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**Understanding and appraising medical students' learning through clinical experiences:
Participatory practices at work**

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Abstract

This chapter explores the participatory practices of some medical students' learning through their clinical experiences. Participatory practices are those that comprise a duality between what is afforded by the social institutions in which individuals participate (e.g. educational and healthcare settings), on the one hand, and how individuals elect to engage in and learn through those practices (i.e. their processes of experiencing), on the other. Privileged here is not only the contributions to learning from these social settings and what individuals already know, can do and value, but also the relations between them. Indeed, the explanatory account of these students' learning is founded on the concept of relational interdependence. That is, the relational nature of the interdependence between the social norms, forms and practices that individuals are afforded in these settings, and their experiencing of, and learning from what is afforded them. These concepts offer an account of the learning process associated with medical education, in which judgements about the educational worth of these programs are founded on the kinds and qualities of experiences provided for students, their relationships with the kinds of learning that arise from them, and ultimately, how students come to engage within them. This engagement includes, but is not wholly dependent upon, how students perceive the invitational qualities of these experiences.

Keywords

learning to be a doctor, participatory practices, medical education, clinical experiences, relational interdependence, personal epistemologies, affordances

Understanding and appraising medical students' learning

Understanding how the learning of occupations can best progress is now the central project for tertiary education, and particularly when its programs are occupational specific. In response to these challenges, workplace experiences are now being provided in a whole range of these programs. As a consequence, it becomes important to understand the particular contributions of experiences in both the educational and workplace settings contribute to this learning. This chapter focuses on understanding the contributions of these two settings in the development of occupational capacities. It does this by exploring the participatory practices that comprise a group of medical students' learning through their clinical experiences. Participatory practices are those comprising a

duality between what is afforded by the social institutions in which individuals participate, and how they engage with and learn through what is afforded them in those practices (Billett, 2004). The affordances of social institutions are seen in terms of their invitational qualities. That is, the degree by which they are invited to participate in and learn through the activities and interactions being enacted in those settings. Individuals' engagement in these activities or taking up the invitation afforded them is premised upon their intentionalities (Malle, Moses, & Baldwin, 2001), readiness in terms of the capacities they possess (Billett, 2015), and how they value what is afforded them (Hodkinson & Hodkinson, 2004).

These participatory practices comprise a duality, which is both interdependent and relational. They are interdependent because social practice requires to be enacted and sustained through individuals' engagement with it, and that engagement is necessary to access the knowledge required to enact and sustain the social practice (Donald, 1991). It is relational insofar as the qualities of invitation and the base sees of engagement will be both situational and person dependent (Billett, 2006). In this way what constitutes invitational qualities of educational experiences are not fixed, being shaped by their projection by the social setting and also how individuals see these qualities as being invitational. What for one individual will be an opportunity to engage in a workplace activity might be a new learning opportunity, for another it is merely rehearsing what they already know, can do and value. Also, given the person-dependent premises of interest, intentionality and capacities, there can be no guarantee that the 'same' invitation to participate will be engaged with uniformly by different individuals, with distinct kinds of learning arising from their processes of construing what is experienced, and constructing knowledge from that experience. An experience that one individual might find unproblematic and benign, for another might be viewed as critical and challenging. What one student might perceive as being helpful supervision, another might view as unhelpful interference. Similarly, a lack of close supervision might be seen as abandonment by one, yet an opportunity to practice independently by another. Although relational, there is interdependence between the practice of social institutions and of individuals. Social institutions such as educational institutions and educational institutions require individuals to engage with them, advance their purposes and transform them accordingly (Donald, 1991). The existence and continuity of social institutions (e.g., hospitals) and their continual remaking and transformation, as work requirements change, are premised upon individuals' engagement with them. Conversely, individuals need to engage with such institutions and their practices for them to learn, extend and exercise the knowledge that they afford. These institutions would become moribund should individuals choose not to engage with them in remaking and transforming their practices. Hence, both social institutions and the individuals engaging with them represent interdependence, albeit enacted in relational ways.

It follows that in understanding learning in and through social institutions such as universities and workplaces, it is insufficient to consider the activities and interactions provided by those settings in isolation, or, conversely how individuals direct their efforts and energies in engaging with them. Instead, it is necessary to account for both sets of factors and the relationships between them. The process of learning to become a doctor requires interaction between individuals (i.e., students, medical practitioners) and social institutions (i.e., universities and healthcare workplaces) as well as various social partners in those institutions. Consequently, a schema such as participatory practice with its focus on these relational interdependencies, offers a means by which learning and students' development can be explained. To elaborate on these processes and identify how they contribute to students' learning, it is necessary to understand both the activities and

interactions that are afforded and also students' engagement with those affordances. To elaborate this explanatory account of relational interdependence, data from interviews with students in an Australian medical education program are drawn upon to appraise how this conceptualisation explains of entering a medical education program, learning through participating in that program, and in particular, the learning arising through clinical experiences. Thirteen medical students were interviewed about their clinical experiences and the consequences of those experiences, to gain an understanding of the impacts upon their learning and their preferences for future specialisation (Richards, Sweet, & Billett, 2013). Their experiences and accounts of the consequences of their learning in clinical settings are elaborated on in this chapter. Necessarily, therefore, it commences by outlining some bases on which these students' learning can come to be understood.

Medical students' learning through clinical practice

Over the last three decades, concerns about the efficacy of educational provisions in securing desired employment outcomes, has led to growing interest in providing social and situationally authentic experiences provided for tertiary students (Organisation for Economic Co-operation and Development, 2010; Raizen, 1991). During this time, theories have arisen about the situated contributions to learning afforded by the immediate physical and social environments in which students come to think and act. Conceptions such as communities of practice (Lave & Wenger, 1991), situated cognition (Brown, Collins, & Duguid, 1989), activity systems (Engestrom, 1993), and distributed cognition (Salomon, 1997) have predominated. This emphasis on social and physical environments has led to understanding the importance of providing practice-based experiences in programs preparing students for specific occupations. This interest reflects long-standing concerns of practices within medical education, which has always included extensive periods of clinical practice of diverse kinds and durations (Cooke, Irby, & O'Brien, 2010; Jolly & MacDonald M M, 1989). Indeed, practice-based experiences have long been the basis of learning medicine within Western traditions (Lodge, 1947). These experiences are not only central to the initial preparation that enables students to become doctors, but also in assisting them identify and prepare for their specialisations (Cleland, Leaman, & Billett, 2014). Most of the knowledge required for medicine, for example, arises from the social world (i.e., historically, culturally) and is manifested in the specific requirements of a particular health care setting (Billett, 1998). Consequently, securing medical knowledge by engagement with socially-derived sources such as texts, experts, other medical practitioners and students is emphasised, making accessible the canonical knowledge of the occupation. However, it is also necessary to access and engage in thinking and acting in occupationally authentic ways in circumstances where this canonical knowledge is manifested and comprises the circumstances of practice. These premises have, more broadly, led to theorising and practice related concerns about the contributions to, and individuals' learning of, the particular kinds of activities and interactions provided by educational programs and partners. Hence, considerations of these contributions and how individuals can access and engage with them have become a focus for the evaluation of educational practices. These contributions arise from them being seen as institutional or social facts (Searle, 1995): i.e. derived from the social world and its contributions, and they include the particular circumstances of practice (e.g., patients, conditions and facilities) and their participatory practices (i.e., activities and interactions). The contributions of social partners, engagement with what the social world suggest or affordances of the social world are essential in explaining how canonical occupational knowledge is experienced and learnt. This is because these

are expression of how the social world expresses its norms – of how things are organised, forms – the texts and artefacts and practices - how particular practices enact that suggestion.

Beyond what is afforded, it is also necessary to consider personal facts such as how individuals come to experience, construe, and construct that knowledge from what is suggested to them. As noted above, there is an interdependence between social institutions and the knowledge they generate, and individuals taking up, using and extending the knowledge, thereby sustaining and developing those institutions. Hence, what constitutes medical practice requires active engagement, remaking and transformation by individuals. Yet, these processes cannot and will not be enacted in uniform ways. This is because, on the one hand, what is suggested by the social world is never without ambivalence or lack of clarity, or is even uniformly projected (Berger & Luckman, 1966). How individuals come to construe and construct what they experience, on the other hand, is, by degree, the product of their own unique personal histories (Billett, 2009a). Those unique histories are premised upon the particular sets of social experiences that individuals have encountered, and also upon brute facts (i.e. those of nature, such as their strengths, sensory systems and how they mature (Searle 1995). Central to understanding how individuals engage and learn is the concept of personal epistemologies – the bases and ways by which they come to construe and construct knowledge from what they experience, which include learner intentionality, interest and capacities (Billett, 2009b). These personal factors are salient to how individuals construe, elect to engage with and construct what is suggested to them. There can be no certainty that a what is suggested socially through norms, forms and practices will generate a uniform response or outcome from those engaging with them. It is the interplay between the suggestion of the social world and individuals' engagement that is central to understanding learning. In essence, it is necessary to accommodate the duality between the contributions of the social world and individuals' cognizing efforts. For instance, it has been suggested that issues of gender, class and ethnicity play roles in the opportunities afforded to medical students (Bleakly, 2010).

These conceptions are now used to illuminate and explain the processes of some students' engagement in their medical studies, and in particular how that learning arises through the participatory practices comprising students' experiences in clinical settings.

Investigating medical students' participatory practices

The data described and analysed below were secured through a qualitative research project that sought to understand medical students' perceptions and bases for their engagement in their medical education program. Individual interviews were selected as a means of gathering data to understand students' motivations, actions and strategies, and engaging students to provide narratives that offered valid accounts of their experiences and experiencing (i.e., learning). The interviews were lengthy, as was required to secure detailed accounts of what motivated them to engage in medical education, and to describe their experiences in their program of study. Focused interviews with specified foci, yet open items, were adopted. Ethical approval was secured from the host university.

Medical students from a four year graduate entry program comprised the study population. In this program, students select one of three models of clinical education for their third year (i.e., first clinical year of study); (i) the traditional hospital based block model, (ii) the rural longitudinal integrated curriculum model or (iii) a hybrid of these two models. Students from the first and second model cohorts progressing through this programme were invited to participate in a semi-structured individual face-to-face interview at the end of the year, and thirteen students consented. Eight of the informants were from the 'traditional' hospital based model and five were from the rural

longitudinal model. The interview questions addressed participants' perceptions and experiences of learning in clinical environments. There were also optional, case-based discussion groups for model (i) students. The interviews were conducted and recorded, each lasting between 50-75 minutes. The combination of the informants' involvement in the earlier case based discussion groups with the subsequent lengthy interviews added to the quality of the data. That is, the eight 'traditional' model participants had engaged in a group-based process throughout the year which had also involved discussion and evaluation of their clinical experiences prior to the face-to-face interviews. In this way, they brought a level of consideration and introspection to the interviews, which is potentially quite distinct from informants who have not had such an opportunity. Hence, some of the interview transcripts are particularly rich and detailed and provide informed and considered insights into the processes of learning. To assist the validity of the data, one researcher performed the open coding of the transcripts and development of emerging themes, while the other researchers subsequently validated the coding and interpretation of the data to assist with reliability in the analysis. It is a subsection of that data that is used in this chapter.

The presentation and discussion of qualitative data is often quite problematic. The selection of extracts and the degree to which they are representative or informative, and whether they constitute convenience rather than helpful explanation are issues which have long dogged qualitative method researchers. These limitations are understood by the authors. This chapter provides a narrative presented by one of the medical students (who we will call Sue). The authors then use this narrative, augmented by data from other informants, to present and discuss the data and offer an explanation of the experiences that these students provide through their transcripts. Such a process addresses issues of validity differently from a quantitative inquiry. However, the justification is that the experiences of any one of these students needs to be explainable by such a framework. So, whilst no claims about the generalisability of experiences and outcomes are offered, these kinds of data can be used to validate and extend explanatory schemes that seek to account for students' learning in the different kinds of experiences and processes of experiencing which constitutes their participation in their medical education. This extends to the clinical experiences that are focussed upon here.

Clinical experiences and learning

During the completion of her Bachelor of Science degree at the university in her home town, Sue reports that she became interested in the scientific aspects of medicine and human behaviour. This led her to conclude that medicine would be an interesting career, one well suited to her interests and strengths. Her initial attempt to secure entry into a medical degree course was unsuccessful, so she undertook an Honours program focusing on her related interests of personality aspects (human thinking and acting) and the science of asthma (biological processes), which afforded her entry into medicine. The interviews undertaken with Sue and the other students occurred after the completion of their third year of the medical course. It is the transcript of our interview with Sue which forms the stem of the narrative presented below. Using this narrative as the framework enables an explanatory account of her experiences, postulations about how these experiences came about, and the likely efficacy of those experiences in terms of her preparation to become a doctor. This approach is offered as an alternative to an aggregation of findings from a larger number of informants. Also referred to here is Jim, another student who took the teaching hospital based model of medical education, largely because of family commitments, and Gil, a Canadian student who took the longitudinal rural model, which incorporated extensive placements in rural settings.

Sue's preference for her third year program was to undertake a year-long placement in a rural area. She was pleased to secure this placement for a number of reasons. Firstly, she was familiar with the area, having undertaken some work experience there at the end of her first year as a medical student. This work experience was supported by a rural doctors' agency, and was sponsored by the state government's health department. During that period, she found working with a general practitioner was a very positive experience. She liked the area, which was not too far from the capital city where she lived, but was far enough away to provide a different kind and range of experiences which were well-funded and organised. This prior experience led her to participate in a further program to provide medical students with clinical experiences in rural and regional settings, and she concluded that *"it would just be a really good area and the program has been running for 10 years"*. So, her response to securing this placement was that this *"would be a really good opportunity"*. Already evident here is a set of institutional arrangements of a particular kind are afforded to (some) medical education students. That is, opportunities supported through the provision of experiences in general practice and health care services in this setting. Sue did not have to organise, sponsor or finance these clinical experiences because of government funded provision of educational experiences, accommodation and support available locally. Whilst this may not be the case in other occupations, the institutional affordances for medical students such as Sue are substantial. However, Jim, who had already sold the house he and his wife lived in to fund his medical studies, did not want to ask his wife to move away from where she worked to take up a similar opportunity. What was a positive affordance for Sue as a single woman was not possible for Jim with his family commitments. Also, although Gil from Canada wanted to secure a rural placement, as an international student he was denied this option because of funding rules. Like Jim, he was aware of and interested in the more practice-immersed approach which is common in his native Canada. However, the institutional affordances comprising this option was not available to him. He eventually undertook some of his experiences (a paediatrician rotation) in a city in northern Australia, which provided some diversity from the traditional medical education model.

Sue was pleased to have this opportunity and reports engaging in this setting in an enthusiastic and full-bodied way, rather than as somebody who was reluctant to accept a rural placement. As described below, she engaged actively with what she experienced. She described her experiences during the year-long placement in the following ways. Her week was *"split up into our consulting time in the general practice and sitting with different specialists in the region"*. These specialists were, for example, resident surgeons and anaesthetists at the local hospital. Sue also sat with specialists, such as visiting cardiologists and paediatricians, in consulting rooms just outside of the hospital precinct. She would also be 'on call' one week out of every three and one night every week. So, for up to three days of the week, students in this kind of placement would be involved in consulting, with two sessions with a specialist during which they would either sit in on consultations or go into the operating theatre. One day a week was focused on problem-based learning, clinical skills teaching and time in the simulation laboratory. There was a student study day during which she could engage in tutorials with the general practice supervisor and any available visiting specialists. Sometimes, these tutorials would be via video conference with staff at the primary university campus or perhaps through participating in pharmacotherapy tutorials, for instance. Alternatively, specialists would engage with students in a case-based approach, analysing their responses to recent cases, or hold tutorials with visiting specialists, such as cardiologists or psychiatrists who were only available in the evenings. During her time off Sue engaged in self-directed study, preparing for the Positive Behaviour for Learning (PBL) activities she was participating in, completing her written

assignments preparing for tutorials with her GP and specialists. Sue also described how she and the other students would read up on the recent cases they had engaged with in the clinic or with specialists. Sue reported that her week was busy, but well organised.

In her spare time, Sue engaged with the local community. For instance, she said that her “*.. outlet this year was to join the local church and tennis club*”, and she found that attending the church every Sunday morning provided her with “*an excellent opportunity to meet people in the community and also some of doctors from my clinic also attended*”. In this way, she met a range of people from the health care community and came to engage in different ways with community members. She also referred to these experiences as being good networking in the beginning, but also really nice to get to know some of young families, which she found rewarding. She joined the tennis club at the start of the year, “*and played for the rest of the summer season which was a lot of fun. Yes, so it’s been pretty busy*”. Again, the duality of participatory practice is evident here. On one hand is the intentional provision of experiences for learning afforded by institutions (university, general practice, hospital, church, tennis club), other professionals and assigned supervisors, and on the other hand, how Sue participated engaged with all of these. In other circumstances and for other individuals, the affordances may not have been so great, but also others may not have elected to participate in the local community how Sue did.

The affordances of the rural clinical experience program and Sue’s engagement with it provide positive instances of participatory practices. On one hand, there was made available a range of experiences for her, and arrangements to organise, and to promote her engagement and learning. The provision of experiences to which she had access were highly invitational, and were structured to ease her taking up that invitation. The ability to observe and participate, or to ‘sit in’ with GPs and specialists engaging in their practice, and to follow their cases is likely to be highly effective in gaining an understanding of the goals and procedural approaches through which medicine is practiced. The ability to observe, imitate and practice, referred to as mimetic learning (Billett, 2014), is perhaps the most foundational of human cognitive processes through which we learn. In particular, in these situations it permits the development of goal states (i.e., what outcomes should medical work progress), means of achieving those (e.g., the kind of clinical reasoning that sits behind decision-making) and the opportunity for rehearsal, which both reinforces and extends what individuals know, can do and value. This leads to considerations of the educational worth of these kinds of experiences.

The educational worth of clinical experiences

When asked about the worth of these different experiences, Sue identified what was supportive of her learning and emphasised her time working with her GP supervisor.

She’s been incredible ‘cause ... not just having that one on one time with the doctor, but also she had a lot of care and consideration that she put into her teaching and it was really important to her that Tracy (another medical student) and I really understood the concepts that we were being taught in our tutorials. (Sue)

These tutorials comprised reading through the PBL case, after which the supervisor would ask questions about the cases that unfolded.

She would probe us and test us and get us to do role plays and ask other peripheral questions and then give us a wealth of wisdom that she had to share [laughs], which was invaluable. She also went to the effort of organising additional tutorials for us

before exams so we could cover anything that we would like further revision on with her. But she is just amazing and when we were consulting with her in the clinic she would always run through things very thoroughly and shared little pearls of wisdom with asking histories and clinical examinations and things and test us when we needed to be tested. (Sue)

The quality of what was being afforded by the clinical placement extended to a high level of pro-activity on the part of local practitioners. Sue reported that she and another student would be called by the hospital staff if there was something unusual occurring, for instance a patient suffering from a stroke. They would be invited to do a neurological examination, which Sue recalls as being a rich learning experience. Moreover, the students were interested in, and supported locally by obstetricians to attend births, and engage with provisions of antenatal care. This support extended to access to, and engaging with, pregnant women, so the students could secure their permission to follow them through their pregnancy and assist in the birthing process. This experience was reported by Sue as being highly rewarding, as well as educationally potent.

Importantly, such experiences would not have been possible without the considered engagement and support of local healthcare practitioners (i.e., affordances). For Sue, and equally for Tracy, these experiences led to each of them being involved with more than ten pregnant women patients, and having a range of experiences which deepened their understanding of pregnancy and the birthing process.

However, when pressed, Sue concluded that consulting in general practice had been the most continuous method through which she had enriched her learning during clinical placements. She contrasted the experiences of sitting in with specialists and working in general practice.

When we've been attending with the specialists we've taken observatory roles and every now and then, depending on who the specialist was, they might ask us to, they might say, oh this is an interesting sign on the patient, come and have a look or come and have a look or you can come and examine this or that. But usually that's more of an observatory role in that context. But in the general practice setting the GPs have given us a lot of instruction but then also a lot of room to practice consulting. (Sue)

Sue reported that the first four or six weeks were spent sitting in with the GP observing the consultation process, but after that time, she and the other student were given their own rooms and would work under the supervision of a GP. If they were willing, the students could consult patients on that GP's list for the day. They first had to gain the consent of the patients to see them, and the patients were then seen by the doctor. In their consultations, the students would take patients' histories, perform examinations to the extent they considered were required, and on completion, would call the GP into the consulting room. The students would share with the GP the patient's history and findings of the examination, and any conclusions they had drawn. This method of teaching and learning developed over the course of the year's placement. The worth of these experiences has not escaped those students who were not able to engage with them. Jim contrasts his experience within a major metropolitan teaching hospital with those of Sue and Tracy in the rural placement program. He commented that in the traditional hospital based medical education program, students are positioned very differently: following consultants around wards and engaging far more passively and remotely. Occasionally, he reported being assigned a task by a consultant (e.g., giving patients some guidance about alcohol or smoking), which is quite different from engaging in patient interaction, taking a history and giving counselling, or the entire clinical

consideration, reasoning and decision-making process. In terms of his progression, he concluded at the end of year major assessment, that rural placement students were far more likely to be competent than he was. This was because the activities in which they were engaging were more likely to lead to becoming a competent medical practitioner than the activities he experienced. As noted above, it is most likely that the experiences afforded Sue had pressed her into engaging in goal directed activities, considering a range of factors through which to identify patients' histories and conditions, and what actions might be undertaken. All of this is central to developing doctors' core capacity of clinical reasoning.

In short, Sue's episodic and authentic experiences engaged her in the kinds of thinking and acting in which doctors engage, and included the consideration of a range of factors required for clinical reasoning in decision-making.

So then we would have our own [consulting] room where we would take the patient into the room and take a proper history and then do an examination as far as we could, as much as we thought we needed to examine and then ring the GP on the phone and let them know that we'd finished and they would come and see us and come into the room and then they would ask us to report back our history and examination findings and what we thought was going on. (Sue)

In contrast, Gil experienced the teaching hospital-based model, whereby there was less structure to his day depending *"on who's on the ward and what they get you to do and what their style of teaching is and what they think med students should be doing. There's a big difference."* The less episodic and more disengaged processes that Gil experienced is most likely to lead to different kinds of outcomes. Here, we are reminded of the dictum that activity structures cognition (Rogoff & Lave, 1984). It is also noteworthy that another, but analogous, study of first year doctors working in hospitals found that despite having had a lot of clinical experience during their medical training, it was only when they engaged in actual medical tasks that involved understanding and reasoning, that they realised their knowledge was often deficit in some ways (Cleland et al., 2014). They reported a lack of the kind of foundational knowledge required to reason and make clinical decisions. That is, only when they were placed in the position of making those decisions did they realise the strengths and limitations of their knowledge.

However, Gil did refer to the sometimes overwhelming nature of these immersion experiences, drawing on what his sister had reported. He also suggested that the provision of learning experiences in the university is more likely to intentionally address the scope of the knowledge to be learned, rather than what occurs through the opportunities arising in practice. Gil also made a point about readiness or lack thereof. That is, he reported being involved in a two-week placement with a GP in a rural community. However, even though he was provided with a similar set of experiences as Sue, he reported them as being a lot less helpful. He stated that he was not really ready for the experience and could not gain maximum benefit from it.

I was involved in the practice and in the little hospital, and I didn't really know anything at all. So I think I didn't get as much out of it as I could, if I had done it later on. It probably would have been most helpful experience if I'd had it later in the year. (Gil)

So, it is not just the provision of experiences (immersion, relations, etc.), but also the readiness of the student to engage effectively with those experiences (i.e., confidence, self-agency, etc.)(Billett, 2015). In another study focussed on the integration of experiences across university and work

settings, students strongly endorsed the importance of gradual engagement in workplace activities in ways commensurate with their readiness to participate effectively (Billett, 2011). Indeed, during her rural placement year, Sue claims that her history-taking and examination skills changed significantly through the opportunity for practice. She recalled initially not knowing where to begin nor could she identify what actions were most relevant. So she tended to ask lots of questions about lots of different aspects of the patients' health. Sue commented, *"I couldn't quite recognise the patterns early on as to what condition it might be."* However, through repeated practice and feedback provided by the GP, during her rural placement year the focus of questioning and the extent of history-taking and examination went from taking quite a long time and being ill-focussed to being considerably quicker and more focussed. Sue reported that some of her initial examinations had taken almost an hour. This slowness caused some frustration for her GP. However, the combination of practice and feedback were attributed to her becoming more confident and focused in her history-taking and examinations, possessing better skills and identifying patterns which lead to a more effective engagement, and therefore, her confidence in history taking and examinations increased. Hence, by the end of the year her consultation skills had increased significantly. She identified this development as a product of practice and feedback, but also the contributions of the problem based learning approach and other experiences such as the tutorials. So these were clearly well-organised, productive and positive affordances provided in the medical clinic, supporting her development as a nascent medical practitioner. Jim referred to an example that characterises the differences in the engagement across the cohort engaged in the teaching hospital and those in the rural setting. He pointed out that not only was he given relatively trivial tasks to perform, but even when encouraged to go and see patients, that it was a very different learning experience than if he had been actually undertaking the admission and the history taking. That is, the patient's condition had already been diagnosed, so his engagement was contingent upon already knowing what they were presenting with. Whereas in Sue's circumstance, taking the history, conducting the examination and coming up with conclusions to be checked by a more experienced practitioner, Jim's experience consisted of working around what other people had already concluded. Hence, his learning process was far more truncated. He concluded by again making a comparison that in terms of: *"practical hands-on, dealing with patients, (rural) students seem to have the upper advantage, because they are getting better exposure, getting to see the patient."* (Jim)

Sue provided an interesting response when asked about what experiences in her medical education had been inadequate. She referred to the tutorial arrangement in the first or second year of her university based components of the program when a clinical educator resigned. Because no replacement could be found, students were given responsibility for running tutorials on a rotational basis. However, in comparison with educative practices in health-care workplaces, those within the university program faltered. The peer led processes were inadequate in the face of hostilities and disorganisation within the group, and were marred by inconsiderate conduct. Sue recounted that even those students who were conciliatory became frustrated, particularly with the domination of the process by a few students. Other students began to withdraw, or become disengaged or guarded because there was often disrespect within the tutorials. Noteworthy in the educational provision is the absence of structure, respect and discretion which was so evident in the clinical settings Sue had experienced.

As was reported by other students, Sue worked closely with another student who was on the same placement, and their collaboration provided a salve against some of the more difficult experiences they encountered. Other students reported that these kinds of collaborations were

established to assist them in dealing with the demanding requirements of medical study, to bulwark against discomfiting or negative experiences in clinical settings and to facilitate collaborative studies ahead of clinical placements or, most importantly, final examinations.

In these ways, the limiting and unsatisfactory affordances of the educational program were mediated by how the students came to participate, forming close personal peer relationships to manage and mitigate difficult and unproductive experiences. Moreover, Sue offers exemplars of how students' agency, as directed by their personal epistemologies, is central to the learning of medical practice. In discussing the development of her clinical skills through interacting with nurses at the rural hospital, she mentioned how she had engaged deliberately and effortfully to develop particular clinical skills. Having observed that one of the nurses took blood every day, she negotiated to access experiences about how to take blood effectively and to secure sufficient practice to do so. As with her experiences in the GP and specialists' surgeries, this began with her sitting with a nurse, watching how she took blood. Then, after a period of observation she engaged in the process and secured sufficient practice to become competent and confident in taking blood. She referred to this opportunity repeatedly in terms of building her confidence to work in a clinical environment, and to proceed with learning more complex clinical skills, such as inserting cannulas and catheters.

You feel comfortable that you know what to do and you can do it and you feel more part of a role, rather than sitting back and feeling inadequate. You feel like you can do something and then that sort of impacts on the rest of the clinical encounter as well.

(Sue)

Similarly, Jim recounted the importance of rehearsing procedurally focussed learning. In referring to short blocks of intense placements in which students secured opportunities to practice, he said

... the short blocks were really good because you ... had one week of intensive of just doing one thing, ... - I have this saying - repetition is king, so the way to get things into your memory is through repetition. For the one week on cardiac, every day you saw three, four, five patients and you went through the same sequence. (Jim)

He went on to say that in other areas he might only see one patient with a cardiac condition during a 4 week placement. *"It's kind of luck of the draw. You might see something rare, you might see something random or you might see the same, diabetes 10 times a day. Having that one week in CCU was good because it sort of hammered it into you a little bit. But equally, you felt like it wasn't enough at the end of it."* (Jim). Gil also returned to issues of readiness when describing the efficacy of particular educational experiences. He referred to being in a ward where the complexity of the patients' cases was often overwhelming. Yet, in referring to the way that more experienced practitioners were able to assist his learning in such circumstances, he said:

...the junior doctors were good at pitching things at my level so they'd pick out the important things about the patients. They'd ask me the questions with the right expectations, so that was good. The chance to see patients in ED and present them that was really helpful. Time pressure was a bit frustrating because there are so many patients so I didn't have much time to take proper histories but the experience ... was really good. (Gil)

What is referred to is a set of experiences characterised by the ordering and sequencing in terms of what they provide for the students, appropriateness to their stage of development and inducting

them gradually into engaging in decision-making and acting, which by degree, is commensurate with their level of development. When the readiness of the learner and the demands of the situation are too greatly divided, the outcomes can be unhelpful. When they are well aligned they are seen to be highly productive. It is these kinds of considerations that are central to the curriculum – the organisation and enactment of learning experiences. Moreover, as evident above, these data capture a range of practice pedagogies (i.e., means of supporting and augmenting clinical experiences) from the situations of parallel consultations, engagements with GPs and specialists, opportunities to observe and practice, through to the considered actions of junior doctors. These practices assist in closing the gap between what medical students know and can do, and what they experience in clinical situations. In different ways and by degree, and premised upon personal readiness, these contributions to medical students' learning can be either powerful and consolidating, or they can be potentially overwhelming.

Before concluding, it should be acknowledged that the kind of experience that were made available to Sue and Tracy through a longitudinal rural placement are exceptional, but resource-intensive and difficult to massify. These examples are used here to illustrate the concept of participatory practices and eliminate the kinds of qualities that lead to rich learning in practice settings. In the following and concluding section, issues about application to practice are briefly addressed.

Participatory practices in action

The accounts presented and discussed above about what constitutes these medical students' experiences are advanced through the concept of participatory practices comprising the provision of those experiences (i.e., affordances) and how individuals responded to them (their engagement). The data demonstrate that it is important to have a separate consideration of the kinds of experiences which constitute the curriculum of the medical education program, as well as an accounting of the capacities, values and interests of the students, and how they come to engage with learning experiences. However, an understanding of the totality of the experiences and how learning arises through different kinds of experiences requires consideration of the relations and outcomes that arise in the interactions between the students and the provisions provided for them. What has been offered here is a consideration of curriculum, in terms of the ordering and enactment of experiences for these medical students, which were advanced in both educational and practice settings. Certainly, these findings provide some tentative points for consideration about how educational experiences might be intentionally organised.

In curriculum terms, what is indicated here is that experiences in which novice occupational practitioners can come to engage in the occupational practice in a way and with authentic occupational tasks that are commensurate with their level of readiness likely to be an effective basis for promoting their learning, rather than relying upon instruction alone. More than the sequencing of activities, it is their kinds and qualities that are most important here, as these are the bases by which affordances are advanced and engaged. So here, the issue of curriculum as a pathway of experiences – its original meaning – is re-engaged. The intended curriculum here is seen as the kinds of pathways that novice occupational practitioners need to progress along to acquire the competence required to be effective. Then, the pedagogic practices that were evident in the accounts referred to comprise those that can best be afforded and are central to learning through the particular social practice. Here, observation, questioning, engaging in activities, modelling,

parallel practice along with those provided through educational programs such as problem based learning and videoconferencing all contributed in different ways to the students learning. So, here the concept of pedagogic practice is opened up and goes beyond teaching alone.

In addition to considerations of curriculum and pedagogy are also those associated with the learner's personal epistemologies. That is, how the students come to engage in and learnt through their experiences and what directs and focuses their activities. All of this leads to a set of very practical considerations about the organisation of the learning experiences to assist individuals develop occupational competence in both educational and practice settings, how these can be strengthened and augmented through pedagogic practices such as those mentioned above and also how learners can be pressed to engage in ways motivated by their intentionalities and interests. A practical consideration for teachers and tertiary education is how we can prepare our students to engage effectively in such ways and environments to develop the kinds of capacities that were referred to in this article. All this positions the teacher is more than a provider of knowledge and emphasises the importance of organising and supporting rich learning experiences for our students.

References

- Berger, P. L., & Luckman, T. (1966). *The Social Construction of Reality*. Harmondsworth, Middlesex: Penguin.
- Billett, S. (1998). Situation, Social systems and learning. *Journal of Education and Work*, 11(3), 255-274.
- Billett, S. (2004). Learning through work: Workplace participatory practices. In H. Rainbow, A. Fuller, & A. Munroe (Eds.), *Workplace learning in context* (pp. 109-125). London: Routledge.
- Billett, S. (2006). Relational interdependence between social and individual agency in work and working life. *Mind, Culture and Activity*, 13(1), 53-69.
- Billett, S. (2009a). Conceptualising learning experiences: Contributions and mediations of the social, personal and brute. *Mind, Culture and Activity*, 16(1), 32-47.
- Billett, S. (2009b). Personal epistemologies, work and learning. *Educational Research Review*, 4 210-219.
- Billett, S. (2011). *Curriculum and pedagogic bases for effectively integrating practice-based experiences* Retrieved from Sydney:
- Billett, S. (2015). Readiness and learning in healthcare education, . *Clinical Teacher*, 12, 1-6.
- Brown, J. S., Collins, A., & Duguid, P. (1989). Situated Cognition and the Culture of Learning. *Educational Researcher*, 18(1), 32-34.
- Cleland, J., Leaman, J., & Billett, S. (2014). Developing medical capacities and dispositions through practice-based experiences. In C. Harteis, A. Rausch, & J. Seifried (Eds.), *Discourses on professional learning: On the boundary between learning and working*. Dordrecht: Springer.
- Cooke, M., Irby, D., & O'Brien, B. C. (2010). *Educating Physicians: A call for reform of medical school and residency*. Washington: The Carnegie Foundation for the Advancement of Teaching.
- Donald, M. (1991). *Origins of the modern mind: Three stages in the Evolution of Culture and Cognition*. Cambridge, Massachusetts: Harvard University Press.
- Engestrom, Y. (1993). Development studies of work as a testbench of activity theory: The case of primary care medical practice. In S. Chaiklin & J. Lave (Eds.), *Understanding Practice: perspectives on activity and context* (pp. 64-103). Cambridge, U.K: Cambridge University Press.
- Hodkinson, P. H., & Hodkinson, H. (2004). The significance of individuals' dispositions in the workplace learning: a Case study of two teachers. *Journal of Education and Work*, 17(2), 167-182.
- Jolly, B., & MacDonald M M. (1989). Education for practice: the role of practical experience in undergraduate and general clinical training. . *Medical Education*, 23

189 - 195.

Lave, J., & Wenger, E. (1991). *Situated learning - legitimate peripheral participation*. Cambridge, UK: Cambridge University Press.

Lodge, R. C. (1947). *Plato's theory of education*. London: Kegan Paul, Trench, Trubner.

Malle, B. F., Moses, L. J., & Baldwin, D. A. (2001). Introduction: The Significance of Intentionality. In B. F. Malle, L. J. Moses, & D. A. Baldwin (Eds.), *Intentions and Intentionality: Foundations of Social Cognition* (pp. 1-26). Cambridge, Massachusetts: The MIT Press.

Organisation for Economic Co-operation and Development. (2010). *Learning for jobs*. Retrieved from Paris:

Raizen, S. A. (1991). *Learning and work: The research base. Vocational Education and Training for youth: Towards coherent policy and practice*. Retrieved from Paris:

Richards, J., Sweet, L., & Billett, S. (2013). Preparing medical students as agentic learners through enhancing student engagement in clinical education. *Asia-Pacific Journal of Cooperative Education, 14*(4), 251 – 263.

Rogoff, B., & Lave, J. (Eds.). (1984). *Everyday cognition: Its development in social context*. Cambridge, Mass: Harvard University Press.

Salomon, G. (1997). *Distributed cognitions: Psychological and educational considerations*. Cambridge, UK: Cambridge University Press.

Searle, J. R. (1995). *The construction of social reality*. London: Penguin.