Paper 5

Knocking on the door: how do students enter the disciplinary community of practice?

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Abstract
This paper explores how students on a professional course (prosthetics and orthotics) become members of that community. It uses Lave & Wenger's (1991) concept of legitimate peripheral participation in a community of practice to explore whether they were able to legitimately participate within the university setting before they went on placement. Students participated in focus groups and a postal focus group. A thematic analysis of the data was undertaken. Five themes were identified: speaking as a prosthetist/orthotist, doing rather than being told, negotiating what a prosthetist/orthotist is, and beliefs, attitudes, and values. It appears that there are tacit knowledge and skills that could be made explicit in educational programmes. The findings showed that in this case students were becoming members of the community of practice before going on placement suggesting that legitimate peripheral participation does not only occur in work based learning. The data collection and the data analysis are also a contribution to the theme of student voices at the ECE conference.

Introduction

Health care education involves a process of socialisation into a profession (Clouder, 2003; Dorman & Bundy, 2004; Howkins & Ewens, 1999; Lindquist et al. 2006) as well as understanding and using esoteric knowledge (Benoit, 1989). Whilst the best way to achieve this has been debated over the years (Benoit, 1989), in the UK health care courses have moved or are moving into higher education. As well as university based formal learning, health care education also includes work based learning. This type of learning has been explored using social practice theory, especially Lave & Wenger's (1991) legitimate peripheral participation within communities of practice. But can situated learning theory also be applied to formal learning?

Prosthetists and orthotists are an allied health professions regulated by the Health Professions Council. Prosthetists assess, diagnose functional need, prescribe and fit artificial limbs (prostheses) to people who have lost a limb through trauma or disease and to those who are born without limbs. Orthotists assess, diagnose functional need, prescribe and provide splints and braces (orthoses) for people with a variety of different conditions such as cerebral palsy and rheumatoid arthritis in order to correct, stabilise or protect parts of their body. Entry to the profession is through a degree in Prosthetics and Orthotics. These courses have consisted of three years of class room based education together with simulated clinical practice. The final fourth year is then spent entirely on clinical placement. This differs from other allied health courses where placements are spread throughout the duration of the course.

Communities of Practice and Legitimate Peripheral Participation

Lave & Wenger (1991:8) state that a community of practice is "…a set of relations among persons, activity and world, over time and in relation with other tangential and overlapping communities of practice." Wenger (1998:73) states that communities of practice share three aspects: mutual engagement, joint enterprise and have a shared repertoire. Lave & Wenger used the concept to explore how student midwives, butchers, tailors and quartermasters learn the knowledge and skills necessary for their role. There have also been studies using communities of practice to analyse professions involving health care including anaesthetics (Goodwin et al. 2005), midwives (Blåka, 2006), general practice (Cornford & Carrington, 2006) and nursing (Spouse, 1998) and in other professional areas such as further education lecturers (Bathmaker & Avis, 2005), and teachers (Hodkinson & Hodkinson, 2004, Sim, 2005). All these professions involve both classroom based and workplace based education before qualification.

Lave & Wenger (1991) state that newcomers to the community achieve membership through what they identify as "legitimate peripheral participation". Newcomers have permission to be part of that community

but are acting on the edge of it moving inwards towards full participation. They used it to explore how workplace or situated learning occurs for people new to that area of work. Goodwin et al. (2005) consider legitimacy to be akin to a "security clearance" in that participants are given access to restricted areas, opportunities and experiences.

But can the concept be used to explore professional learning outside the workplace? Lave & Wenger (1991:63) use it to explore apprenticeships but in their definition of apprenticeships they include professions such as medicine and law. They also include in their analysis an area of work (butchers) that includes attendance at a "trade school" although in their analysis the non-situated learning is not seen in a positive light. However, Lave (1996) does move this forward and does include formal education within the concept of a community of practice. In this paper the concepts will be applied to an existing course as a tool to explore how students are integrated into a community of practice.

Language

Within any community there are ways of communicating that are essential to becoming part of that community: "language is the medium of culture" (Blåka, 2006). It is necessary to enable the shared meaning, joint enterprise and mutual engagement of the community. Lave's (1988) analysis of language as an evidence of a "way of thinking and practicing" has not been fully developed (Edwards, 2005) and it has been stated that within the concept of communities of practice that no theory of communication has been developed (Dysthe et al. 2006; Tusting 2005). Tusting (2005) explores this in relation to Wenger's (1998) concept of negotiation of meaning and states that any negotiation of meaning must involve language and that language forms a part of many of the shared repertoires within communities of practice.

Identity and Professional Socialisation

Wenger (1998) explores identity and argues that it cannot be separated from learning and the communities of which we are part. He states that identity is developed through meeting of engagement, imagination and alignment. Alignment is used to describe how people become connected to the bigger picture through coordination of practices, actions and energies. Engagement involves the meeting of negotiation of meaning, forming pathways within the community, and an understanding of the history of the practice. As the three aspects of engagement occur and link together a sense of belonging is formed and becomes a source of identity. Imagination Wenger uses to explain the differences in what we perceive our role to be and how it can develop within the world. Adapting Wenger's story of stonemasons, one prosthetist may view what they are doing as fitting legs; another may view what they do as empowering people to achieve their potential.

Clouder (2003) states that student professionals are moulded into a professional identity both consciously and unconsciously but this fails to account for the differences between individuals within the same profession, nor for the impact of how individuals shape their professional identity. In developing a professional identity through professional socialisation both structure and identity need to be considered. Lindquist et al. (2006) found that among physiotherapy students there were three distinctly different professional identities: empowerer, educator and treater. These different identities may affect professional development for these students and therefore raises the question: do the different identities need to be considered in the development of professional courses both at pre- and post-qualification levels? Howkins & Ewens (1999) found that with nursing students the constructs that formed their identity changed over the course, particularly for those with no prior relevant experience again linking with the omission of the effect of prior experience within community of practice theory.

A Community of Practice?

Is prosthetics and orthotics a community of practice? Prosthetics and orthotics involves prosthetists/orthotists, technicians, assistants, other health care professionals, administration staff and prosthetic and orthotic patients, so it could be considered to be a constellation of practices (Wenger, 1998:126) with individual workplaces as communities of practice. But prosthetists and orthotists across the UK share the three aspects Wenger identified. The practices are similar across the UK. They are engaged in identifying and discussing their practice with the other prosthetists and orthotists that they work with

every day, with their colleagues and friends who work elsewhere through informal conversations, courses, conferences and web forums. They work to provide appropriate prosthetic and orthotic management for the service user – their joint enterprise. And they share language, use standardised procedures and tools. Therefore I consider that prosthetists and orthotists are a community of practice.

So as a prosthetist/orthotist, a member of the community of practice into which students are aiming to enter, with a strong professional identity, I became interested in how and when the students "became" participants of and developed their identity within this community. Despite the students of prosthetics and orthotics not undertaking any

placement learning until the end of their course, were they able to legitimately participate and develop their identities towards becoming a prosthetist/orthotist during their three university based years as well as the fourth placement year? Undertaking the degree is accepted by the community of practice of prosthetists and orthotists as a legitimate activity in peripheral participation (Fuller et al. 2005), as the only way into the profession. Hodkinson & Hodkinson (2003) also state that formal learning can be very influential for learning in professional work. It was my view that during the course students identity developed from being a student of prosthetics and orthotics to being a prosthetist/orthotist, but how did this happen? The aim of the study was to use the concept of legitimate peripheral participation in a community of practice to explore how students became part of that community through answering the following questions. What aspects do students identify as developments in their progression towards becoming a member of the community of practice of prosthetists/orthotists? Does this happen during formal learning at the university as well as work based learning? What impact does this information have for curriculum development? As Blåka (2006) explains for the midwifery profession:

"becoming a midwife is about joining the community of practice represented by qualified midwives, as much as it is about learning the technicalities of midwifery".

Method

The researcher's role

Before becoming a lecturer, I was a prosthetist/orthotist working within an inter-disciplinary team setting in a hospital in the UK. The participants knew me as a lecturer in prosthetics and orthotics. My experience made me familiar with the settings, activities, and language experienced by the participants. This prior knowledge had advantages in that I was able to gather data without asking the participants to explain in detail what they meant with regard to certain terms, activities etc. However, I may have been over familiar with the information being given to me, leading to assumptions being made without seeking clarification (Blåka, 2006).

Sampling

Once ethical approval had been given by the university, students were invited to participate through speaking to years 1 – 3 and by putting up posters on their notice boards. Students in year 4 on placement received a letter containing the same information provided to years 1-3 together with a consent form.

Data collection

Three semi-structured focus groups were conducted with students in their year groups (a total of 9 students; 2 male and 7 female; 3 1st years, 2 2nd years and 4 3rd years). An introduction to the purpose of the focus group (based on a format by Litosseliti, (2003)) was read to the group and consent forms were signed prior to commencing the questions and recording. The focus groups were transcribed verbatim and students were given a copy of the transcript. The students in year 4 of the programme were on placement and unable to attend a focus group. On-line discussion boards have been used as computer mediated focus groups (Walston and Lissitz, 2000) and these can occur both synchronously and asynchronously. However, an on-line discussion board style focus group was not an option as confirmation of internet access was not possible. A questionnaire sent by post or email did not provide the discursive nature of a focus group. However, consensus research using the Delphi technique (Parahoo, 1997:168-170 and Robson, 2002:57) utilises the concept of asking for participants views via a questionnaire, collating and returning them for

comment. Due to logistical issues email was excluded as an option. Therefore students in year four participated in a paper based postal focus group with responses being collated and returned for further comment.

Analysis

All transcripts were read and a thematic analysis was undertaken. This analysis involved reading through the transcripts to enable familiarisation with the data. Substantive statements within the data were identified (Gillham, 2005). Themes informed by the concepts of legitimate peripheral participation, community of practice, identity and professional socialisation emerged through further reading of the transcripts. Similarities and differences in these themes both within and across the different focus groups were sought.

Findings

From the analysis several themes emerged. These were seeing as a prosthetist/orthotist, negotiating what a prosthetist/orthotist is, doing rather than being told, speaking as a prosthetist/orthotist, and understanding and developing the beliefs, attitudes and values of the profession. The examples provided are evocative of the overall findings. Within the excerpts given all names are pseudonyms, data editing is indicated by "(…)" and insertions and explanations are in square brackets.

Seeing as a prosthetist/orthotists

Visual analysis is an important aspect of the role of the prosthetist/orthotist, clinicians and lecturers talk about students needing the "prosthetic/orthotic eye". Prosthetist/orthotists watch people's movement and need to ensure that the patient is walking the best that can be achieved. Initially this may be simply seeing what effect in a change in position of the prosthesis has on the persons walking.

"I think, um, during our practical, um, trans-tibial, erm, the concept of er, abduction and adduction [moving the limb away from and towards the midline of the body] and stuff, where you can, er, actually change things (mumbles) to say make the limb more abducted or something and then you actually see the outcome, to help the patient walk and that's kind of, actually makes you feel like a professional, you can actually do the job, kind of thing"
Craig, year 1

The prosthetist/orthotist recognises movement problems and corrects them using knowledge and skills that have become tacit. Students progress to automatically spotting problems and being able to correct them, whilst feeling less able when they are not able to automatically identify them

"The "prosthetist/orthotists eye" is definitely something I think I've developed over the past year although before coming on placement I was very blind! There are still things I miss and feel annoyed when this happens but when I do notice things and know how to rectify them (like gait deviations) [differences from a normal walking pattern] I feel great like I'm really progressing."
Linda, year 4

As well as using this aspect within the clinic it also penetrates into non-clinical life and becomes part of a prosthetist/orthotists normal behaviour.

"…[there are] people in front of you in the street and you can see how their trainers are, sort of, really caved in on one side and you think I know what's wrong with you"
Amanda, year 1

This understanding and gaining of the "eye" is important in identity development and in enabling students to feel that they are progressing into the community. As they move inwards, seeing as a prosthetist/orthotist becomes tacit and "normal" behaviour. It separates them from non-prosthetists/orthotists.

Negotiating what is a prosthetist/orthotist

Understanding within themselves what a prosthetist/orthotist is, how it differs from and what the similarities are with other health care professions is important in progression as this first year describes after a module where they learned about other professions and their relationship to prosthetics and orthotics

" The lectures looking at other professions, makes you feel a bit more like a group when you pick up those sort of concepts of what other people are doing,…"
Craig, year 1

This realisation and understanding of the role of a prosthetist/orthotist progresses into placements, when as part of the clinical team the students are working with an interdisciplinary team to provide the appropriate management for the patient.

"…through talking to other p/o's [prosthetist/orthotists] and other members of the MDT [Multi-Disciplinary Team] you gather a more clear understanding of your role and the impact you can have not only on the patient but also on other members of the MDT who dominate the patients treatment following your intervention …"
Alex, year 4

Prosthetists and orthotists work with technicians to provide prosthetic/orthotic management for patients. Understanding these different roles appears to help the students in understanding what their future role is. The following student had spent time before starting the course on work experience and went to visit a different clinic half way through year 1.

"When I was there [work experience] I learnt the practical side of everything, I was with the technicians a lot and like, I'd go and see patients but it was more like, just watching and talking to the patients and just like, erm, building up my communication skills. Erm, but when I went to XXXX I was, you know, I was with the prosthetist, and I was you know, I was doing the prosthetist thing [laughs], I liked it. "
Karen, year 1

Realising what could appear to be minor changes in behaviour for the student maybe more difficult for others outside prosthetics and orthotics to understand. This realisation can also have an impact in identity development. This third year student refers to an internalisation of the role

"…, my mum said the other day "I've just washed your whites [uniform] and they're full of plaster", and I just went "yeah, that's what I do" and she said "well I've just had to pick it off" and [I] said "don't if you don't want to, I'll do it" and she was like, "well, you can't go to a patient with plaster on you" and I said "well obviously I can't go covered in plaster" and she was "can you not put any overalls on?" and I was like "that's kind of what they are". … we have all got used to putting your whites on, tying your hair back, you know, not having your jewellery on, just your normal professional things."
Julia, year 3

Whilst prosthetics and orthotics is a small profession, students sometimes do not realise this until they go on placement in year four. Opportunities to see the prosthetics and orthotics world outside university do exist prior to the placement year. Feeling that you are part of something bigger than just a student on one course and being accepted by the wider community impacted on one student who attend two conferences in her first year.

…"I went to a big BAPO [British Association of Prosthetists and Orthotists] conference in Blackpool and that were, [it] just blew my mind, it was all these erm, machines going on and all this new technology, and it was just like, it was like a toy, I was like a child in a toy shop. It was just like oh come on lets just get my hands on everything. I was trying everything out and that made me feel part of something, part of a huge big, load of people and I met people at BAPO who'd obviously had stands in the exhibition at ISPO [International Society of Prosthetics and Orthotics] and it was "oh weren't you at .." and that made you feel part of something."

Amanda, year 1

But sometimes students have bad experiences of the wider community and this can provide a potential reversing of the movement into the community of practice. This first year explains the negative experience of one of her colleagues

"…there's two people on our course [who] went to a bad limb centre and they had a horrible time and there was a girl who was considering dropping out because it was such a negative experience for her. But we were trying to explain that there not all like that and it's only from going to, it's only from experience that you can say that."
Karen, year 1

The ability to understand what their role as prosthetist/orthotist is and its similarities and differences with other members of the interdisciplinary team clearly assists with the students' progression into the community. They may have to explain to others what to them has become normal and implicit. Through meeting the community of practice out with the university they may feel more welcomed into the community or excluded from it. These experiences have potential implications that need to be considered by both lecturers and clinicians. The students here have shown progress in their understanding of the joint enterprise of the community and in engaging and aligning with the identity of prosthetists/orthotists.

Doing rather than being told

All year groups commented that they needed to be told what to do less and less as they progressed. Being given more responsibility and processes becoming automatic appears to help them with identity development and learning. Often this was to do with practical aspects of the role as explained by this second year

"I think everyone's more comfortable in the workshop. People just, the first year in the workshop it was like a bunch of mannequins stood round and everyone just looking at their toolboxes and looking at the machines and sort of scared. And now people are fighting over the oven, because they want to whack their bit of plastic in and grab it and drape it [vacuum mould hot plastic over a solid plaster cast]."
Greg, year 2

The third year students also in realised in later years that they will soon be responsible for a person's prosthetic/orthotic management. Some times this was an apparently simple thing as explained in the extract below.

"I think even going and just getting your patient from the waiting area and bringing them in. I know that sounds really silly but it's like…they're actually your patient and not just someone that you're practicing on"
Ellen, 3rd year

Some progress in processes and procedures becoming automatic can occur early and quickly, assisted by repetition of tasks

"…in the beginning your doing it step by step and your following all the rules and the next time you miss out some rules and you just do it automatically, and the next time you just do it. I love that feeling, you know, and you're like, and you think back to like, three weeks ago and I must do this and I go to step two but now I've just done it, just automatically."
Karen, year 1

Normally feedback is given by the lecturers on student's practical work. Once in clinic they will be expected to make their own decisions on whether their work is acceptable and of an appropriate standard. This third year student commented on how it felt to have to self assess her own work

"…normally we'd come and check with you [the lecturer], but assessing it ourselves makes you feel like you've got a bit more responsibility I suppose"
Alice, year 3

Praise from lecturers also assists with students feeling that they are progressing in their practical abilities. This is seen as positive and supportive reassurance from "oldtimers"

"And you hand it over and he [the lecturer] goes "that's good that", you know, and I'm like "I did that all by myself". It's only a cast, but I did it all by myself. It's a good feeling"
Karen, year 1

Overall, students move from being told when and how to do every activity to knowing what is expected of them for certain areas of work. These processes and procedures also become automatic and part of the tacit behaviour of prosthetist/orthotists. There are ways to enable the student to see that they are progressing such as praise and self-assessment.

Speaking as a Prosthetist/Orthotist

Language is an important factor in being part of a community. The language prosthetists and orthotists use is initially incomprehensible but eventually it becomes part of their normal speech.

"… it was really hard at first … [I'm thinking] why don't you [the lecturer] just say forwards and backwards and up and down? It'd be so much easier and then you understand why once you start using them yourself. But again you do only start using them properly in 2nd year really, at the end of 2nd year"
Julia, year 3

Like seeing as a prosthetist/orthotist students find that they begin to use prosthetic/orthotic language in everyday, non-clinical/non-university life as Greg explains in relation to a climbing trip.

"I was following Henry [another P&O student] on a climb the other day, and he had his foot trapped and I said "you need to move your leg, sort of laterally" [away from the body's midline] and he just laughed at me going "you're not in the gait [walking] lab now" "
Greg, year 2

But it also involves being able to communicate more freely with patients, moving from asking a list of questions to additionally being able to communicate with the patients on a more personal level. This is an important aspect of being a prosthetist/orthotist as the majority of the patients we see will be coming back to us for life.

"…, like in first year you have like: name, date of birth, side of amputation and you just literally used to sit with your head down until you're let out kind of thing. Whereas now you can just have a joke "
Stacy, year 3

It also means that you are speaking a common language with other health care professionals and can feel part of a bigger constellation of practice or individual workplace communities of practice

"… language is very important and helps with integration into the MDT [multi-disciplinary team] and improves understanding of what everyone's talking about"
Linda, year 4

Beliefs, attitudes and values

Prosthetists and orthotists must ensure that they are equitable towards all patients. Being able to treat people with the same attitude no matter what the situation is important even when you may inside feel otherwise.

"…that guy the other day, and he had like all his toes amputated and he was really nice man. And it was so nice of him to come in and show us his feet and everything. But I was with the foot that [had] all the toes amputated and they were really

infected and really, really smelt bad and I think you have to kind of learn to get a face not to show that anything smells or anything"
Ellen, year 3

Due to the nature of prosthetics and orthotics it requires invasion of personal space and palpation of body parts. Therefore it is important for students to understand what patients may be feeling when we have to undertake the necessary practices to enable the making of a prosthesis or orthosis. Some of this understanding of how a patient might be feeling, the students develop through their own individual experiences and others they develop through listening and watching how the "oldtimers", the lecturers behave, act and explain.

"I do remember you [the lecturer] saying though in a lecture erm, "right everyone stand up and feel your IT [ischial tuberosity – the bone you sit on], feel your own and then feel your neighbours" and then we did it and thought "what have we just done that for?" and we sat down and you said, like, "now remember how you feel" and that's, that's what's always stuck in my mind, 'cause I thought, you know, it's not very nice, 'cause you just do it"
Julia, year 3

Developing how prosthetists think and act in relation to patients is part of their progression into the community. They learn that they must treat patients with dignity and have some understanding of what it is like to have the necessary procedures practiced on them. Overall in all of the themes there was progression into the community and development of their identity as a prosthetist/orthotist through a variety of different aspects. Many students felt that whilst they were becoming prosthetists/orthotists they were not there yet. However this student in year 3 did feel like they were a prosthetist/orthotist

"I felt like that [a prosthetist/orthotist] when we did, was it trans-humeral [above-elbow level of amputation], um, Adam [her son] came and I was showing him my arm and he said "what's that?" and I said "it's an arm I made today" and he just sat looking at it and he went "you're clever you, Mum" and I went "I know I am" and I thought I can do it. I felt like one then"
Alice, year 3

Discussion

From the data it seems that students were legitimately peripherally participating in the community of practice from year 1 and they could feel progression into the community as they progressed through the course. This progression of participation occurred through language, use of knowledge through sight and understanding of roles and developing the views of prosthetists and orthotists in relation to others especially the patient.

The development of language clearly is important to the students learning and their development as a prosthetist/orthotist. Understanding the terminology used by experienced prosthetists and orthotists is part participating as a member in the community allowing mutual engagement, joint enterprise and a sharing of repertoires through the negation of meaning. Language development should be encouraged and explained to the students. Should the acquisition of disciplinary language be an explicit outcome of a programme of study?

Within all professions practical skills are essential whether these are physical skills or cognitive skills. Being able to utilise these skills automatically is part of everyday work. Students are able to develop and attain these not just through placement learning but also through simulated and relevant learning experiences at university. Developing your own professional identity also includes understanding the similarities and differences of other roles you may encounter in relation to your own (Howkins & Ewens, 1999). In health care education, inter-professional education is part of government policy but the understanding of professions other than your own is not covered in the expectations of what inter-professional education should cover (DH, 2000).

Conclusion

This study was developed due to my professional identity as a prosthetist/orthotist and an interest in when and how students achieved this professional identity. The concept of legitimate peripheral participation in a community of practice provided a useful framework to analyse this. The findings from this study do not attempt to be generalisable but do provide insights on the progression of particular prosthetic and orthotic students, into the community of practice of prosthetists and orthotists. Different students may have had different experiences in becoming a prosthetist/orthotist. The students who participated in this study had different prior experiences and this had not been considered in their progression. This is an area for further study.

The findings show that there is progression through legitimate peripheral participation during the course and not just on placement. For these students the factors that assisted their progression were seeing and speaking as a prosthetist/orthotist, undertaking the processes and procedures with increasing automation, developing their own understandings of what a prosthetist/orthotist is, and realising what and how prosthetist/orthotists believe and act. Some of these themes may be implicit within the curriculum and its learning outcomes. Making these aspects of the "ways of thinking and practising" (Entwistle, 2005) and "the underlying game" (Perkins, 2006) explicit may make students, lecturers and clinical supervisors understand how and what students need to progress in addition to the esoteric knowledge (Benoit, 1989) of the profession.

Many health care professional courses have placements interspersed throughout the course and entry into the community of practice and the development of a professional identity may occur more quickly in these circumstances. Some of these aspects are not always made explicit to the students. The findings here support the suggestion that the idea of legitimate peripheral participation in a community of practice is not limited to work based learning, but can begin through appropriate learning opportunities in a university setting.

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