well as revealing the prevalence of the identified issues. In Stage 1 the main issues around the PhD supervisory relationship were identified qualitatively with a small number of participants - interviews and focus groups were carried out revealing a range of barriers and challenges in the supervisory relationship and the PhD experience more generally. This second stage of the study sought to confirm these findings from Stage 1 quantitatively, and at scale, using a survey. The aim here was to evaluate how representative Stage 1 participant findings were across the larger cohort. The use of such a method (i.e., small, qualitative research followed by larger, quantitative survey) is suggested within the recent literature as a way of establishing and confirming barriers and enablers within the HE students' experience in similarly sensitive research areas (Lister, Seale and Douce, 2021). As a result, this research method was selected as an appropriate means of addressing the research question.

Based on Stage 1 results, we designed and distributed, across the institution, two surveys (one for staff and one for students – details in Appendix A) using key university channels. These surveys sought to capture larger scale quantitative data around the prevalence of the thematic/sub-thematic issues identified in Stage 1, to build

understanding of their frequency. Student and staff surveys comprised 25 and 20 substantive questions respectively and included a final invitation to participate in Stage 3 of the research – a large co-creative workshop.

The wellbeing of staff and students and their needs within the supervisory relationship were two of the main themes identified at Stage 1 (Table 1).

The survey explored these themes and related subthemes (Table 1) in greater detail with the aim of quantitatively measuring their incidence, asking participants to rate their (i) Life satisfaction, (ii) Levels of perceived stress, (iii) Work-life balance and (iv) Relationship with supervisor/supervisee. A well-established way to measure life satisfaction, one of our subthemes (Table 1), is to draw on quantitative scales and therefore we utilised the ‘Life Satisfaction Scale’ (Diner et al. 1985). Although developed some time ago it is still considered the ‘dominant measure of life satisfaction since its creation more than 30 years ago’ (Margolis et al, 2019, p. 21). Perceived stress was measured using the 10-item Perceived Stress scale (Cohen, 1994), which asks participants to indicate frequency of particular feelings during the past month, with higher scores indicating higher perceived stress. We utilised this scale as it is well-accepted and robust (Roberti et al., 2006; Baik et al., 2019). Work/life balance was studied using the ‘Work-Life Balance Scale’ (Brough et al. 2014), a more recently developed scale which responded to the need for construct refinement in the measurement of work/life balance (Greenhaus and Allen 2011), demonstrating robust psychometric properties and predicting relevant criterion variables. Finally, to measure the supervisory relationships, we employed the ‘Adapted Relationship Scale’ (Hendrick et al.1988). We chose this commonly used scale because its reliability and validity have been confirmed across a number of years (Vaughn and Matyastik Baier 1999; Dinkel and Black, 2005).

In addition, a series of multiple-choice questions investigated the institutional context (third key theme; Table 1) exploring cultural, resource and community issues identified during Stage 1, (i.e. access and availability of postgraduate research specific resources, guidance about vacations for staff and students, the use of technology and support and training for the future).

86 PhD students, 69 supervisors, and 5 postdoctoral researchers who supervise/support PhD students, drawn from across all university faculties completed the survey. The demographics of the PhD student participants in the survey largely reflects the overall make-up of the PhD student body across the university in terms of faculty, year of PhD, area of domicile (UK, EU, international) and ethnic origin (Appendix B). However, there is some gender-bias in our sample - 69% female participants c.f. 44% female PhD students across the university.

The survey reinforced the relevance and prevalence of the identified themes and subthemes (see Appendix C for details) confirming that one of the main challenges experienced was a lack of a sense of community and feelings of isolation and loneliness. 55% of students declared suffering from Imposter Syndrome and 24% of students had thought seriously about leaving their PhD studies in the last six months. 39% of students desired a program of social events specifically for PhD students and 37% wanted opportunities to share experiences with other PhD students. In the main, supervisors expected students to find and establish their own community of support. However, students stated that there were significant barriers to establishing such networks within the university, in contrast to taught postgraduates and undergraduates, and reported significantly less support. For example, although 77% of students had access to hot-desking, they did not have access to a permanent office or PGR communal space and where this was provided, the conditions were not considered ideal. Dedicated

physical space was identified as essential for creating a sense of community, engaging in peer support and engendering a sense of being supported and valued by their department and their supervisor. Students also flagged a lack of guidance, advice and support around navigating the key stages of the PhD (52%).

Although 73% of supervisors were aware of support services, only 21% of supervisors felt confident signposting students to the appropriate support if needed. Another common challenge was a lack of training for supervisors. Overall supervisors felt able to provide their students with the skills they needed to pass their PhD with 84% of supervisors feeling confident in helping their students overcome any academic weakness or areas of struggle. Nevertheless, only 34% agreed or strongly agreed that they were satisfied with the amount of supervisory training they had received at our institution with only 14% receiving any formal training. A concerning 81% of supervisors stating they learned to supervise PhD students 'on the job' without any formal training. In addition, 39% believed their supervision could be improved although they would need advice in identifying weaknesses.

Within the data there were some disparities between the response of supervisors and supervisees. Regarding supervisory approach, 89% of supervisors felt they adapted their supervisory style to suit their supervisee's needs. In contrast, only 62% of students felt their supervisors' style met their needs with 28% of students expressing frustration with their supervisor's approach. Also, whilst 57% of supervisors viewed their relationship with their supervisee as a friendship, only 17% of students agreed.

Overall, the larger scale Stage 2 results confirmed the prevalence and relevance of the issues identified in Stage 1, as well as offering some additional information around identified issues.

Drawing on the insights gleaned in Stages 1 and consolidated in Stage 2, the third and final stage focused on using co-creation as a means of co-developing solutions to the issues identified, collaboratively generating recommendations for reform.

Stage 3: Co-creating Solutions

Building on Stage 1 and 2 findings, the third stage used co-creative pedagogy as a method of designing solutions to overcome supervisory issues and involved designing and conducting a large co-creation workshop. The design of the large co-creation workshop was informed by a small-scale pilot (comprising 4 supervisors and 6 supervisees) to test and trial its design and conduct, enabling any refinements to be made. Drawing on learning from this test event, the large co-creative workshop was undertaken for key stakeholders in the PhD supervisory process, comprising supervisors, supervisees, and administration staff.

The workshop was two-hours in duration and participants were organised into groups of 5 or 6 participants composed of supervisors, students, and administrative staff from different faculties. To encourage open discussion, we ensured that 'real' pairings of supervisors and supervisees were not in the same group. The size and composition of the groups were selected to ensure constructive and 'safe' dialogues. Each group was exposed to the findings from the Stages 1 and 2 via an interactive presentation given by one of the researchers of the team and initially tasked with discussing these findings in their groups. The groups were asked to engage in dialogue to create and suggest solutions to the presented issues. Each group decided how to approach the identified challenges and coordinate their group discussion, giving control of the process to the participants. A trained observer joined each group, taking notes of the proposed solutions and annotating reflections shared by the participants about the co-creation event, process and experience. Observers did not participate in the discussion but at the

end checked their annotations and summaries with group members. Participants were also provided with A3 papers, felt tip pens and post-it-notes, with the observer collecting any visual material produced by groups. At the end of the event, participants were also offered the additional opportunity to share further thoughts, ideas or reflections via a feedback form, eleven of which were returned. Collected data regarding proposed solutions was analysed, coded and allocated according to the themes previously recognised (Table 1), utilising the same method described earlier for the Stage 1 thematic analysis. In this way, recurrent participant suggestions in response to the issues that had emerged in Stage 1 and 2 were identified by the researchers.

Annotations collected by the observers around the co-creation event and process were also analysed utilising the same method with a number of key themes around the experience of participating in co-creation work emerging from the thematic analysis (Table 2).

Stage 3 - Participant Demographics

Within Stage 3 of the study there were 82 participants - 37 PhD students (Table 3) and 45 supervisors (30 male, and 15 female), including participants across all university faculties.

Participants were invited via the main university channels as described for the survey. We also actively sought to increase participant diversity by using university platforms dedicated to students of different ethnic backgrounds and nationalities within our recruitment. Our student sample reflects the diversity of the university's PhD cohort with the exception of gender. When allocating students and staff to the different working groups, we ensured a mix of participants across different disciplines, ethnicities and nationalities.

Stage 3: Findings

Responses to Issues Identified from Stages 1 and 2 of the Study

Table 4 summarises participants' proposed responses during the co-creative workshop in relation to tackling the issues which emerged from the previous stages.

Prior research (Harrison and Grant 2015) suggests that the institutional context is a key factor in the success of a supervisory relationship and a PhD students' successful academic progress. Our earlier findings (Table 1) revealed that institutional factors (including culture, resources and a lack of community) were significant issues. Co-creative workshop participants proposed numerous responses to these challenges. As illustrated in Table 4, most of these responses focused on the resources and guidance available to students and supervisors and practical initiatives aimed at developing a sense of community.

The survey data identified that just under half of participants felt there were not enough resources, both physical (e.g. desks), monetary and guidance, for supervisors to adequately support their student's research. Co-created solutions proposed allocating ad hoc funding (partly in recognition of the value of PhD students within departmental research profiles); equipping students with clear guidance on key stages of the PhD process; clarity around university and departmental expectations of students and supervisors; information on supporting international students; and guidance around the importance of taking holiday allowances and sick leave procedures.

In addition, co-created remedies placed importance on providing PhD students with dedicated time and space including places to work and collaborate and offering opportunities for students to create a community which was currently felt to be lacking by about half of survey participants. Co-creative workshop recommendations also included further community building activities such as social events; establishing

research clusters; promoting shared environments and opportunities for informal conversations (e.g. coffee-break sessions) where students and supervisors could come together to collaborate and break down barriers to dissipate the problematic and embedded power imbalance within the supervisory relationship (Hemer 2012 and Lee 2008).

Co-creation participants also developed responses around the theme of supporting students' wellbeing. Wellbeing challenges are identified in the literature as a significant reason for students leaving their PhD (Sisson and Jackson 2019), also recognised as an issue by 27% of Stage 2 participants. In fact, wellbeing and work-life balance are widely recognised as having significant impact on the quality of the supervisory relationship. Positive experiences of wellbeing create a greater sense of control of the PhD experience for both staff and students (Dericks et al. 2019; Sisson and Jackman 2019), foster a deeper sense of belonging, help to remove power imbalances within the supervisory relationship and move towards a collaborative relationship where supervisors and supervisees learn from each other (Harrison and Grant 2015). Wellbeing initiatives proposed by Stage 3 participants included clear guidance on available support for students and introducing PGR-specific wellbeing initiatives. Additional suggested initiatives included a dedicated PGR wellbeing co-ordinator in each academic department and implementing mental health first aid training for both supervisors and supervisees.

Finally, and in response to 81% of supervisors disclosing they learned how to supervise 'on the job' with no formal training (with only 14% of supervisors having any formal supervisory training), co-created developments suggested including training for supervisors providing information on how to support students and creating space and opportunities for supervisors to develop their supervisory practice as part of their

ongoing professional development. Recommendations also suggested such supervisory training could usefully use a communal and co-creative environment to enable supervisors to share ideas and engage in ongoing dialogue with colleagues.

Implementing these co-created recommendations would seek to alleviate stressors linked to the supervisory relationship and broader factors impacting on it. Many of these recommendations have subsequently been (or begun to be) implemented at an institutional level by the Doctoral College. Given its effectiveness, the College is also supporting the implementation of co-creation as a mean of tackling department-specific issues related to the PhD experience. Although findings are specific to our institution, they benefit other universities by demonstrating the effectiveness and success of co-creation in solving problems within the PhD experience. Broader relevance is also achieved by encouraging the use of co-creative pedagogy within the postgraduate research setting.

In addition to developing solutions for the problems raised in the survey, there were a number of further findings that explore the benefits associated with taking part in the co-creation experience (Table 2). The remaining part of this section details these findings and their importance.

Co-creation Experience

The co-creation experiences were popular with participants. We found bringing together stakeholders and providing an opportunity for engaged dialogue that otherwise would not have happened, was effective at both identifying and addressing issues, facilitating development of numerous solutions, which are already being implemented across the university. Most participants expressed a keenness to engage further in collaborative co-creative activities in the future.

There were a number of benefits (Table 2) experienced by participants and associated with being involved in co-creation as follows:

1. Awareness raising of other's perspectives

Stage 1 and 2 found something of a misalignment between student and supervisors' expectations of each other's roles and a lack of awareness of each other's experiences, a finding shared with other studies examining the supervisory relationship (Harrison and Grant 2015; Manathunga 2005; Hockey 1994). Co-creation encouraged students and staff to engage in a dialogue which unpacked and worked towards a shared resolution of issues. Co-creation enabled participants to hear others and to be heard, to share in the narratives of others, and to listen and build understanding of the perspectives of others. This challenged and reshaped understandings and assumptions as they learnt from each other.

This iterative awareness was reflected in the way solutions were developed by the groups and captured by the trained observers who repeatedly reported how a group member would initially propose a solution which was subsequently tailored to meet the broader and shared concerns and ideas of others. Supervisors and students frequently commented that: "I hadn't thought of it like that" becoming enlightened by the other's perspectives. In developing solutions, students and supervisors were observed to incorporate each other's perspectives and frequently compromise and collaborate on solutions. For example, students were struck by having similar issues to supervisors around a lack of guidelines and signposting around support opportunities and subsequently worked collaboratively to identify useful information to be communicated by the institution to support both parties. Raising awareness around the lack of training for supervisors and of the number of supervisees assigned to supervisors in certain departments helped students to better understand the pressures experienced by

supervisors. In the same way, supervisors were surprised to learn of the issues experienced by students in regard to the lack of community with subsequent discussions focusing on developing feasible initiatives in which staff could engage to support students without adding extra workload pressure.

Many students and staff positively commented on the ‘rare experience’ which co-creation provided in terms of an opportunity to share perspectives and work together to create better supervisory relationships, embedded within and derived from sharing experiences. Benefits were also derived from working with participants from other departments, learning from their experiences, and including these different views in the creation of holistic and more inclusive solutions. Thus, participants left the workshop with a better understanding, appreciation and empathy for others’ experiences and a desire to improve these collaboratively.

2. Finding a Voice

Co-creation encounters brought together students and supervisors to respond to issues raised by their colleagues. Unlike traditional methods of gathering feedback on the supervisory process, participants saw and determined how their feedback would be implemented through the development of responsive solutions. At the end of the workshop participants expressed a sense of ‘finding their voice’ and of being heard. They were repositioned as an active part of the solution and no longer passive participants in the process.

3. Community - Shared Experience

Co-creation activities centred on sharing experience, with participants no longer feeling they were the only one experiencing these issues. Students were able to sit at the same table with supervisors, invested of the same agency and enabled to be an active

part of the academic community. In addition to the solutions proposed in Table 4, many of which sought to develop and build a research and supportive community, workshop participants said they would like to attend more co-creation workshops to together find solutions to problems experienced throughout their PhD studies or in their role as a supervisor. Thus, a fundamentally important finding, further discussed below, is that co-creation workshops and exercises were in themselves a solution to the issues and stressors identified in the earlier stages of the study and the academic literature including, loneliness, isolation, and a lack of community.

Limitations

As identified earlier one limitation of our study is the minor gender bias within our PGR participants. Whilst the demographics largely reflect the overall make-up of the PhD student body across the university in terms of faculty, year of PhD, area of domicile (UK, EU, international) and ethnic origin (Appendix B), there was a slight bias towards female students (see Table 3), which may affect the generalisability of our study to the PGR population. Notwithstanding, the disproportionately high number of female participants is a common issue in PGR well-being studies (Levecque et al., 2017; Marais et al., 2018).

Additionally, our study may be limited by being a single institution study located solely in the UK. Aware of this potential limitation, we actively pursued the presence of a variety of voices utilising for our recruitment university platforms dedicated to students of different ethnic backgrounds and nationalities. When allocating students and staff to the different working groups, we made sure as much as possible that participants belonged to different disciplinary and ethnic or international backgrounds. Our ethnicity demographics (see Table 3) reflect the multi-cultural student and staff body of the University.

In contrast to Stages 2, the sample size for Stage 3 is relatively smaller and thus, a potential limitation of our study. However, having a smaller sample size for Stage 3 is crucial for ensuring constructive and ‘safe’ dialogues within the workshops.

Finally, our research may have self-selection bias as our participants volunteered to take part; therefore, such students/staff might have a pre-existing interest in the topic and may have skills that would allow them to be positively involved with co-creation activities.

Discussion

Although widely applied in higher education (Bovill 2020), this project makes significant steps in demonstrating the suitability of co-creation within the post-graduate research space both on a small scale - as a tool for unpacking issues and designing solutions to tackle institutionally specific issues - and on a larger scale, as part of the solution to remedy some general stressors identified in academic literature such as loneliness and a lack of community (Ali and Kohun 2007).

Rebalancing Power

For many participants, co-creation transformed how they normally viewed or experienced the relationships between students and supervisors. The supervisory relationship is typically characterised as intense, private, hierarchical and a one-to-one relationship between a master (supervisor) and apprentice (student), where the master transfers their knowledge and experience to the apprentice (Harrison and Grant 2015; Manathunga 2005). The Oxford English Dictionary defines the supervisory relationship as the “ability or function of overseeing, directing or taking charge of a person, organisation or activity” (OED 2013). Thus, inherent in the supervisory relationship is an embedded hierarchy of power and expertise “by which supervisors play the dominant

lead role” (Carter and Kumar2017). This inherent power imbalance has been identified as a barrier to a successful supervisory relationship and student satisfaction (Harrison and Grant 2015).

As experts in their fields, supervisors provide formal feedback on chapters, conference papers and presentations and therefore, have the power to determine how the end thesis is formulated (Hemer 2012; Lee 2008). They ultimately have the power to determine when and if a PhD candidate is ready to submit and who the internal and external examiners are. Jones and Blass’ (2019) interviews with 23 PhD students found many ‘abuses’ of power, with supervisors failing to provide clarity as to their expectations and failing to turn up to meetings on time. Students explained that at the beginning of their PhD they struggled to find their own voice and speak up due to intimidation of their supervisor’s expert status or because they were hesitant to cause conflict which may adversely impact the lengthy supervisory relationship and reference opportunities beyond this (Jones and Blass 2019). As Lee (2008) argues, supervisors are gatekeepers to the PhD qualification.

Data from our study found that students from within our institution similarly often struggled to challenge their supervisor’s pre-determined supervisory approach and instead sought to ‘fit in’. During the co-creative workshop, supervisors and students were able to share experiences and for many, this was a transformative experience. This was the first time they had heard and listened to each other’s perspectives and in so doing developed an appreciation for the others’ responsibilities and experiences. Active engagement of supervisors and students, described by Lategan (2008) as a desirable feature of the supervisory relationship, were present within our workshop discussions. Through shared co-creation discussions, an opportunity for more authentic and active engagement between students and supervisors was realised. This is a significant

outcome since a number of writers including Gurr (2001) and Manathunga et al., (2009) also identify active engagement (through creating closer alignments between supervisee's needs and supervisor's supervisory styles) as underpinning successful supervision.

Dialogue also has an importance presence here with the co-creation workshops, providing a dialogic opportunity for sharing experiences and perspectives between students and supervisors. In developing solutions within these discussions, students, previously disadvantaged by the power imbalance of the supervisory relationship, felt they had a voice, felt able to share their concerns and could see that they were having a direct impact on the outcome. Reflecting on the work of Dysthe (2002) and Gatfield (2005) describing models of supervision, dialogue is positioned as central to developing more symmetrical power dynamics within the supervisory relationship. Dysthe "equates dialogue with good supervision" (2002; 522) and in this way co-creation offers important potential as a means of enhancing supervisory relationships through a dialogic focus which fosters more balanced power dynamics.

Also of note in considering rebalancing power is that the co-creation workshops had a role to play in re-shaping relationships between supervisors and students. Through the sharing of experiences and perspectives, a more informed understanding was developed of the other. Such authentic understanding creates the potential for more cohesion, particularly when students and supervisors are working together to develop solutions to supervisory problems. As discussed earlier, Van Rooij et al. (2020) identify cohesion as a crucial component in the supervisory relationship. Co-creation may offer a way forward here, with 'matching' (or cohesion) emerging as a result of authentic dialogic encounters rather than imposed and/or based on existing individualistic styles. This aspect is discussed further in the 'Shared Communication' section that follows.

Co-creation therefore presents as a potentially powerful tool for supporting a rebalancing of power dynamics within the supervisory relationship. Its potential to generate cohesion, improve alignment (Gurr 2001) and encourage authentic dialogue positions it as one means of moving the supervisory relationship towards more symmetrical power relations (van Rooij et al. 2020) and one characterised by desirable co-dependence and collaboration (Piper and Emmanuel 2019).

Shared Communication

As identified above, co-creation was also found to be a tool for improving and facilitating communication between supervisors and students. Participants willingly shared their experiences and expressed surprise at their communal concerns and challenges.

Our study supports the findings of the academic literature identifying how misalignments between student and supervisors' expectations and a lack of understanding of the others' role (Harrison and Grant 2015) causes tensions that can fester within the relationship throughout the PhD (Moxham et al. 2013). Co-creation created an environment to address these misalignments and share each other's lived experiences. As presented in our findings, as participants shared experiences, they expressed surprise at and later appreciation for the others' perspective. This enabled them to alter their recommendations for change in line with their newfound understanding and appreciation. Thus, co-creation facilitated the development of solutions that balanced the needs of all stakeholders in a mature and holistic manner. This is preferable to the creation of solutions by a third party who may not appreciate the complexities and nuances of the stakeholders nor the competing issues and factors to be taken into account.

In co-creation, stakeholders made compromises, put aside their own interests and found solutions that worked for all. Co-creation was thus not only, a practice used to unpack issues and design solutions within the supervisory relationship but was also itself a tool for creating a space to communicate, share experiences, to listen and be heard. This emphasises the direct role of co-creation, with its central positioning of dialogue, as a means of building more open communication into supervisory relationships, identified as a critical component of successful supervision (Dythe 2002). It also provides a potential opportunity (through shared awareness and understanding) of actively building a ‘match’ between supervisors and supervisees, identified by Rooij et al (2020) as an important element of a cohesive and successful supervisory relationship. Actively building this ‘match’ through shared understanding, as a process of bringing participants in the supervisory relationships closer together, may also mitigate some of the problems identified by Mainhard et al (2009), such as reducing cohort diversity, where matching is attempted using other factors.

Extending Co-Creation into the Postgraduate Research Space

Co-creation pedagogy has been successfully used at undergraduate level (Clothier and Matheson 2019). However, to date it has only been implemented at postgraduate taught level (Bovill 2020; Bovill et al. 2010). This paper submits evidence that demonstrates the effectiveness of co-creative pedagogy at postgraduate research level in tackling specific issues experienced by PhD students and their supervisors. In October 2020, the UK Catalyst Fund published their report suggesting co-creation as an important potential way forward for solving issues linked to the postgraduate research experience (Catalyst Fund 2020). This study is pertinent here, demonstrating the effectiveness of the co-creative approach in improving the supervisory relationship and consequently, the wellbeing and attainment of doctorate students.

The Burkett (2020) cycle of co-design highlights the importance of co-creation as a continual process, regularly implemented. Thus, it is important that the co-creative process is supported by the institution (Piper and Emmanuel 2019) by implementing suggested solutions and engaging stakeholders in ongoing discussions to develop the initiatives implemented. For example, our institution has successfully transitioned the findings from the co-creative workshop into a living and evolving legacy. The Doctoral College at our institution is committed to implementing co-creation as mean of addressing departmental and institutional issues, thus embedding this method and its benefits within University practice.

Broader Benefits

Our findings illustrate the multifaceted benefits of co-creative pedagogy. In addition to the above, co-creation equips participants with additional skills including communication, problem solving, teamwork and creativity (Dollinger, Lodge and Coates 2018) all of which are vital skills for PhD students (Schmidt and Hansson 2018). Moreover, the co-creation workshop led to the development of new initiatives to improve stakeholders' wellbeing and, in bringing them together, made steps towards creating a community, potentially reducing feelings of isolation and loneliness. Piper and Emmanuel's (2019) report encouraged the use of co-creation for the development of mental health strategies. On a small scale and in a different context, this study achieved this.

Conclusions

This multi-stage study achieves three unique objectives. First, it demonstrates the effectiveness of co-creation as a tool specifically within the postgraduate research space. Previously used in schools, colleges, undergraduate teaching and occasionally in

postgraduate taught settings, this study extends co-creative pedagogy into the postgraduate research arena. Second, it finds co-creation is not only a tool for addressing issues related to the supervisory relationship, the subject of much academic discourse, but also itself a potential solution to many of the issues specific to the postgraduate research experience. These include, but are not limited to, loneliness, isolation, management of expectations, communication between supervisors and students and a rebalancing of power dynamics within the supervisory relationship. Thirdly, co-creation has been largely applied within small scale scenarios such as within a whole class, but this research is one of only a few examples of how co-creation approaches can be successfully up-scaled into larger events (Mercer-Mapstone and Bovill 2019). Our study involved a large number of participants from a variety of backgrounds, who benefitted from the multifaceted impact of co-creation, extending its ‘power’ beyond a few individuals. As recommended by Mercer-Mapstone and Bovill (2019), this study provides a practical guide and example for current administrative and academic staff and students of how to scale up co-creation within a large workshop setting.

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