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Cover Page Footnote

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Spurring you on and rooting for each other: The potential value of group research projects

Clair Hebron and Jane Morris

ABSTRACT

This qualitative study explored students' experience of collaborating to undertake a neuromusculoskeletal group research project which was conducted in partial fulfilment of their MSc course. A phenomenological approach was adopted to gain insight into participants' experience of learning and working in a group.

Six participants who were all alumni took part in individual telephone interviews conducted by an independent researcher. The interviews were digitally recorded and transcribed verbatim. Thematic analysis identified four main themes: the role of the supervisor, peer assisted learning, quality enhancement and learning to work in a research team. Participants felt that group projects facilitated their confidence in the research process. This has been demonstrated as two of the alumni have presented their projects at conferences and published in an international journal. Some of the alumni found working in a group challenging, but were able to reflect on the skills which they learned through managing the group dynamics. The potential benefits of group projects are an increase in peer assisted learning, the development of problem solving and critical reasoning, enhanced communication and team skills. The presence of a group member who fails to contribute has been identified as a potential constraint.

Reflection on emerging themes highlighted the importance of the supervisor's role in facilitating the process. A framework for supervising group research projects work has been produced to facilitate others in supervising to best effect; this will feed into staff and curriculum development.

INTRODUCTION

This study investigated the experience of Master's physiotherapy students conducting research projects in a group. This article will explore their experiences of participating in the group research project and will examine the opportunities and challenges they faced throughout the whole research process.

The study took place in a School of Health Professions within a Faculty of Health and Social Science. Participants who took part in the study were either pre-registration students who had completed a previous health related degree and were studying on an accelerated physiotherapy programme, or postgraduate physiotherapists who were undertaking a Master's course in neuromusculoskeletal physiotherapy. During the course of their studies, pre-registration and postgraduate Master's students engage in research projects which form an integral component of health professional education. These research projects take place over the latter years of study over an extended period and normally involve applying for ethical approval and collection and analysis of primary research data. Traditionally students conduct individual projects facilitated by a supervisor.

The current study was considered to be important as very few group research projects had been undertaken previously within the physiotherapy division. Although there is a body of research which has explored group projects in education and in some health professions, there has been little research that has looked at physiotherapy students' experiences of a working in a group to conduct a research project. It was felt that an

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increased understanding of the student experience would help staff to facilitate future group research projects.

The main themes which emerged from the data and form a key focus of this paper were the role played by the project supervisor in facilitating the group and peer assisted learning. The quality enhancement of the research project and potential for students to disseminate their research findings is also discussed.

LITERATURE REVIEW

Review of the literature indicates that there is an increasing body of research which identifies the benefits and challenges of learning and teaching approaches that promote peer assisted and group learning. These include problem-based learning (Savin-Baden, 2000; Sadlo, 2006; Dolmans et al, 2005; Applin et al, 2011) and peer assisted learning (Boud et al, 2001; Falchikov, 2001;Boud and Lee, 2005; Ladyshewsky, 2006; Ladyshewsky and Gardner; 2008; Sole et al, 2012; Topping, 2005).

Previous research which has investigated students' experience of group projects for example in nursing and education has identified their potential benefits. These include an increased interest in learning, the development of problem-solving and critical reasoning skills, and enhanced communication and group skills (Livingstone and Lynch, 2000; Christiansen et al, 2011; Kangasniemi et al, 2011; Fenge, 2012). One of the potential challenges to the perceived success of group projects which has been identified is the presence of a group member who fails to contribute fully (Livingstone and Lynch, 2000). However health professional research into group projects where students undertake primary data collection and analysis as part of a research project appears to be limited and to the authors' knowledge, no studies to date have specifically explored the use of group projects throughout the whole research process.

The aim of this small-scale study was to explore the experiences of alumni who had undertaken a group research project as part of their programme of study at a university in the South East of England.

METHODOLOGY

Aim: To explore students' experiences of being involved in group research projects

Objectives

- To gain a deeper understanding of students' experiences of group projects
- To identify advantages and constraints of group projects
- To provide insight into learning and teaching approaches that facilitate student learning within group projects
- To utilise findings to support the development of further group project work.

By undertaking research into students' experiences of a group approach we hoped to gain insight into their experience which would improve future group research projects. Insight into the experiences of students who have taken part in a group project may also enable the staff facilitating these projects to adapt their learning and teaching approaches in order to enhance the student learning experience.

Research question:

What was the experience of physiotherapy students who were involved in a group research project?

Participants

Participants were six physiotherapy graduates. Four of the alumni had graduated from an accelerated Master's pre-registration physiotherapy programme and two had completed a postgraduate MSc in Neuromusculoskeletal Physiotherapy. This purposive sample size is consistent with previous research that suggests six to eight interviews are enough for exploring participants' experiences (Smith et al, 2009).

Ethical approval

Ethical approval was sought and granted from the Faculty Research Ethics and Governance Committee. All participants were provided with an information sheet in advance and signed a consent form before taking part in the study.

Inclusion criteria

Participants selected for the project were involved in a group research project and agreed to participate in a telephone interview.

Methods

This study was approved by a Faculty of Health and Social Science, Research Ethics and Governance Committee. We adopted a qualitative, phenomenological approach as it enabled us to gain insight into student experiences and a deeper understanding of the advantages and disadvantages of group projects. Semi-structured telephone interviews were carried out between each participant and an independent researcher. Telephone interviews were more practical, as the alumni were based at significant geographical distances from the university. However when making this decision we acknowledged the disadvantages of telephone interviews which include an inability to observe participants' non-verbal communication (Shuy, 2003) and the difficulty of the researcher responding appropriately to participants who disclose sensitive information during the interview process (Cresswell, 2007). Each interview was digitally recorded and the interview data was transcribed verbatim. The transcriptions were coded to ensure participants' anonymity. Participants were allocated a number to protect their identity.

Data analysis

A thematic approach to data analysis was adopted following key stages identified by Braun and Clarke, (2006). These include familiarisation with the data, generating codes and searching for, reviewing and naming themes.

Rigour

An independent researcher was used to collect the data as the principal investigator (CH) was a lecturer in the same university as the student participants who took part in the group project. The transcripts were read systematically several times to enable the researchers to immerse themselves in the data (Finlay and Ballinger, 2006; Cresswell, 2009). The principal investigator and a second researcher JM also reviewed the data to enable the themes to be compared and revised with those of CH's initially coded data.

RESULTS

All participants in this study gained research ethics and governance approval for their research projects and collected and analysed quantitative data.

Four main themes emerging from analysis of the data were identified:

- The role of the supervisor
- Peer assisted learning
- Quality enhancement
- Learning to work in a research team

Although we have described and explored each theme in turn, for the purpose of this article our main focus will be on the role of the supervisor and peer assisted learning. Increased emphasis has been placed on these themes as we feel they reflect students' experience of learning and working during the research process as a whole, which may in some way provide insight for people undertaking future group research projects.

The role of the supervisor

Findings from analysis of participants' interviews identified the key role of the supervisor as a facilitator within the group project and the research process as a

whole. The data suggests that there are a number of dimensions of this role that contributed to the success of the project. These dimensions are identified and displayed in Figure 1.

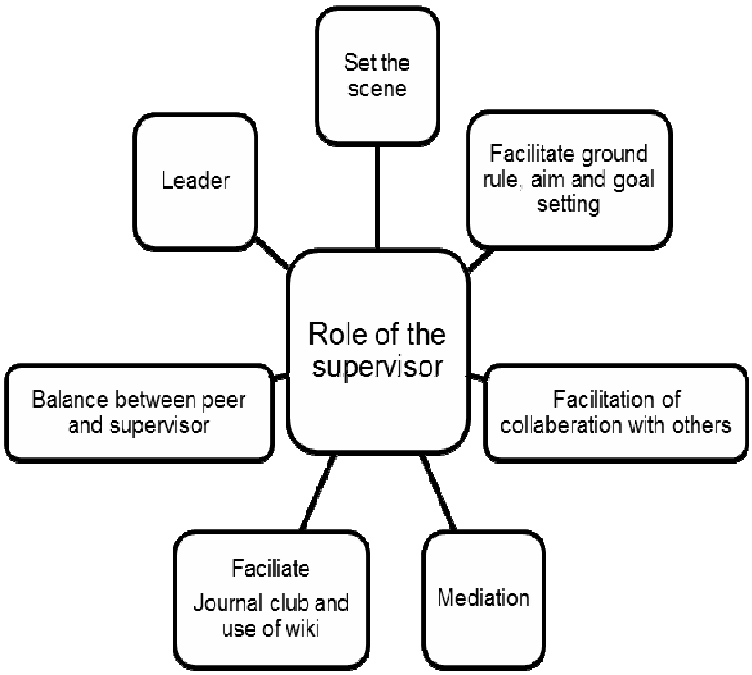

Figure 1: The role of the supervisor.

At the early stages of the project participants valued the active role played by the supervisor in "setting the scene". She helped them to agree ground rules from the start as well as providing advice on organisational factors for example effective time management and strategies to enhance the research process. The supervisor also took on the role as a negotiator at the start of the project helping the students to work together as a group:

'I think it's quite good to start with to have your tutor there with you because then....because...they help to mediate, set the scene, give you structured ideas about how to manage your time together, um..and how to make the process work, so I think that is really important to have at the beginning for the first few meetings.P3

During the early stages the supervisor had an active role in the project, this gradually became more collaborative and, in the later stages, consultative. Once the scene setting was complete and the aims and ground rules established participants appeared to feel comfortable in problem solving together and this enabled them to use their supervisor in a more focussed way. This changing role is illustrated in the quote below:

'I think once...once you've got to grips with your group and what you are doing, the it's much easier to meet as a research group, not necessarily with the tutor' (P3).

The quotation below illustrates how participants felt more comfortable admitting to a peer that they did not understand something. By discussing things with peers and problem solving together they felt they were able to deepen their learning and once the immediate pressure was removed learning appeared to become easier:

'You don't want to go to them with every single little bit you don't understand. But when you've got somebody of your sort of... one of your peers, to go and bounce ideas off, if you don't quite understand something that they might, you (a) don't feel as stupid going to ask them and being not as under pressure to understand it yourself, and so it can develop your learning and understanding of the topic and I certainly found that' (P1).

In the next section participant 4 illustrates the valuable role the supervisor played in providing opportunities for the research group to meet with other experts and to use

them as an additional resource for advice and help with data analysis and to explore possibilities of future dissemination of the research:

'occasionally she would arrange for us to meet with different people. We met with ….to talk about publication…..And she arranged for us to meet with a statistician…. she could get somebody in so you could get um… expert help because they were addressing pretty similar issues with each of you' (P4).

Peer assisted learning

One of the key themes that emerged from the data related to the way in which students learnt from and with each other during the whole research process, as they completed the research proposal, collected and analysed the data and finally wrote up their results. The theme of peer assisted learning and sub-theme of peer support are illustrated in Figure 2.

This form of peer assisted learning provided emotional support, encouragement and companionship. Participants commented that they did not *'feel alone'* (P4) or *'isolated'* (P3, P4 and P5), and '*couldn't have done it alone'* (P5)**.** In addition participants felt less daunted by the task in hand when their peers were around to support them. This seemed to enhance their morale to raise their spirits and promote collaboration:

'*It was nice to talk to somebody that you'd been gathering information with, they'd worked really hard with me, I'd worked hard with them collecting stuff so, you know, you're rooting for each other and it...I think there is a lot of that which was helpful that you um...spurred each other on to greater things really'* (P4).

Participants particularly welcomed the support they gained from their peers during challenging times when they might need additional motivation to help them move forward:

'...you just want to throw the towel in.....that was kind of like the major time where you really needed people to encourage you to keep on going really' (P4).

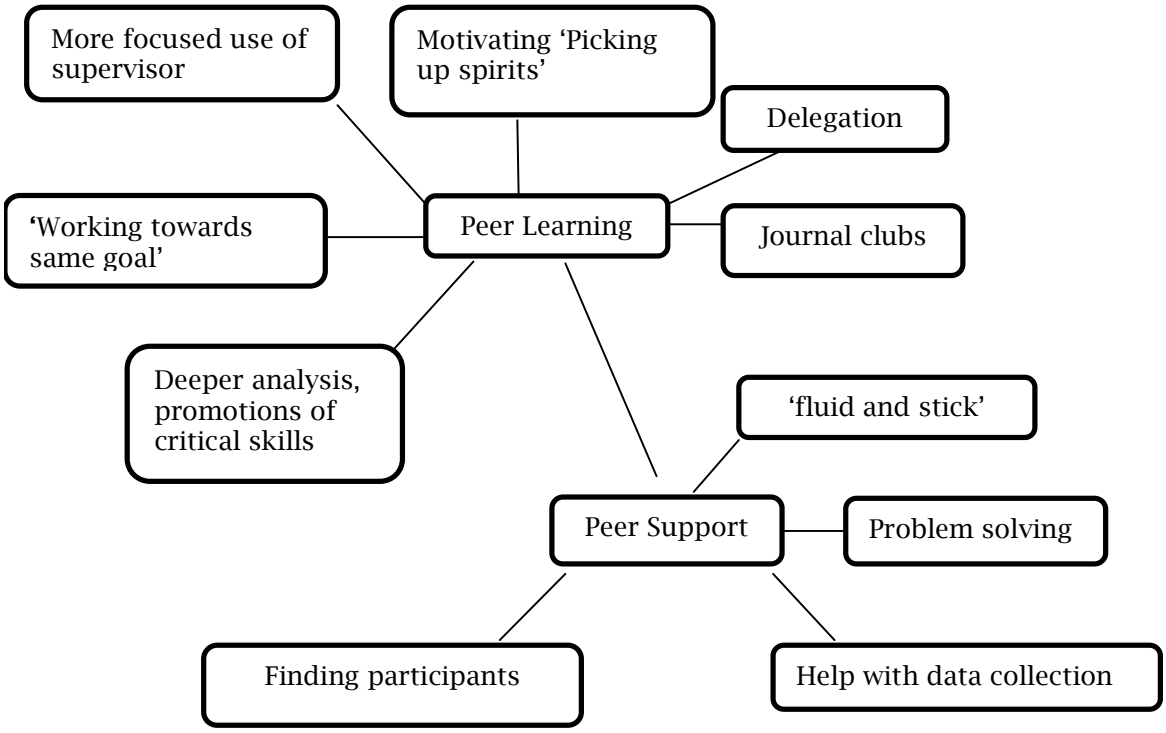

Figure 2: Peer learning and peer support

Students also benefited from sharing ideas with their peers:

'if I found a journal or someone else found a journal that was good, then we'd just share it, you know, and then... and then it would be good because we could talk about, you know, if the journal was good and why it was good or if it wasn't.' (P6).

Participants also talked about the promotion of critical skills that were developed through peer learning, using expressions such as '*bouncing of ideas*' (P1, P2 and P4) and '*snowballing*' (P1). There was evidence of reciprocal peer working and a sense of collaboration which increased participants' motivation and enabled them to achieve *'greater things*' (P4). Participants in the study described '*working together towards the same goal*' (P2) and regularly used other peer learning opportunities such as journal clubs to promote the skills of analysis and critical evaluation:

'it was nice to be able to all sit down and go "crikey how do we do these sorts of things?"' (P1).

In addition, participants talked about peer support that was helpful during the data collection phase. Having one or more peers to provide research assistance was an advantage, both on a practical level, and in terms of improving the research design. Peer assistance allowed students undertaking a quantitative study to be blinded improving the rigour of the study. One participant commented that the data collection was '*fluid and slick'* (P5). Participants mentioned a sense of peer pressure. They reflected on this pressure in positive terms as being '*spurred on'* (P4). This pressure created its own momentum and as a result the project never became stagnant:

'well I certainly didn't feel as though I got stagnant at any point with it in terms of my understanding because there was always somebody else there to bounce an idea or two off so it was really positive for me' (P1).

The use of peer support was evident throughout the process, from the initial evolution of the idea to the final write up. Participants explained how they collaborated to build the study design from the initial idea. This peer support was also evident later on:

'*After the methodology was finished we discussed what trends we found and how to write up,....we discussed more detailed things, you know how to write the paragraphs and the grammar'* (P2).

Quality enhancement

The third theme to emerge from the data focussed on the perceived quality of the whole learning experience and the work they produced (Figure 3):

'with the sort of potential to want to make it a more robust study, we actually looked into more and did more sort of statistical analysis of our raw data than we may have done in the first place' (P1).

Participants in the study perceived that their initial learning goals for the group project were set at a higher level than if they had been undertaking individual research projects. One of the goals identified by the group was the expectation that participants would submit their work to a peer reviewed journal. Indeed two of the six participants have already published their work in peer reviewed journals and presented at international conferences.

'*It's something that I think sort of makes it...almost puts more of a quality spin on it and being a study topic where you sort of get possibly more benefit out of it at the end'* (P1)

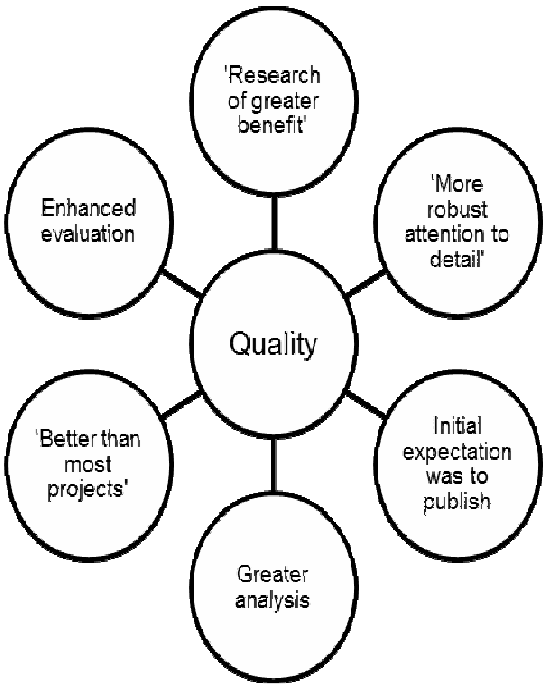

Figure 3: Quality theme showing sub-themes.

Learning to work in a team

The fourth main theme 'learning to work in a research team' reflects participants' experience of undertaking research in a group. Participants talked about their personal experience of the group research process and described how involvement in a group project enabled them to learn more about themselves. They gained insight into their own position within the group. Whilst recognising the benefits of group research they also identified a number of constraints that they experienced during the process.

One participant talked about the benefits of having to consider other people's views and agenda. This helped her to gain insight into how she worked in a group which she felt would be beneficial for future health professional work in practice settings:

'..you probably learn a little bit about yourself. Um...in like how you can work in a group, do you know? Because obviously as physios, you know, on wards and stuff you've got to work together as a group' (P6)

Participants also commented on the sense of balance between individual and group work, peer and supervisor support and additional expert advice:

Two participants talked about members of their group who did not contribute at the same level as others, but they were able to reflect on the skills that they developed in order to manage this:

'some people have what I call different work ethics and different um...drives, so maybe not as proactive or um.....probably have more drive to move forward than others and put more time and effort into things. So you'll find that some people contribute to a larger or lesser degree. But having said that I would always, in hindsight, go back and do it in a group project because I think the pros far outweigh the cons' (P3).

Several participants suggested that setting the group rules before the start of the project was important and helped to minimise these difficulties.

Another potential constraint is additional perceived pressure when working in groups. Participants in this study felt pressure to contribute in a timely manner and had to stick to timeframes to avoid letting down the group:

Learning to work in a research team

Participants acknowledged that there were a number of benefits from learning and working in a research team. They recognised the importance of keeping to deadlines, as failure to do so would have a direct impact on others as well as themselves. In today's rapidly changing health and social care environments it is crucial that students develop flexible skills necessary to enable them to work collaboratively and effectively within interprofessional teams (Cross et al, 2006; Freeth et al, 2002). It was therefore encouraging to find that group working encouraged participants to respect different value systems, and to develop team skills essential to sustainable development and a key skill sought by employers (Gibbon & Dearnley, 2010).

Another potential constraint was the additional pressure that some students experienced from working in a group. Participants in this study felt pressure to contribute in a timely manner and had to stick to timeframes to avoid letting the group down. However, interdependence and accountability are considered to be positive aspects of group work, as the contribution all group members is necessary for the success of the project (Ladyshewsky, 2006). The pressure participants commented on could be considered to be a motivating factor rather than a constraint.

'….even though you work in a group you're not really reliant on anyone, it's still your own project you know' (P6).

Although there were a number of positive advantages of group research projects we recognise there were also a number of constraints that impacted on the student experience. The main constraints identified in the findings were practical ones; participants talked about experiencing difficulty getting together, particularly whilst on clinical placement away from the University campus:

'So it was arranging a time when all four of you could get in the lab and get together and discuss, you know, kind of methodology, those kinds of things and I think from a time perspective it was definitely more stressful, but in terms of when we were doing the actual um... research, um... I couldn't have done it on my own' (P5).

'..occasionally you felt a little more under pressure, not to let people down...and also when discussing things with people thinking...oh blimey I'm not that far along yet...So from the pressure point of thing, it can be a good thing, so it's sort of to spur you on, to keep you going, to keep you motivated...' (P1).

DISCUSSION

This study explored students' experience of taking part in a group research project. Four main themes emerged from analysis of the data: the role of the supervisor, peer assisted learning, quality enhancement and learning to work in a team. Each theme will be discussed in turn, however we recognise that there will inevitably be overlap between themes.

Role of the supervisor

The importance of the supervisor throughout the whole research process was a key theme identified in the data. It was evident that participants' perceptions of the role played by their project supervisor changed during the research process. During the early stages the supervisor had an active role in the project, this gradually became more collaborative and, in the later stages students appeared to be engaging with their supervisor in a more consultative way. This follows a similar continuum of supervision proposed by Anderson, (1988) and adapted by Cross et al, (2006), where more active collaboration between students enabled them to become more independent (Christiansen et al, 2011). In today's health and social care environment it is essential that students develop independent skills to prepare them for their future autonomous role as practitioners.

The supervisor also appeared to take an active role in enabling the students to engage in the wider research community, a type of community of practice proposed by Wenger, (1988) as students were encouraged to use "experts" to help with their

analysis and to disseminate their research through presentations and publications. This may have additional benefits for their professional development and supports Barnett's work (2007) that suggests students should be encouraged to consider their ontological journey (who they are becoming as professionals) and not focus solely on knowledge and skill development.

Participants commented that the opportunities to problem solve together helped them to use their supervisor in a more focussed way. These findings concur with Moore et al, (2003) whose research into peer learning in practice education found that students who were on a placement where peer assisted learning was promoted gained confidence by discussing basic questions together before seeking help from their educator. This more effective use of time ultimately led to deeper discussion between students and educators. A later study by Samara, (2006) into graduate education suggests that group projects promote the development of students' supervisory skills.

Peer assisted learning

There was evidence of reciprocal peer working and a sense of collaboration that increased participants' motivation and enabled them to achieve '*greater things*' (P4). This suggests that peer assisted learning may have led to a deeper form of learning which may not have been achieved if students were undertaking research in isolation (Ladyshewsky, 2010). Peer learning was considered key to the success of the group project.

Some learning strategies were identified as being useful in enhancing peer assisted learning, for example participants found that sharing and discussing journals aided the development of their learning; this is evident in previous work on peer learning (Boud et al, 2001; Moore et al, 2003). Students also found that by problem solving together they were able to answer initial questions and became less reliant on their supervisor making them more independent learners (Moore et al, 2003; Sole et al, 2012).

Quality enhancement

As illustrated in Figure 3, participants in the current study perceived that group collaboration encouraged them to produce work of a higher standard. This process prompted by peer review and peer feedback, encouraged them to pay more attention to the quality of the research as a whole. This finding is supported by research into peer assisted learning by Ladyshewsky, (2006) who found that peer review and peer feedback encouraged students to achieve high standards of practice and a deeper approach to learning (Ladyshewsky, 2000; Falchikov and Boud, 2007). Participants thought that peer critique resulted in more robust methodological approaches as they regularly discussed research design, data collection and analysis methods in detail before embarking on the research and were able to identify potential flaws in advance.

In contrast to the results in the current study, Hammond et al, (2010) found that peer-assisted learning in group projects was only useful in learning basic concepts and not more complex ones. However unlike the Master's participants in the current study participants in the study by Hammond et al (2010) were first year undergraduate students.

Participants also experienced constraints; two participants talked about members of their group that did not contribute at the same level as others, but they were able to reflect on the skills that they developed in order to manage this. This is an important skill for physiotherapy students to develop throughout their training; Boud and Lee (2005) identified the importance of students developing skills important to their future employers.

A project blog was created to enable students to discuss aspects of their project and critically evaluate papers from a distance. This wasn't fully embraced by all participants although one reflected that if they had further utilised the blog it could have proved useful. Previous research has explored the use of blogging in peer assisted learning and found it to be a beneficial way of sharing experiences when

students are working at a distance (Ladyshewsky and Gardner, 2008), This could be a useful way of bridging the challenges encountered by physiotherapy students who are trying to be part of a research group when working in different parts of the country. Facilitating future students' engagement with this blended learning approach is an area for future development and could help them to build a community of practice (Lave and Wenger, 1991).

Implications for practice

We hope that this qualitative study will provide other health professionals with some insight that will inform the development and facilitation of group research projects. Research supervisors may draw on some of the strategies used by the supervisor to help the group to work together during the initial stages of the process and to help build a learning environment that supports peer learning.

Students who are considering embarking on a group research project may also value the opportunity to hear about other students' experiences that raise awareness of the potential benefits as well as the challenges they might face.

It is becoming increasingly important in current practice settings for health and social care professionals to work collaboratively and effectively with other team members to ensure that service users receive the highest quality care (DH, 2008). In order to prepare students for becoming effective team members they must actively engage in learning and teaching opportunities that facilitate collaboration and encourage them to respect the needs and opinions of others.

Findings from this study have enabled us to tease out some key elements that supported student learning during the group project and to identify a number of valuable skills that the students developed through engagement in a more collaborative research process. We identified the role of the supervisor as a key theme and have used this evidence to identify key factors and teaching and learning approaches that supervisors and students may want to consider when designing and implementing future group projects:

Key elements of the supervisor's role are to:

- Design group research projects where balance between individual and group aspects of the project can be achieved.
- Promote input from members of staff with different expertise to empower the students and improves the quality of the project.
- Facilitate initial pilot work to improve the methodological rigour.
- Facilitate discussion in action learning sets in order to enhance methodological rigor, foster critical thinking and aid data interpretation.
- Facilitate students' engagement in journal clubs that develop critical appraisal skills by promoting peer support and peer feedback.
- Adopt a blended learning and teaching approach to promote peer learning.

Initially the supervisor facilitated group work; by the end of the project students were able to self-facilitate.

We hope that this research provides some insight into the way in which group projects can be used to facilitate team skill development which helps students to become active and accountable team members who are developing the ability to work collaboratively towards a common goal.

LIMITATIONS

By adopting a qualitative approach our aim was not to compare the experience of individual with group projects so does not show evidence that group projects are better but highlights the experience of participating in a group research project. Furthermore the students were all postgraduate physiotherapy students from one academic institution. Caution should be taken when transferring these findings to undergraduate students or students from other academic programmes.

The participants in this study did not know the independent research officer who conducted the interviews. However the researchers who analysed the data could be considered insider researchers, as they were involved with teaching participants during their studies. One researcher facilitated the group research projects that the participants were engaged in. We acknowledge that this introduces potential bias in the interpretation of the data.

We fully recognize that this small-scale study reflects a uni-professional experience. However we remain encouraged that there is potential for the development of future larger scale research to explore the experiences of students who are engaged in interprofessional group projects that may more authentically reflect health and social care practice.

CONCLUSION

The alumni highlighted the key role of the supervisor in facilitating the project and the benefits of peer learning. Participants felt that group projects facilitated their confidence in the research process. The expectation of publication and the perceived improvement in quality of participant's research encouraged students to disseminate their research findings.

Some of the alumni found working in a group challenging, but they were able to reflect on the skills that they learned through managing the group dynamics. Reflection on emerging themes enabled identification of constraints and areas for future development. A framework for conducting group work has been produced to facilitate others in supervising group projects to best effect. Future research could evaluate the effectiveness of this framework and explore the potential for interprofessional group projects.

Findings from this study have been disseminated on a local, national and international level and we hope that they provide more in-depth understanding that will help to inform the development of future group projects.

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