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## **A framework of postgraduate collaboration: postgraduate collaborative space in a UK university.**

### **Abstract**

A notable trend in UK universities has been the introduction of new collaborative learning spaces for postgraduate students, which provide space for students to interact with each other, study together, and collaborate. However, it is unclear what definition of ‘collaboration’ is driving the creation of these spaces and the types of activities expected to take place in them. This article provides an analysis of doctoral students’ understandings of ‘collaboration’ and collaborative space. The study involves focus groups with 24 doctoral students at a UK university. From an inductive thematic analysis, a framework of four types of collaboration is constructed, and it is seen that doctoral students want elements of each of these types of collaboration to be catered for by the spaces offered at their institution. The idea of PhD ‘collaboration’ needs to be broadened, so that a wider array of collaborations can be provided for and fostered by universities.

Keywords: Collaborative Work; Doctoral Education; Doctoral Study; Group Work; PhD.

### **Introduction**

It has long been acknowledged that peers play an important role in doctoral education. In 1996, Anderson provided empirical evidence from a survey of more than 2,400 doctoral students that collaboration had a positive effect on students, their level of preparation for research careers, and the wider department environment. Since then, a number of studies have considered the role of peers, group work, and collaboration in doctoral education (Littlefield et al. 2015; Flores and Nerad 2012; Gardner 2010). However, few have focused specifically on the role of space in these dynamics. This article will analyse postgraduate students’

understandings of ‘collaboration’ and relate this to their needs and expectations in terms of collaborative spaces offered by universities.

### **Collaboration and Postgraduate Collaborative Space**

Learning environments can promote safety and inclusion, encourage participation and involvement, support community building, and support engagement with technology through computer-mediated environments (Strange and Banning 2001). Students consider the spaces in which they learn to be an important factor in their success, and select places to work based on their perceived effectiveness in supporting learning outcomes (Beckers, van der Voordt, and Dewulf 2016a). As higher education pedagogy becomes more student-led, ‘higher education institutions need to provide more informal learning spaces in open areas and quiet learning spaces for individuals and small groups’ (Beckers, van der Voordt, and Dewulf 2016b, 142).

A notable trend in UK universities has been the introduction of more collaborative postgraduate learning spaces. These new spaces are largely being created to incorporate and cater for new technologies and development in pedagogies (Beckers, van der Voordt, and Dewulf 2015; Jessop, Gubby, and Smith 2012). For example, At Queen Mary University of London, the Think Pod is an ‘interactive collaboration space with presentation, recording and video conferencing facilities’<sup>1</sup> which is provided for postgraduate students.

The University of Warwick has two spaces dedicated to postgraduate students; the Postgrad Hub, which is ‘a dedicated space for postgrads, enabling them to access support, work in a collaborative environment and socialise with peers’, and the Research Exchange, which is

available to all researchers and provides ‘a forum for interdisciplinary collaboration’<sup>2</sup>. As well as incorporating new technology, these spaces support socialisation as well as study. For example, the Sutton Bonington Graduate Centre at the University of Nottingham provides a space for postgraduate students to ‘relax and meet people, as well as providing facilities for study’<sup>3</sup> and The University of York provides the Research Study which is ‘a specialist study area for postgraduates’ which “provides an informal space for postgraduates to study or relax”<sup>4</sup>.

Fundamentally, these spaces are described as ‘collaborative’ or supporting ‘collaboration’. For example, Queen’s University Belfast restored and remodelled the Lynn Building and made the space available to postgraduate students. The university website says ‘new meeting and collaboration spaces, study areas and social spaces ensure the Graduate School is a vibrant centre of activity and intellectual exchange for postgraduate students’<sup>5</sup>.

There has been a common assumption in much of the doctoral education literature that discipline focused departments are the central sites of doctoral education, but Pearson, Evans and Macauley (2016) highlight the multiple, interdisciplinary, trans-locational nature of doctoral study. They argue that ‘the existence of cross institutional entities, the dispersal of academics and candidates in one discipline across various [academic organisational units] in a given institution... raise questions about the utility of this perspective’. The increasing existence of these multi-disciplinary, collaborative postgraduate spaces in UK institutions could demonstrate an acknowledgement of this. However, without discussing students’ perspectives of these spaces and how they use them, it is unclear whether these spaces provide a flexible matrix of relations for postgraduates, or a new form of bounded ‘academic organisational units’. Brett and Nagra (2005) argue that learners should be consulted to

inform decisions about learning spaces to avoid discrepancies between institutional and student ideas about collaborative learning. Therefore, this article provides an analysis of doctoral students' understandings of 'collaboration', and develops a framework of PhD collaboration.

Our understanding of the role of collaboration for doctoral students is limited. Whilst much research has focused on collaboration and group work for undergraduates (for example, Curşeu and Pluut 2013; McClellan 2016), and collaboration for academics and research staff (for example, Lewis, Ross, and Holden 2012; Nistor 2015; Shin, Lee and Kim. 2013), doctoral research occupies a space between these two types of collaboration and has therefore received less attention. There is a conceptual tension in academia between learning in academic research, and undergraduate teaching and learning, where research is seen to involve deeper thinking and critical analysis whilst teaching requires equipping students with knowledge and information (Light and Calkins 2015). The introduction of Doctoral Training Centres in the UK means that many doctoral students attend taught sessions and complete assignments as part of their doctoral training. In this sense, and in their status as 'students', doctoral researchers are positioned as 'learners'. But, they are also involved in research and are simultaneously positioned as 'researchers'. This places doctoral students in the centre of the 'breach in the understanding of learning at the heart of the two practices distinguishing academic work' i.e. teaching and research (Light and Calkins 2015, 356). This puts them in a unique situation which shapes the particular stresses and strains to which they are exposed (Grady et al. 2014).

Although PhD students are learners, Flores and Nerad (2012) argue that doctoral peers are best understood as 'learning partners', as opposed to notions developed in undergraduate

contexts such as peer educators or peer leaders, as doctoral students ‘are more like colleagues who are learning from one another’ (Flores and Nerad 2012, 81). Doctoral students face challenges relating to ‘attrition, supervisor relationship, supervisor quality, and social isolation’ (Jones 2013, 84). Students provide each other with a whole range of benefits including knowledge, advice, informal induction, and emotional support (Holloway and Alexandre 2012; Gardner 2007; Anderson 1996) and a more explicit focus on ‘peers’ in doctoral education could support this (Boud and Lee 2005).

Graduate students in Grady et al.’s (2014) study identified isolation as a key strain, and this was seen to have negative implications for their mental health. Social and emotional support from peers is a key aspect of combating these challenges (Pemberton and Akkary 2010). In fact, Gardner (2010) found that programmes with higher completion rates offered the greatest opportunities for students to form social relationships, and in these departments students relied on each other for support and spoke about the department as a ‘family’. This would suggest that collaborative space should be an essential provision for graduate study. But, it is important to note that students were not entirely negative about isolation and in fact ‘deliberate, productive isolation was sometimes spoken of as a necessity’ (Grady et al. 2014, 12). PhD spatial provision and the role of collaboration in this provision is complex and requires further consideration. However, firstly, further discussion of the concept of ‘collaboration’ is needed.

The notion of ‘collaboration’ is one which encompasses multiple definitions, models, and practices (John-Steiner, Weber, and Minnis 1998). However, policy and funders often adopt a ‘one-size-fits-all’ approach where conceptual, practical, and disciplinary differences are ignored in favour of a more simplistic approach (Lewis, Ross, and Holden 2012). Although

policy may focus on this more formalised collaboration, such as creating research teams, collaborative funds for certain topics, and measuring the number of collaborative publications, it is seen that social and emotional aspects are also essential to good collaboration (Collin 2009). By focusing only on more formalised collaboration and ignoring social or emotional aspects, including sense of belonging and community, more formalised collaboration can be less successful or even break down (Lewis, Ross, and Holden 2012). Nistor (2015) sought to verify the effect of a sense of community on knowledge sharing and effective communities of practice in academia. The study concluded that a sense of community and associated social factors are ‘an important predictor of knowledge sharing acceptance in academic communities’ (Nistor 2015, 271).

Lewis, Ross, and Holden (2012) have developed a framework of collaboration involving two forms of collaboration; collaboration (with a lower case ‘c’) and Collaboration (with an upper-case ‘C’). Separating out these two aspects in this way allows for full acknowledgement of different forms of collaboration. Collaboration (with an upper-case ‘C’) ‘is a concrete form of networking that is readily observable to research funding and performance systems’ (Lewis, Ross, and Holden 2012, 696). Collaboration represents the more tangible elements and is common in science disciplines, but less so in social sciences and humanities (Lewis, Ross, and Holden 2012). In contrast, collaboration (with a lower case ‘c’) ‘involves discussion of research and ideas, feedback and commentary on research work and draft papers’ (Lewis, Ross, and Holden 2012, 696). This type of collaboration represents the more community elements, being supportive of colleagues and working together or collaborating in less formalised ways. Whilst Lewis, Ross, and Holden (2012) have provided a clear framework and definition of these two forms of collaboration, and have demonstrated their use, this conception is still relatively new and therefore they call for further research into

the relationship between these two forms of collaboration. Additionally, their framework considers academic collaboration, without a specific focus on collaborative spaces.

Although there has been an increase in the existence of collaborative postgraduate spaces in UK universities, it is unclear to what extent these spaces align with the collaboration needs and expectations of postgraduate students. This article will address the question ‘How do doctoral students in a UK university understand collaboration in relation to their doctoral research?’.

## **Methods**

This research focuses on PhD students as a community, therefore focus groups were used to allow students to discuss and reflect on their uses and ideas of collaboration and space with peers. After an initial discussion about the role of collaboration in doctoral research, students discussed a range of spaces both on campus and in their homes, before being asked more specifically about their use of a centrally provided postgraduate collaborative space located in the library. To enter this space you have to swipe a university card for the doors to open. This is to ensure that it is only accessed by researchers. The space is large and light, and there is a row of large windows to the right letting light into the room. There is a small kitchen area hidden around a corner. This is very basic and is simply surfaces, cupboards, and a water dispenser. There are a few rows of computers where people tend to work individually on a PC. There are then circular tables throughout the room suitable for small groups. There are also three sofa areas in the room which are more comfortable and have a lower ‘coffee table’ style table. Off the main room are three smaller rooms which are used for events and training. The room has a whiteboard which can be moved to tables, as well as two tables equipped



with a computer and large screen for groups. There are also a number of lockers which can be used to store belongings.

To recruit participants, a call was advertised widely across the university by email mailing lists and social media asking for PhD students to participate in a focus group about the spaces offered at the university. Students were asked to sign-up online and indicate their availability. Based on student availability, and ensuring that focus groups did not become too small or too large (between 5 – 8 students per group), four focus groups were formed. The focus groups each lasted 1 hour and involved 24 PhD students in total (11 male and 13 female). The students represented multiple faculties including 8 students from Arts and Humanities, 7 from Social Sciences and 9 from Sciences. The focus groups were facilitated by the lead researcher who asked broad questions to introduce topics for discussion. Firstly, they were asked about collaboration and the role of collaborative work in doctoral study. This was then followed by a discussion of their use of space for study (both on campus and at home). Finally, students were asked about their use of a centrally provided postgraduate collaborative space, and to what extent they felt that this space met their needs.

The focus groups were audio recorded and transcribed verbatim. The transcripts were analysed using inductive thematic analysis (Braun and Clarke 2006) to generate themes or ‘types’ of collaboration that students talked about during the focus groups. Four types of collaboration were identified (Group/Project work, Networking Collaboration, Social Collaboration and Community and Belonging). The analysis was data driven rather than theory driven. The codes and types were created through data analysis rather than existing theories of collaboration in the literature. This article firstly discusses the four types of

collaboration, and then considers this in relation to relevant theory and research, to consider the broader meanings and implications of the proposed framework.

Initially the transcripts were read and all instances of student talk about collaboration, group work, or being with others were identified (94 instances in all). These were then read and initial codes were generated. After further reading and refinement, these codes were extended and grouped to form key themes, or ‘types’, of collaboration discussed by the students. All of the data were then re-read to ensure that the types generated fairly represented the data. This produced a framework of four types of collaboration, all of which appeared in each transcript. The instances of collaboration talk were fairly evenly distributed across three of the four types of collaboration (Networking Collaboration, Social collaboration and Community and Belonging). There were far fewer instances (around half compared to the other types) of Group/Project Work. This was explicitly acknowledged and discussed by the students who in general felt that this type of collaboration was less important or relevant. This is explored in more detail below.

#### **Four ‘types’ of PhD Collaboration**

The analysis identified four ‘types’ of collaboration; Group/Project Work, Networking Collaboration (formal and informal), Social Collaboration, and Community/Belonging Collaboration, each of which will now be discussed.

##### ***Group/Project Work***

The first type identified is similar to ‘collaboration’ at an undergraduate level. This involves ‘group work’ or working together on a specific project to produce a specific outcome, such as a presentation, or to support each other in writing essays or revising for an exam. The PhD

students talked about this type of collaboration being associated with undergraduate work. In the following extract the student explicitly compares ‘undergraduate’ and ‘postgraduate’ study, mentioning ‘working in groups’ or ‘dealing with it in groups’ as features of undergraduate study.

*‘Undergraduates also tend to, not tend to but sometimes, work in groups much more often than postgraduate students because postgraduates usually do reading or data analysis, that sort of stuff whereas undergrads spend more time on various projects or essays but dealing with it in groups rather than separately.’*

The PhD students make a clear distinction between ‘collaboration’ as the collective work of PhD students and ‘group work’ which is deemed to be related to undergraduate activities. However, there are cases of the PhD students saying that they have worked in this way for specific tasks and found it useful, for example;

*‘We did actually book out one of the rooms there, [a centrally provided space] before Christmas for a group of us to work through some, well we'd got to write an essay based on one of the social science modules and we all got to the point where we could do with each other's help, and so we booked a room out for a couple of hours to sit and talk things through, which was useful.’*

With the creation of Doctoral Training Centres (DTCs), many PhD students are involved in tasks such as attending lectures, seminars, and completing assignments, such as essays. This could see an increase in this ‘group work’ type of collaboration for PhD students and have an impact on the types of spaces they require.

In this research the examples of PhD students talking about engaging in this type of collaboration are few, and are confined only to work relating to the DTC. However, they did not construct a PhD as an entirely solitary activity. Instead, they seemed to make a distinction between ‘group work’ and ‘collaboration’, where the former is associated with undergraduate collaboration and the latter PhD collaboration. Many of the PhD students described PhD work as ‘personal’ and ‘more intense’ than undergraduate work and therefore their collaborative activities were different. For example, in the following extract the student describes their work as ‘more personal’ and contrasts this with less personal learning such as ‘attending lectures’.

*‘You’re doing a far more personal work than attending lectures and things like that. It’s a different way of working.’*

In fact, they seemed reluctant to consider this ‘undergraduate’ type of work as ‘collaboration’, referring to working in a group on exam questions in the following as ‘so called collaboration’.

*‘The economics students they have a lot of exams, so when they’re doing so called collaborative work what they’re actually doing is actually discussing exam questions. So I guess for something like Economics where it’s a lot of math, discussion becomes a lot more crucial than reading so if you look at it in this way it looks like their discipline is more collaborative than ours and as a result humanities always seems to lose out because collaborative work is such a big thing these days.’*

The above quote also points to some potential differences between the university and the students. The humanities students expressed annoyance at the fact that certain types of ‘collaboration’ were better provided for than others. They felt that humanities particularly suffered in this respect as the type of collaboration relevant to their studies was perhaps less clearly defined or ‘group work’ based, and therefore their needs were not as well provided for. Equally, the PhD students talked about possible differing views of ‘collaboration’ between the staff that manage the centrally provided spaces for PhD students, claiming that the staff see PhD collaboration as working in a more undergraduate manner, whereas PhD students see their collaborative activities as something much more structured and less ‘random’.

*‘The [centrally provided space] is trying to force a very undergraduate type of research on us which we find, disturbing. Because we had a meeting with them and it’s clear that their idea of collaborative research is random people meeting random other people at a desk and coming up with a random research project which is not how it works on postgraduate level.’*

Since the PhD was described as ‘personal’ it was felt that you had to complete some individual work before you would be able to collaborate with others. However, there was a feeling that this was not understood by the university, or provided for in the spaces offered. The PhD students claimed that ‘collaboration is such a big thing now’ and in the following extract they discuss the impact that they felt this focus on providing ‘collaborative space’ was having, describing this as ‘problematic’.

*‘now it’s only about collaborative work so there are huge tables all over the place and you don’t have any place for silent individual work which makes it very problematic for us*

*because you can start collaboration when you have arrived at a certain level of your research but you need first your individual silent research to do any collaboration'*

Again this points to a possible miss communication about what 'collaboration' means for PhD students. However, this does not mean that collaboration was seen as an irrelevant concept for PhD students. This article identifies three further types of collaboration.

### ***Networking Collaboration***

Rather than group/project work collaboration, the PhD students saw collaboration as focused much more on networking and making connections with people. In contrast to group/project work collaboration, where the activity has a set purpose, this type of collaboration has no predetermined outcomes or goals. The focus is more on making connections with people and being able to discuss your research with others. This may lead to discovering new knowledge or ideas, or may just create a new connection with a person which may lead to new knowledge or ideas in the future. They used phrases such as 'colleague discussion', 'sharing information', having 'people to bounce ideas off' and 'the exchange with other people' when talking about this type of collaboration. In the following extract a student gives an explicit example of useful connections that they made in the collaborative space.

*'Sometimes you can get so many collaborations you realise that your research is similar to people in other departments, for example I was focusing on education technology and I found a whole lot of people, and it also involved some linguistics and I found them at the [centrally provided space]. Whereas if I was in my lab I wouldn't have been able to find them.'*

Looking at this idea of networking as collaboration in more detail, it seemed to take two main forms; formal and informal.

### *Formal Networking Collaboration*

Formal networking takes the form of events, seminars, and reading groups i.e. in more formalised settings or specific events designed for people to come together. Networking collaboration was specifically seen by the PhD students as ‘not random’ and many of them found the idea of randomness in relation to networking unhelpful and an unrealistic way to expect (or to be expected) to work, pointing to an event as the medium through which these collaborations can take place since. Some students felt uncomfortable about networking in the course of a normal university day, as they would be distracting others from work. As one student states, *‘If someone's studying you're not just going to go up and chat, until and unless you know them’*. These more formal events create the social space which allows discussions about research without feeling as though you are interrupting or disturbing someone by talking to them. The students like the ‘social spaces’ that these events create, which facilitate this collaboration. For example, in the extract below, the student says that collaboration is more about ‘events’ than physical spaces, and describes the idea of talking to someone outside of the context of such events as something they cannot imagine doing.

*‘I think for me collaboration is more about events than about spaces, so it's a sense in which there are certain events within the department for example have research seminars where the scholars from other universities invited to give a paper and then we can talk to them and exchange ideas with them as well as staff members and other postgraduates, but I'm not quite sure how that would work without kind of an event that would spark that. I don't really*

*imagine sitting at the [centrally provided space] and just starting chatting to the person next to me about their research.'*

In terms of space in relation to formal networking collaboration, what is more important is the social spaces and the creation of events at which students can discuss and network. It was felt that having a formal event legitimised discussion and networking and therefore was a useful tool for students. However, in addition to this formal approach to networking collaboration, an informal approach was also identified.

### *Informal Networking Collaboration*

Although the PhD students disputed the idea of randomness, there was an informal approach to this type of collaboration. They were clear that collaboration is not just something that spontaneously happens between two disconnected people. However, they were equally clear that PhD collaboration was not as structured and predetermined as it may be for those on taught courses, where the goals and parameters of the collaboration are much more clearly defined. In the following extract the student questions the idea of planned or formalised collaboration.

*'For us collaboration isn't about going to the library and saying "alright I need to spend half an hour today collaborating with eight people" it doesn't work out that way. You go to the library thinking "I'm going to get some work done" and then you end up meeting other people and talking to them and then sometimes you need to go back to your individual work to think about things and then start collaborating again, so you need to move between these two spaces.'*



This type of collaboration requires spaces which allow this to take place. The students talked a lot about having flexibility in spaces, particularly the need to ‘move between’ working individually and then discussing work and ideas with others. These environments are not specific events or seminars, but are simply spaces in which multiple researchers are working, and are therefore able to complete their individual work, but also talk and engage in networking collaboration. The PhD students talked about the value of sharing a working space with Post-Doctoral and Early Career Researchers who are working on similar topics and may be further along in their studies. It was clearly argued that if these are just ‘random’ researchers this would be much less effective.

*‘Student 1: Postdocs they have their research duties and so if they discuss something if it’s not related to your work it could be disturbing to you. On the other hand if you have a group of people working on the same, not the same but similar type of research as you it would be good for you to get to know each other and know what they’re doing which can improve your work as well.’*

*Student 2: You could have a postdoc student working on a similar thing that you’re working on so it would be actually useful for you to share a space with that person.’*

If the researchers are from complimentary disciplines, or are working on related problems, this was felt to be a really important way for students to engage in networking collaboration. In terms of provision of space, creating working spaces where researchers from similar backgrounds, or working in similar areas, can work could support and foster this informal networking collaboration.

### *Social Collaboration*

Although networking collaboration places a large emphasis on talking to people, this is clearly focused on talking about work and research in order to exchange ideas. In contrast, social collaboration focuses on socialising as the main objective of the interaction. This may seem odd to have ‘social’ as a type of collaboration, since collaboration is usually related to work, and socialising is considered not work. This uneasiness at classifying socialising as ‘collaboration’ was expressed by a PhD student,

*‘Interviewer: Is collaboration something that's important to you with the stage you're at?’*

*Student: It's a tricky question, I mean I enjoy chatting to the other PhDs, whether I could call that collaboration I'm not sure.’*

This is a valid question, can ‘chatting’ be classified as ‘collaboration’? Many of the students talked about how important a social aspect to their studies was.

*‘The social aspect of it is also a really important part of the PhD student's life’*

Therefore, since this is having an impact on students working lives, it is important that it is also considered, although it is often overlooked. Many of the PhD students mentioned ‘social interaction’ as something which is extremely important to them. In the following extract, the student highlights the importance of having social contact with others, and then links this to the spaces that they chose to spend time in.

*‘Being able to chat to other people and realising that these people are in the same space as me, having the same challenges, and talking to people who are not from my department for*

*me is really great, so that's what I like about the [centrally provided space], that I get to talk to people.'*

Although the students are not explicitly talking about their research, they often talk about the PhD process and their stresses, strains, and troubles both in relation to their personal lives and PhD (and often the clashes and blurring of the two). This type of social support can be an integral part of enabling PhD students to work and continue with their studies, and is therefore an important aspect of the way they work with others. One of the main reasons given for the importance of social interaction was because of the nature of the PhD process in that it is quite an individual job, where it is possible to have very little social interaction on a day-to-day basis.

*'For me I like to interact because I found that throughout my PhD it was such a lonely process.'*

Being able to connect with other students in this way was an important aspect in enabling students to continue with their studies and combat some of these aspects of PhD life. This need for social interaction impacts on students spatial preferences and how they chose where to (and not to) work. In the following extract the student describes completing a PhD as a 'lonely thing' and then explains that they intentionally visit a particular space on campus where they are able to meet other people to combat this loneliness.

*'A PhD is usually a very lonely thing, like you go do your work, come back. So that's like one of the reasons why I prefer going to the [centrally provided space], like I get to meet some people on a regular basis.'*

Finally, the students again talked about flexibility being important. They did not talk about these types of interactions taking place as something totally separate from work, but as smaller interactions during the course of the working day. They therefore wanted to be able to move quickly and easily into a space where they could interact in this way either as a short break, to have lunch, or to ask for advice or support from others and then return to work. In the following quote, a student explains that there is a social space in close proximity to their office, a space where they can work quietly, which they consider to be a benefit.

*'My office is also connected to a common room area, which is nice because if I want some social interaction you know with other people it's just there.'*

What is very strong in these discussions is the importance of flexibility in space. The students wanted to be able to move quickly and easily from a quiet isolated space to a socialising space. Having the flexibility to move between spaces was extremely important for successful social collaboration.

### ***Community and Belonging***

Related to both networking and social collaboration, although distinct, is community and belonging collaboration. This relates to a sense of community or belonging which is achieved not necessarily through socialising, but by working in a communal area or having a special place which is just for you and people like you. In the following extract the student describes the positive effects of being in a space where there are other people.

*'Seeing people around makes me feel better. Even if I don't socialise and I'm not working with them just the presence of them gives me a boost.'*

The students talked about this as creating a sense of community, of providing '*familiar faces*' and commonality in that you are all postgraduates working in the same space at the same time.

*'Although I can stay at home and work as well but I find it more sometimes nice to see some people around as well, working at the same time as you are.'*

The existence of spaces which are specifically for PhD students creates a sense of a PhD community, and working in those spaces can create a sense of being a part of that community, which the PhD students said was an important experience for them. In the following extract a student explicitly refers to this idea of a 'PhD community'.

*'Within the library the most effective space for PhD students would be the [centrally provided space] because it has, as everybody has said, the flexibility that enables us to work alone but also in connection with other people having a feel of a PhD community you know with other people. So that's what I found the [centrally provided space] really useful in that respect.'*

The PhD students also made multiple references to 'family' when talking about the PhD community and the PhD specific spaces that they chose to work in. This indicates the strength of this feeling of community and belonging that can be created in these spaces. One student describes how this is particularly important for international students, and talks about the PhD community being important in the absence of family and providing a 'home'.

*'Some of us are international students, you wouldn't have a life outside the [centrally provided space], like the PhD is your life, it happens to just be your life. So to be able to get in and the people who you chat to, they might be the only people that you ever talk to for the whole day. So if you have to go to your office every day, you practically wouldn't talk to anyone. And like, this is your home, you don't have family members outside, so I think it's so so important to get out of that lonely zone.'*

This was not only seen as a nice extra for PhD students but was seen as essential for them to continue producing high quality work and maintain good mental health. In the following extract the student explicitly links space and a sense of community ownership of that space with mental health support.

*'It's so intensive doing a PhD, especially for our mental health it's important to have a space that's ours, and for me separate from my home life.'*

This sense of community and belonging is an important part of combatting feelings of isolation and loneliness. Therefore, this community and belonging collaboration could be an important aspect of improving the mental health of PhD students, which makes this an essential form of collaboration for successful PhD research.

## **Discussion and Conclusion**

The PhD students in this research had quite strong feelings about the spaces that they used for study and socialising. In addition to the many positive things that the students said about these spaces, they also had some negative things to say, as they believed that some of the

staff who ran these spaces had inaccurate ideas about PhD collaboration, which meant that the spaces were not managed in a way which the students felt was most conducive to their needs. The students seemed to be caught between notions of ‘group work’ (taught students) and ‘collaboration’ (academics/staff). They also seemed to draw on a broader definition of ‘collaboration’, talking about the importance of individual work or reading, feeling the presence of others as you work, feeling part of a community, as well as socialising and having a break from work. Using an inductive approach, this exploratory research has proposed a framework of PhD collaboration involving four key ‘types’ of collaboration including: group/project work, networking (formal and informal), social collaboration, and community and belonging collaboration.

This framework can be seen as an extension of Lewis, Ross, and Holden’s (2012) ‘collaboration’ and ‘Collaboration’. Although Lewis, Ross and Holden’s (2012) focuses on academic collaboration, the way that the PhD students discussed collaboration and collaborative space in this research mirrored Lewis, Ross, and Holden’s (2012) definitions well in that ‘formal networking collaboration’ is similar to ‘Collaboration’ and informal networking collaboration’ is similar to ‘collaboration’. The four types of PhD collaboration then extend this model (which describes academic collaboration) to include areas relevant to PhD study. PhD students are researchers, therefore academic ‘collaboration’ and ‘Collaboration’ (Lewis, Ross, and Holden 2012) is relevant to them. However, they are also learners, therefore an aspect of collaboration as a learning activity is also relevant to them. This is seen in the discussion of ‘Group/project work’, which can be seen as an extension of ‘Collaboration’ (Lewis, Ross, and Holden 2012), but in a learning context. The final categories of Social collaboration and Community and Belonging can be seen as an extension of ‘collaboration’, but where the collaborative element may be more implicit. However, these

forms of collaboration were seen as necessary for ‘collaboration’ or ‘Collaboration’ (Lewis, Ross, and Holden 2012) to take place.

Having the opportunity to create a sense of belonging and to break the isolation of PhD study can be seen as a key aspect of maintaining PhD students’ mental health and allowing students to complete their studies, meaning that spaces which support this are highly important.

Schartner (2015) found that socialising with others and having a sense of belonging is extremely important to international taught postgraduate students, and called for future research to explore the transferability of the findings to the situation of doctoral students.

This research provides some initial qualitative evidence that sense of belonging and community is also extremely important for international doctoral students, who talked about these spaces as an important place to socialise, and provide community and belonging in the absence of nearby family. This is an important area for further consideration and research.

Whilst the framework proposed in this article fits with existing literature well, it is important to note that it has been developed within an exploratory study at one institution, with a relatively small sample size of 24 students. This sample of students were self-selecting, in that they volunteered to participate in a study about collaboration and university spaces, meaning that they may not be representative of the wider cohort. Therefore, larger studies in different contexts to test and develop the framework are needed. Additionally, the data were analysed by a single researcher, therefore additional research to validate the findings would strengthen the proposed framework. This research offers some initial insights into postdoctoral student collaboration, and potential changes in their needs in terms of collaborative spaces, which could be developed with future research.



Drawing on social constructionist theory, consequences for conceptions of ‘knowledge’ and ‘learning’ could be considered. Despite focusing on ‘collaboration’, these collaborative postgraduate spaces are framed within an individualist ideology and retain some of the elements of control and hierarchy that collaborative spaces are supposed to challenge. In this research the collaborative space was felt to be controlled, not by learners, but ‘staff’. In this case the PhD students felt that certain ways of learning were being ‘forced’ or supported more than others, and that this did not always suit ways in which they wanted to learn. The staff have since tried to change this and have held consultations with students and encouraged users to give feedback and input into furniture layout and use of the space.

The relationship between space, education, and control is well established (see Foucault 1977). One student explicitly evoked this by referring to a table where a member of staff usually sits as ‘*like a panopticon*’. If new, flexible, collaborative learning spaces are developed without students having some control over the space and forms(s) of collaboration, then hierarchy and control are maintained. Therefore, this exploratory research has developed a framework of PhD collaboration from student discussions about collaboration and space, to propose a framework which, with further research and development, could be used to think about collaboration and the organisation of postgraduate collaborative space from the perspective of students.

The resulting framework suggests that there is a case for a broadening of the notion of PhD collaboration. A social constructionist model of knowledge and learning is useful here, as this allows for the removal of mind/body dualism which creates a separation between learning in the mind and learning in space. Gergen (2015) suggests that learning should be thought of in terms of relationships.

‘Much to be welcomed is also an expansion of the concept of relationship to include more than the social relationships within the class... the concept of relationship is expanded to include the various tools and materials encountered in the educational process. However, there is no principled end to the perimeters of relationship’ (Gergen and Wortham 2001, 136).

If considered as relational, then reading, working alone but feeling the presence of others around you, and discussing ideas with others all involve students entering into relationships, and therefore can be considered forms of collaboration. This expands the notion of collaboration and also the requirements in terms of space. The students in this research drew on a broader idea of ‘collaboration’ and ideally wanted all of these aspects to be reflected in the space that they worked in. Students wanted to be able to move quickly and easily between different types of collaboration and activities such as reading, talking, thinking, or eating lunch. Therefore, this suggests that to be most successful, these spaces need to cater for ‘collaboration’ in a broader more flexible way. Students also need to be partners in the shaping of institutions understandings of collaborative learning and collaborative spaces to ensure that old hierarchal patterns of education are not reproduced. This study proposes four initial categories of PhD collaboration which, with further research, could be developed and used to help university staff to create and manage spaces which support and facilitate collaboration in ways which suit the needs of PhD students.

## **Notes**

1 Queen Mary University of London, Think Pod and Innovation Pod

<http://www.busman.qmul.ac.uk/postgraduate/postgraduatefacilities/index.html>

2 The University of Warwick, Postgrad Hub and Research Exchange

<http://www2.warwick.ac.uk/services/library/pghub/>

3 University of Nottingham, Sutton Bonington Graduate Centre

<http://www.nottingham.ac.uk/graduateschool/graduatecentres/suttonbonington/index.aspx>

4 The University of York, Research Study <https://www.york.ac.uk/library/study/>

5 Queen's University Belfast, Lynn Building

<http://www.qub.ac.uk/home/Discover/Campus-and-facilities/The-Graduate-School/>

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