Exploring Fatigue as a Social Construct: Implications for Work Hour Reform in Postgraduate Medical Education

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Introduction: Internationally, work hour restrictions remain the primary solution to the problem of fatigued trainees. Existing research on resident work hour restrictions has focused on proving or disproving whether these restrictions have reduced fatigue, resulting in better-rested, safer trainees and patients(1). The results are inconsistent across the literature, for reasons that are not entirely understood. One possibility is that most studies consider fatigue from an individualistic, physiological perspective. By approaching the issue of fatigue from a different perspective, as a collective and social phenomenon, further insights await that would otherwise be appreciated by a purely individualistic stance. Thus, this thesis explores fatigue as a social construct and its relevance to workplace-based strategies for managing fatigue, namely work hour reform.

Methods: This program of research is comprised of four interconnected studies that use a constructivist grounded theory approach to qualitative research. The two main theoretical frameworks that shaped the course of the dissertation were sociocultural learning and social constructivism. The main data were individual semi-structured interviews with postgraduate trainees. The first three studies took place in Canada, where work hour regulations are not legislated and existing rules are inconsistently enforced. The fourth study consisted of interviews with residents across four European countries with established, legislated work hour regulations. Data collection and analysis proceeded in an iterative fashion, in keeping with the chosen methodology. Because the researcher is a central influence over every decision made through the course of research, reflexivity was a critical component of the process. This research was approved by the Health Sciences Research Ethics Board at Western University (REB #102769).

Results: Our findings highlight fatigue as a pervasive and covert social construct within the clinical training environment. Residents generally saw fatigue as a personal challenge to be overcome, rather than a collective hazard to be avoided. Working longer hours held various meanings in different contexts. In the Canadian context it was a sign of commitment, while in the European context it was equated with inefficiency. Our interviews with Canadian trainees also revealed that, without legislated duty hour policies, residents' decisions about whether to stay or go following a call shift were shaped by cultural norms rather than fatigue. And, when residents chose to recover from their call shifts, they did so in ways that were not always intended to make up for lost sleep.

Discussion and Conclusion: By making the social constructs of fatigue explicit, the barriers to authentically managing fatigue in the clinical workplace become more apparent. For example, fatigue is not a shared problem to be managed across all levels of the healthcare system. This has implications for medical training in jurisdictions at any stage of work hour reform, whether regulations are being contemplated, implemented or revised. Interventions that focus solely on hours of work are insufficient to manage such a multi-dimensional construct. Work hour restrictions can bring awareness to the reality of fatigue in practice, but they do not eliminate fatigue. Over time, interventions that reflect the complexity of medical education and fatigue will hopefully give rise to a more authentic approach to managing fatigue.


The links between organisational, team and individual medical postgraduate workplace learning – An ethnographic and action-based research study

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Introduction: This thesis focuses on the integration of medical doctors’ daily clinical work around patient care with the concurrent need to train future medical specialist. The objective was to investigate the link between work organisation, the group of doctors and the individual learner. It demonstrates the significance of work organisation in relation to adapting and developing workplace learning to the reality of the hospital setting. The thesis comprises three studies aimed at providing a conceptual understanding of beliefs and ways of organising specialist training and illustrate the use of a change intervention framework and action research aligned methods.

Methods: First, an explorative ethnographic case study was conducted, focusing on the organisation of specialist training in three paediatric departments using both observations and focus-group interviews. The sociocultural learning theories of communities of practice and workplace affordances and workplace pedagogy were employed as theoretical frameworks. Secondly, a retrospective analysis of electronic records of junior doctors' perspectives and initiatives for change from a yearly innovative process (3-hour meetings) from 2006 to 2014 was introduced. The records were thematically analysed with a continued focus on the interrelation between work organisation and training. Cultural-Historical Activity was applied as an analytic tool that helped with the identification and redefinition of the
objects of work and learning in the activity systems. The final and third study combined the Cultural-Historical Activity Theory derived Change Laboratory intervention with the established 3-hour meeting innovative process resulting in a participatory action research aligned intervention study in a paediatric department.

Results: The initial study illustrated that junior doctors’ and consultants’ beliefs about workplace learning are of importance when handling the potential conflict and different discourses on service versus training, and it pointed towards both conceptual and contextual factors to take into account when supporting and improving junior doctors’ opportunities for learning. The second study showed that junior doctors were successful and important contributors in initiating change and development by bringing in the instrumental elements of the activity systems. The final study showed how the research team in collaboration with medical doctors restructured and reorganised their educational setting in an outpatient clinic. The Change Laboratory was feasible and resulted in a joint action plan and provided detail descriptions of present tensions and contradictions in the activity system.

Discussion and Conclusion: We provided perspectives on organising specialist training in the complex hospital setting, and illustrated how challenges might be addressed and deconstructed when aiming at aligning junior doctors' workplace training with daily work and an ever changing healthcare organisation. We recommend increased attention to the interrelation and alignment of the curricula of specialist training and the workplace. The paediatric Change Laboratory resulted in a joint action plan with the aim of enhancing learning in the clinical setting. Furthermore, it provided detail descriptions of present tensions and contradictions. Thus, the thesis contributes to activity theoretically inspired action research aimed at overcoming barriers and tensions in order to redesign work and learning. In conclusion, the work contributes to conceiving of and enabling medical learners to become transformative agents.


#5F3 (9)
Engaging patient-centredness in an undergraduate medical curriculum

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Introduction: Patient-centredness has been identified by most medical schools as a desired competence. However, there seems to be a focus on biomedical aspects of patients in the practice and theory of teaching and learning in undergraduate medical curricula; therefore, students focus on the disease of patients. The expectation that doctors should be patient-centred has caused medical curriculum planners worldwide to pay attention to aspects such as communication skills training, including subjects from the humanities and placements of students in longitudinal clerkships. Despite some of these initiatives, medical students still display a lack of patient-centredness by graduation.

Methods: An explorative programmatic case study design, rooted in an interpretive knowledge paradigm, was considered most appropriate for the study in which final year medical students and lecturers participated. Interviews with students (n=60) and lecturers (n=5) were held, observations of clinical teaching activities were conducted and curriculum documents of the curriculum were analysed. The three-tiered phases of data analysis (Miles & Huberman, 1994) were followed to structure the data analysis. Elements of an existing model, the Integrated Behaviour Model (IM) (Fishbein, 2000), were used as sensitising concepts in order to organise and report the qualitative data. While a deductive analysis process was followed by making use of the IM’s various elements as themes, there was a constant comparative process between the themes of the IM and the data so that additional aspects that were evident in the data but not in the themes of the IM could be identified as new themes.

Results: The findings revealed that the following factors play a role in students’ learning about patient-centredness: background characteristics of students and lecturers, attitudinal factors, acquired skills and knowledge, subjective norms, student self-efficacy, assessment of learning, and the environment or context within which patient-centredness is taught and learnt. Two factors that have proved to have a highly significant effect on the learning of patient-centredness are subjective norms and assessment. Subjective norms refer to the clinical learning environment where the students are exposed to role models, as well as opportunities to practice patient-centredness on real patients. Assessment is recognised as an important factor that drives student learning, and the lack of assessment of patient-centredness in many departments renders a message strongly favouring the biomedical approach to patient care.

Discussion and Conclusion: The study provides new insights into the teaching and learning of patient-centredness in an undergraduate medical curriculum by suggesting an adapted version of Fishbein’s IM. With an improved understanding of enablers and disablers it is acknowledged that such learning is about more than the positive attitudes of students and providing them with patient-centred communication skills training: a critical aspect is the clinical learning environment. This environment needs role models that support the development of patient-centredness, thus cultivating a positive hidden curriculum for medical students. This study emphasises a need for a jointly planned and well-coordinated approach to the formal, informal and hidden curriculum spaces within a programme with well-trained
clinician teachers who understand the importance and application of patient-centredness in modern medical practice.


#5F4 (12)
Virtual Patients for Learning of Clinical Reasoning

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Introduction: Clinical reasoning is generally considered a decisive component of nearly everything doctors do in practice. There are indications that clinical reasoning is not well enough taught during medical training as students are exposed to too few supervised learning experiences with real patients. Virtual Patients (VP), online cases, where the learner diagnoses and treats a patient interactively, can foster clinical reasoning (Cook et al. 2010). The aim of this dissertation was to explore how learning with Virtual Patients to foster clinical reasoning in medical students can be improved by addressing the following two main research questions: I: How to improve the design of Virtual Patients to foster learning of clinical reasoning? II: How to improve the implementation of Virtual Patients to foster learning of clinical reasoning?

Methods: Answers to the two main research questions were based on five consecutive studies using multiple methodologies. Using focus groups among clerkships students who were exposed to VP of different design we explored the ideal design features of VP. A modified Delphi study among VP experts was used to establish VP design typology for improving the reporting and researching VP. Further we developed and established validity evidence for an instrument to evaluate VP design from the student perspective. Using focus groups among students who were exposed to VP in different curricular integration scenarios we explored features on how to optimally implement VP into a clerkship. In a last study we explored how different exam formats in an assessment of a clinical clerkship which includes learning with VP are perceived by students in respect to their influence on learning (pre-assessment effect) of clinical reasoning and whether their psychometric properties differ.

Results: Based on the first three studies the following three main aspects seem to be especially relevant for optimizing VP design to foster learning of clinical reasoning: (i) Using instructional design criteria such as ensuring an appropriate level of difficulty, authenticity, interactivity, feedback and focusing on relevant learning points, (ii) implementing virtual coaching on clinical reasoning into the VP such as asking for discriminating and confirming features and (iii) providing theory-guided instruments for systematic further improvements such as the developed VP typology and VP design questionnaire. Based on the two last studies the following three main aspects are especially relevant for VP implementation: (iv) Sequencing VP and other educational activities according to complexity and aligning (v) instruction and (vi) assessment with the use of VP.

Discussion and Conclusion: Our results are in line with current theories and insights outside of VP research e.g. on instructional design, on how to foster learning of clinical reasoning (Schmidt & Mamede 2015) and on instructional design theories regarding curriculum development. Our studies demonstrate how VP can be designed, systematically further improved and implemented to foster learning of clinical reasoning. Major strengths of this dissertation are the authentic settings in which studies were performed, the involvement of different stakeholders in the studies and the combination of different research methodologies. Further research is needed to develop a greater understanding of VP design and implementation multi center and in other contexts, including their longitudinal implementation and measuring their impact on patient outcomes. VP should never replace real patient exposure.