OPTIMIZATION OF FACULTY DEVELOPMENT AT A DISTRIBUTED MEDICAL CAMPUS

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Lay Abstract

Recently, satellite campuses of medical schools have been established in smaller cities, called Distributed Medical Education (DME) sites. There, the teaching faculty is composed of non-academic, community-based physicians. These faculty members need training to learn how to teach, or Faculty Development. This study asked the question: *How can medical teaching expertise be developed and sustained at a Distributed Medical Education Campus?* Sixteen interviews were conducted with teaching physicians, and two faculty development events were observed at two DME site campuses in Southern Ontario. The findings of this study revealed that the community is transformed through a process of interaction between learners, medical teachers, and the community itself, resulting in the production of expert community teachers. These teachers can access high quality faculty development within their own practice groups, a model referred to as a Community of Practice.

Abstract

Background: Distributed Medical Education sites are satellites of large academic medical schools with faculty who are community-based physicians. These medical teachers need faculty development and there is little data about how this can best be delivered. This study asked the question: *How can medical teaching expertise be developed and sustained at a Distributed Medical Education Campus?*

Methodology: Using constructivist grounded theory methodology, a total of 16 semi-structured interviews were conducted with faculty members at two DME site campuses in Southern Ontario, and two faculty development events, one at each site, were observed.

Findings: The community in which a DME campus medical school is implanted is transformed through a process of interaction between learners, medical teachers, and the community itself, which results in the production of expert community teachers. Community based physicians can develop teaching expertise and require faculty development to maintain interest and skill. They can access high quality, relevant faculty development within their own practice groups, a model referred to as a Community of Practice. These communities can be virtual or in-person and need several elements to be successful, including facilitation and mentorship.

Conclusion: Teaching experts can develop in a DME site when there is accessible, relevant faculty development, such as in a Community of Practice. More research is needed to determine the best way to reward community teachers, most of whom are part time faculty in private practice.

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List of Abbreviations

DME – Distributed Medical Education

CPD – Continuing Professional Development

CoP – Community of Practice

VCoP – Virtual Community of Practice

PBL – Problem Based Learning

CME – Continuing Medical Education

REL – Regional Education Lead

Declaration of Academic Achievement

With the guidance of my thesis supervisor Dr Meredith Vanstone, and with the supervision of my thesis committee members, Dr Parveen Wasi and Dr Khalid Azzam, I have carried out the research required to complete this thesis. I conducted a search of the relevant literature, developed the study protocol, applied for and obtained ethics approval, recruited and interviewed participants, observed the appropriate events and collected all relevant data. I analysed the data to develop the theory of the transformation of a clinical medical site to a distributed medical education site, with a community of practice of medical teachers who participate in faculty development. This theory was developed and refined with input from my supervisor and the committee. This data has been presented in committee meetings and will be presented at educational conferences to enhance delivery of faculty development at DME sites.

1.Introduction and Literature Review

1.1 Introduction

"Medical education does not exist to provide students with a way of making a living, but to ensure the health of the community."

- Rudolf Virchow

Rudolf Virchow (1821-1902) was a German physician and is regarded as the father not only of modern pathology, but also of social medicine, that is the study of the interaction between social determinants of health and medical care. His words, above, provide a description of the impetus for the adoption of a new model for medical education across Canada: The Distributed Medical Education (DME) campus (de Villiers, 2017, Strasser, 2009). No longer does the training of new doctors solely take place in the rarified atmosphere of an academic teaching hospital. Medical education has traditionally taken place in an urban setting, with the academic teaching hospital as the main hub of learning, and the medical school, affiliated with a large university, has overseen the educational, research and administrative aspects of undergraduate and postgraduate training of physicians (Duffy, 2011). This has enhanced the progress of research and scholarship in medicine, and it has been noted that most physicians, after graduation, remain in the region in which they have trained (Chan, 2005, Rourke,

2018). With a concentration of physician resources in urban sites, there are fewer doctors to tend to the needs of rural and remote dwellers (Rourke, 2018), and the centralized academic medicine model has been criticized as not addressing the needs of those in non-urban, underserviced regions (Strasser, 2009). Accordingly, concerns about the social responsiveness of medical education have arisen in Canada and internationally. Concurrently, the capacity of academic sites to accommodate all the potential physicians in training has been strained (Christner, 2016, Irby, 2001). Medical education is largely an apprenticeship model, with on-the-job learning that requires direct supervision and assessment by a teacher (Swanwick, 2014). Most medical education doesn't take place in a vast lecture hall, but at the bedside or clinic room. Thus, there are more learners than there are clinical placements in most academic sites for most specialties and areas of practice (Christner, 2016).

Since the early 2000's, largely in response to societal needs as described above, new distributed campuses have been implanted in smaller and more remote communities in Canada and other countries. Early forays into DME were led by medical learners who sought rural electives for their increased hands-on experience and better undifferentiated clinical exposure (Barrett 2011). More recently, the practice of sending students from the central urban hub out into the periphery has been enhanced to the point that the campus itself has moved out of the city and into the wilds of the community. Now, distributed medical education

includes fully functioning campuses with undergraduate and postgraduate programs, a distinct administrative structure, senior leadership organization, student support system and faculty (Snadden, 2011). Community preceptors, or physician teachers who practice outside of the academic milieu, in urban, suburban or rural and remote settings are a large component of the medical education workforce for most medial schools in Canada (Association of the Faculties of Medicine of Canada, 2010). Teaching faculty at a DME site are recruited from the physicians located in the geographic area around the campus, most of whom were not previously actively engaged in teaching or curriculum development. Some new recruits are enthusiastic pioneers, others reluctant “voluntolds” (Snadden 2011), but all require ongoing support to stay engaged and current. Distributed faculty have expressed a need for feedback, relevant faculty development and mentorship to develop mastery of teaching skill (Zelek, 2018). When these elements are present, the teaching role can become a permanent part of the community physician’s professional identity, and there is more likely to be an ongoing commitment to participation in medical education (Starr, 2003). Medical teachers, replete with medical knowledge and clinical expertise, must undergo a professional development process in the acquisition of teaching skills (Steinert, 2004). Faculty development is broadly defined as a program of support and education for medical teachers, covering teaching techniques, and more recently subject matter has expanded to include scholarship, administration and leadership (Leslie, 2013). At an academic site, faculty development has long been a part of the academic milieu,

is usually tied to evaluation and promotion of faculty members, and in a culture where teaching is valued and offsets onerous service commitments, the incentive is clear (Genn, 1985). At the DME campus, many faculty would be equivocal about the withdrawal of student placements, and faculty development participation is neither compelling nor compelled by administration, but is necessary (de Villiers, 2017, Graziano, 2018, Piggott, 2015, Blitz, 2018). Whether at an urban or distributed site, faculty development is costly and poorly attended, although technology has helped to surmount some of these barriers (Curran, 2006). The most effective faculty development includes the provision of feedback, and some form of mentorship as well as networking and community building (Steinert, 2016).

1.2 Research Question

Inequity in distribution and composition of the physician workforce can be addressed with Distributed Medical Education training sites. To better meet the needs of society, medical training has moved beyond the walls of the academic classroom and into the community, where clinicians are taking on new teaching roles with varying degrees of enthusiasm and trepidation. Community doctors at DME sites must learn how to teach, and faculty development is the traditional route to mastering these skills. Faculty development sessions are not effective if they are not attended or not followed up with appropriate mentoring and networking. The DME site is a community of medical learners, and requires a pool of properly

prepared faculty members, who in turn need effective faculty development to stay engaged and energetic. Our research question, then is:

How can medical teaching expertise be developed and sustained at a Distributed Medical Education Campus?

Given that the medical teacher role is one that is being expected of community faculty in the landscape of DME expansion, our study explores the perceptions of DME physicians about the transformation of community physicians from non-teachers to medical teachers. We set out to determine the barriers and incentives to faculty development participation by these DME faculty, as they take on the mantle of academic identity.

In this chapter, we will define and describe Distributed Medical Education (DME) sites, using examples to explain the rationale for their implementation, and will examine the outcomes that have been measured for DME, including student academic performance, impact on physician human resources and perceptions of students, community members and faculty. We will discuss teaching expertise in the context of the professional identity change that can occur when a DME faculty member takes on a clinical teaching role. To situate the importance of the topic, we will then define faculty development and briefly review the elements of what makes it effective. Faculty development in the context of DME will be outlined, with a review of the known barriers to more engagement of faculty in this activity.

1.3 DME sites

The modern model of medical education in North America is largely based on the Flexner Report of 1910. Abraham Flexner was an American secondary school educator who was tasked with reforming medical education in the US, in response to a perception that lack of standardization was leading to a high output of poorly trained physicians (Duffy, 2011). The Flexner Report emphasized the importance of biomedical research and advancement of knowledge, which was largely facilitated by the establishment of full-time academic positions at major universities. These positions allowed the academic physician to spend the majority of his or her time in the laboratory, rather than at the bedside. Undergraduate medical school was organized into two years of classroom instruction and two years of practical experience. Until recently, most of this practical experience happened in the academic teaching hospital, which was affiliated with the university medical school. Unfortunately, this concentration of medical education in an urban academic center, rather than a community setting, has contributed to a dearth of physicians outside of major urban locations (Ross 2014). The shortage of health care providers to serve rural residents creates health inequity, an avoidable, unnecessary, and unjust difference in health status between populations (Wilson, 2009). Addressing health inequity should include policy that distributes resources geographically according to societal and health needs (Wilson, 2009, Boelen 2016).

Distributed Medical Education, or DME, is a term used to describe the trend of educating physicians in the community, away from the academic hub of the tertiary care centre affiliated with a university. Distributed medical schools or Distributed Medical Education (DME) sites are in geographically distinct, smaller urban or rural areas. They maintain an affiliation with a traditional academic institution in an urban centre, but the clinical setting is based in the smaller centre, with the resources, staff, and culture unique to the particular community. In the past two decades, DME campuses have proliferated across Canada, and internationally (Australia, the United States, South Africa, Thailand, and in the UK) (deVilliers, 2017, Couper, 2010, Strasser, 2009). In Ontario, there are 5 new (within the last 15 years) DME campuses, and there are currently 792 DME medical students (22% of the total number in Ontario), and 268 DME residents (COFM, 2014). In response to the needs of an increasingly interconnected and interdependent world, there has been a call for medical education to address the gaps and inequities in health status and health care delivery (Frenk, 2010). In the executive summary of the report of the Lancet Commission on the Education of Health Professionals for the 21st Century, Frenk underlines the need for medical education to move from an informative (knowledge and skills acquisition) and formative (development of professionalism) model, into a transformative framework, where medical learners acquire leadership skills for effective change (Frenk, 2010). The report also calls for faculty development to move this innovative model of medical education forward. The commission's report also speaks to the mismatch between resources and need,

particularly in rural and remote areas. It cites examples of distributed training solutions, such as India's BRAC University School of Public Health, which has partnered with government and private industry to provide Master of Public Health Training in a rural Indian DME campus (Frenk, 2010). In Canada, DME creates a training environment that facilitates the training of health professionals in the right numbers and with the right skills to respond to the needs of the entire population, not just those in urban areas with access to tertiary care centers. Training future physicians in their own non-urban regions can help to address the health human resources inequities in the current system (Snadden, 2011 and Wilson, 2009).

As DME expanded, there was significant academic interest in measuring outcomes and comparing those outcomes to the performance of traditional medical education centers. This literature has focused on measuring and reporting academic performance, practice type and location after graduation, student perception of their educational experience, and perceptions of community leaders. In general, literature in this area indicates that learners at DME sites have a comparable academic performance on standard assessment and are more likely to choose to practice in a non-academic setting. The community where the DME site is located has perceived benefits related to the distributed campus.

Academic Performance:

In general, the community training experience appears to be comparable in quality to the traditional model. At the University of Minnesota medical school, students who did a large portion of clerkship in the community had a similar academic performance on a primary care Observed Structured Clinical Examination or OSCE, and more of these students selected primary care as a residency upon graduation (Power, 2006). In a study at Flinders University medical school in Australia, medical students who spent their third of four years training in a community or rural setting had a significantly better mean score on a summative examination than the cohort who trained at the traditional tertiary site (Worley 2004). Also, in Australia, exam scores for students at a regional campus were higher than those for students at an urban academic site (Condon, 2018). Students at McMaster University Medical School who spent at least 5 weeks of clinical clerkship at a DME site (the sites that participated in our study), had a similar academic performance on multiple choice progress testing and OSCE compared to students who did all their clerkship in a traditional academic hospital setting (Bianchi 2008).

Practice type and location:

The geographical distribution of medical education has contributed to an enduring health system problem in Ontario: the need for more physician services in rural and remote communities. The shortage of medical manpower in smaller communities is an important barrier to timely medical care and may create a need to travel outside

of the community for access (Brundisini, 2013). Ontarians living in rural and remote communities experience high turnover rates for primary care providers (Brundisini, 2013) and have limited access to specialists (Lavis, 2016). Ninety percent of the land mass in Ontario is considered Northern Ontario, which has many small, remote and indigenous communities. Medical graduates are less likely to choose a rural practice location for numerous reasons, including: lack of personal rural experience, lack of exposure to rural medical practice during training, perception of fewer rural practice opportunities, isolation from family and having a partner who is not committed to rural living (Henry, 2009). In Canada, the need for more rural physicians is exacerbated by the proportionally greater health needs of rural populations, due to overall lower socio-economic status in rural regions and involvement in higher risk, resource-based occupations such as farming and fishing (Rourke, 2018). Health human resource distribution is a potentially modifiable factor in the rural health equation; policy efforts in this area have focused on the need for an increased number of community-trained physicians who are more likely to serve rural communities (Snadden, 2011 and Wilson, 2009). The distributed nature of the campus affects recruitment of learners and retention of graduates (Nagarajan, 2004, Snadden, 2011, Rabinowitz, 2008, Rourke, 2018, Wilson, 2009). Trainees from rural sites are more likely to remain in the rural area and are more likely to have the appropriate skills to flourish there (Rourke, 2018). Learners who have ties to rural and remote sites, who for example grew up in a smaller, rural area, are more likely to choose to train and remain there

(Ray, 2018, Rourke, 2018), which may eventually balance the distribution of the healthcare workforce. This phenomenon may also promote the training of individuals with specific cultural backgrounds (for example indigenous or francophone) to serve those populations more effectively (Rourke, 2018). Other interventions that can modify the rural/community-urban mismatch include the selection of rural dwellers for medical school and supporting the rural providers with continuing professional development (CPD) and networking opportunities (Wilson, 2009).

Beyond the undergraduate medical program, DME site residency programs have found that residents who train in a community setting have a higher likelihood of remaining in that community to practice (Wenghofer, 2017). Those who have trained at a DME site are more likely to choose primary care as a career after training and are more likely to work in a community, rural or remote setting (COFM, 2014). For example, Memorial University in Newfoundland has graduated students who are more than twice as likely to practice in a rural location after graduation (26.9%) than the national Canadian average (13%), a result which may be attributable to the prevalence of rural rotations (Rourke, 2018). In a recent cohort of undergraduate medical students at Memorial, 90% of first year clinical rotations and 95% of primary care clerkship rotations took place in a rural setting.

Student Perception:

Student experiences and perceptions of training at DME sites are important measures of success. Training experiences in a community setting can furnish a potentially superior educational experience for students with more hands-on experience, closer relationships with preceptors and broader clinical exposure (Jensen and DeWitt 2002, Barrett 2011). The Dundee Ready Educational Environment Measure (DREEM) questionnaire has been validated to compare student perceptions of the educational environment between sites (Rolf 2005) and was recently administered to students at Deakin University Medical School in Australia (Condon, 2017). The DREEM score of those who had done their clerkship in a small group at a rural site was significantly higher than that of the larger, academic site-based group (154.9 versus 132.9, out of 200, where a score between 100 and 150 is more positive than negative, and a score of 151 and above is excellent). A similar comparison using DREEM was done in British Columbia, Canada (Veerapen and McAleer, 2010) and found no significant difference in overall scores between main campus and distributed campus sites (121.6 to 139.2). A more detailed analysis of the DREEM data in this study indicated that student perceptions of their experience at a DME site indicated that teachers were perceived in a positive light, but that they needed development of feedback skills (Veerapen and McAleer 2010).

Community Perception:

Toomey interviewed community leaders several years after the establishment of the Northern Medical School in Prince George, British Columbia (Toomey, 2013). Participants cited a positive impact of the school on local education, health services, economy, business, media and politics. Some negative comments were expressed regarding the school's presence putting a strain on local health resources, as well as contributing to tension between new MD students and existing health professions students in the region (e.g. social work and nursing).

Table 1 DME sites – Measured Outcomes

Outcome	Author and Site	Results
Academic Performance	Power, 2006, University of Minnesota, United States	• No difference in mean clinical judgement OSCE station scores between students who had done a Rural Physician Associate Program vs academic site clerkship
	Worley, 2004,	• Students in the Parallel Rural Community Curriculum Clerkship had a significantly higher mean examination score compared to those at

	Flinders University, Australia	academic site (69.3 vs 65.2, P=.0001)
	Condon, 2017, Deakin University, Australia	• Mean year 4 exam scores were higher for students at rural sites than at urban academic sites (rural 71.8 (95%CI 70.1–73.5); academic 68.5 (67.4–69.7) p-value <.01).
	Bianchi, 2008, McMaster University Regional Campuses, Ontario	• Students in the Mac-CARE (community) core clerkship rotations had a superior performance on Post-Clerkship OSCE compared to non-Mac-Care students (7.30 vs 7.02, P<.02)
Graduate Practice Type and Location	Rourke, 2018, Memorial University, Newfoundland	• 27% of graduates from MUN were in rural practice location 2 years after graduation compared to 13% national average
	Wenghofer, 2017, Northern Ontario Medical School	• 67.2% of physicians with any NOSM education were practicing in northern areas vs 4.3% of non-NOSM graduates. • 25.4% of NOSM physicians were practicing in rural areas of Ontario vs 10.3% of non-NOSM. • NOSM-UG physicians were more likely to be in rural practice

		(OR = 2.57; p = 0.014) and NOSM-PG physicians were more likely to have practices in northern Ontario (OR = 57.88; p < 0.001).
Learner Perception	Condon, 2017, Deakin School of Medicine, Australia	• DREEM score was significantly higher at one of the rural sites (154.9 vs 132.9)
	Veerapen, 2010, University of British Columbia	• No difference in DREEM scores between academic and regional campus students (121.6 and 139.2).
Community Perception	Toomey, 2015, Northern Medical Program, British Columbia	• Community leaders were interviewed and reported many positive impacts in sectors of education, health services and the economy.

There is increased recognition that there are inequities in health delivery related to where individuals live, with those in smaller geographic centers having less access to medical care. Medical education has innovated to redress this disparity, by moving medical education out into these smaller and more remote areas. Distributed campuses tend to recruit and retain individuals with a commitment to

serve the smaller region, both as learners and as faculty. These faculty members are often enthusiastic and motivated to enhance their skill and poised to undergo a professional transformation to include medical teacher within their professional identities. Defining the elements of expert teaching and how they can be enhanced through faculty development will be discussed next.

1.4 The Teaching Expert

Almost all physicians are required to do some type of teaching, whether it be with patients and families, students and residents, or peers and colleagues. When a physician is part of a medical school faculty, the term “Medical teacher” or “Medical educator” is often used, and encompasses the various roles of direct instruction, curriculum development and administration (Steinert, 2014). Many of those in these roles have little to no specialized educational or managerial training, while others have advanced degrees and certification. Although the paths to becoming a medical teacher are variable and often informal, there nonetheless does seem to be a transformation into a professional medical educator identity that takes place (Lieff, 2012). This transformation is assumed to be similar for faculty in central academic sites or at distributed campuses, and our review of the literature found the latter group to be studied with increasing frequency as DME campuses proliferate. We will briefly discuss the competencies that are important to the role of the medical teacher, discuss faculty perceptions of teaching, and the concept of

the professional identity change that can occur when a DME faculty member takes on a clinical teaching role.

Becoming a teacher – Why and how

Most medical educators have some involvement in student instruction at a bedside or blackboard level, and the model of medical clinical teaching, with its experiential and workplace-situated learning focus is longstanding (Swanwick, 2014). However, the description of the role of the physician as a medical educator is a relatively new one. For example, in the CanMEDS Physician Competency Framework (Frank, 2005), teaching activities were described under the "Scholar" role, and in the 2015 revision of CanMEDS (Richardson, 2015), the role of "Teacher" is emphasized as one of four "Scholar" sub-roles (Lifelong Learning, Structured Critical Appraisal and Research are the others). Thus, the teacher role is a sub-heading of another, larger role, rather than its own petal on the CanMEDS flower.

Despite the long tradition of medical teaching, the actual definition of core teacher competencies has been developed relatively recently. Studies seeking to identify these competencies almost universally included the concept of the teacher as a medical expert, with appropriately vast clinical knowledge and skill, and other common traits included enthusiasm and interest in teaching, knowledge of education theory, mentorship and networking with peers, and desire to learn more (including participation in faculty development). Early qualitative work exploring the

perceptions of medical teachers identified some of the motivators and barriers to teaching and began to describe teacher competencies. Irby (1994) conducted interviews at the University of Washington in Seattle with six faculty members whom he considered "distinguished", observed these faculty members teaching in a "morning report" setting and interviewed some of the students. He reported that there were six domains of knowledge that an expert teacher required: Three were related to Content expertise (Expert Knowledge of Patients, Expert Knowledge of Medicine and Expert Knowledge of the Context), and the others were Knowledge of the Learner (ability to identify learner's needs and motivation), Knowledge of Education Principles (which the author described as being largely derived from the teacher's experience, observations and tacit knowledge), and Knowledge of the Pedagogical Context (demonstrated by the use of case-based "teaching scripts"). Skeff, in 1999 examined the perceptions of community based clinical teachers and university-based teachers through surveys before and after a series of faculty development workshops. The non-academic teachers rated their teaching abilities, sense of affiliation with the university education program and awareness of their teaching strengths lower than their academic counterparts. These parameters improved more in community teachers than in the academic participants after the workshop. All participants cited remuneration, time constraints, space limitations, confidence in teaching skill, patient acceptance, and lack of opportunity as barriers. Incentives to teach included personal satisfaction and perceived improvement in status (Skeff, 1999). McLeod examined clinical teachers' tacit knowledge of

education principles compared to “expert” teachers (those with advanced degrees in education) (McLeod, 2003). Thirty items were identified as being most important for clinical educators, and were sorted into four categories: Curriculum, How adults learn, Helping adults learn, and Assessment (McLeod, 2003). These core topics seem intuitively important and indeed are the subject of many faculty development sessions designed to enhance teaching skill (Steinert, 2014). Steinert, in a qualitative study which included interviews of 12 medical teachers “in the trenches” at McGill University, reported on the perceptions of the process of becoming a medical educator (Steinert 2012). Factors that facilitated this development included 1) interest in teaching, 2) learning from teaching experience, 3) mentors and role models, 4) belonging to a community of peers and 5) participation in faculty development. Teaching competencies were identified as including 1) knowledge of teaching principles, 2) knowledge of content being taught, and 3) knowledge of research methods, as well as core attributes such as passion, enthusiasm, pride, insight and reflection (Steinert, 2012). These lists could be used as a blueprint to the design of a faculty development curriculum, or a checklist for the developing teacher. It is worth noting that mentorship and networking are cited as facilitative, a concept which has been explored in some detail in the literature and which we will touch on in a later section of this chapter. Other studies have moved beyond identifying competencies and explored the clinician’s perception of the developmental nature of the teacher role. Higgs and McAllister used narrative inquiry and hermeneutic phenomenology with a group of speech

pathologists in Australia to explore perceptions of the experience of being a clinical educator (Higgs and McAllister, 2007). The authors proposed a model of becoming a clinical educator as a developmental process, with 6 interactive and dynamic dimensions: sense of self, sense of relationship with others, sense of being a clinical educator, sense of purposeful action, seeking dynamic congruence and experience of growth and change (Higgs and McAllister, 2007). The authors indicate that professional development activities could be framed as personal development opportunities and could include mentoring programs and reflective exercises. This framework seems to suggest a nesting of faculty development within the overall continuing professional and personal development that is part of medical practice, a concept which is not universally accepted in faculty development circles, but which may encourage the sharing of resources and strategies.

Health professions outside of medicine can be assumed to have similar faculty development needs. To standardize the approach to teacher competency across health sciences disciplines, Molenaar, in a report on a framework developed by Dutch medical educators, stated that expertise develops as the teacher gains mastery of knowledge, skills and attitudes at the micro (clinical teacher) level before moving on the meso- (coordinator) and macro- (leader) levels (Molenaar, 2009). The framework describes six domains of teaching activity: Development (of educational material and curriculum), Organization (logistics), Execution (actual

teaching activity), Coaching , Assessment (formative and summative) and Evaluation (including quality assurance), and each domain would have within it specific competencies in knowledge, skill and attitude. The authors don't enumerate these competencies but indicate that they could be adapted to the individual sites, which would allow some flexibility and generalizability of the model. The authors propose that this framework could be used to standardize teaching competencies across all institutions and across different health professions. Although the concept of movement through developmental stages seems appropriate for the maturing medical teacher, it is more likely that medical teachers will have roles and responsibilities that cross between hierarchical levels rather than progress in a linear fashion, particularly in a distributed site where faculty may take on higher responsibility levels earlier in their career or do multiple roles at once.

Clinical teachers in DME sites

For the distributed education model to be successful, there must be a supply of appropriate learners, a substrate of clinical opportunity and a faculty of capable and well-supported medical teachers (Council of Ontario Faculties of Medicine, 2014). At the DME sites, faculty are drawn from a pool of community physicians with varying levels of teaching skill and interest (Irby, 2000, Christner, 2016). For most, the role of medical teacher is a new one, and needs nurturing to become part of the physician's professional identity (Lieff, 2012). This academic identity, or AI, a term

coined by Flores in the context of the field of education (Flores, 2006), encompasses the contextual, relational and personal factors that shape a medical teacher's growth and development.

Many of the efficiencies and challenges of teaching would be assumed to be similar between DME and academic sites. The principles of organizing and managing the clinical teaching encounter, assessing and coaching the learner, and evaluating teacher performance are likely universal, as suggested by Molenaar's framework (Molenaar, 2009). However, medical teaching at a DME site has some specific features that may require attention, including the need for geographically disparate teaching sites, the use of technology for distance learning, and limited and/or poorly integrated human, physical, and financial resources (Wong, 2012). As DME campuses have been implemented, authors have studied the teachers at these sites to glean differences and commonalities between academic and community faculty teachers. Many of the barriers to teaching are typical and can be compounded (or alleviated) by the novelty of the campus presence (i.e. some reluctant teachers are thrust into the role, while others are enthusiastic about the fresh opportunity to teach). The phenomenon of opening a new distributed training site has also afforded researchers the opportunity to examine the trajectory of a "new" teacher, who is either new to a teaching role, or teaching in a new setting. Most studies have gathered data about faculty perception, community perception and learner perception.

Piggott interviewed 6 faculty members at the Waterloo Regional Campus in Ontario and explored barriers to engagement in teaching (Piggott, 2015). Many of the barriers identified were not surprising, and included: extensive time since preceptor's own training, need for continuing medical education, and issues related to practice environment and schedule. Interestingly, in this study, faculty indicated that a lack of knowledge of teaching principles as a challenge, and that this could be addressed through faculty development. Participants also discussed the rewards of teaching, which again were probably like those at an academic site, including enjoyment, and an opportunity to stay up to date. Participants in this study did not identify any financial or practical benefit to having students, although they theorized that these benefits may be more noticeable at the academic site, where for example a resident may be in house while an attending faculty member is at home for on call duties, or that academic faculty have some administrative support paid for by the university in exchange for teaching activities. In another study at a distributed site, Hanlon interviewed members at the Northern Medical School in British Columbia, within a few years of the campus's launch, and reported that faculty had a positive impression of the school regarding recruitment of new specialists, better relations with government, widening of professional networks to include more educators and researchers, and more opportunities for professional development activities. A perceived downside was the increase in workload related to the additional time required to complete clinical activities with a learner in attendance (Hanlon, 2010). Maley observed 29 clinicians, only 5 of

whom had prior teaching exposure, at a distributed teaching site in rural Australia, over a period of 6 years after the program (where students spend a year of rural training) was founded (Maley, 2010). Based on her analysis, the author suggests that there are two developmental stages that the collective of new clinical teachers passes through at a distributed site. There is an early one lasting three or four years, followed by an ongoing "mature" stage. In the early stage, teachers' concerns are mostly about curriculum content, recruitment, support from the main academic site and need for feedback about teaching skills. Later, concerns have shifted to questions of how to be recognized for teaching contributions, optimizing teaching technique and customizing curriculum to the rural setting (Maley, 2010). The medical teachers are from disparate clinical backgrounds; however, the authors note that they form a Community of Practice, with mentorship, networking, and collective problem solving and with appropriate leadership by rural leads and academic specialist colleagues. Blitz and others examined the perceptions of new clinical teachers or teachers at a new DME site, whom they described as "emerging" teachers (Blitz, 2018). The authors sorted their findings into three broad categories: Relationships (with students and with the parent academic site), Responsibilities (of medical students to learn, of teachers to seek and receive feedback) and Resources (need for mentorship and networking with other educators). The participants in this study also identified a need for recognition from parent site for the DME teachers' contributions, and a desire to participate in curriculum development.

Table 2 – Competencies of Medical Teachers

Author	Design	Competencies
Irby, 1994	Qualitative, interviews and observation	-Content expertise, -Knowledge of Learner, -Knowledge of Teaching principles, -Knowledge of Pedagogical content
McLeod, 2003	Delphi consensus of 14 non-clinician teaching experts (7 from Canada, 7 from Netherlands)	Thirty important pedagogical concepts sorted into four broad categories: -Curriculum -How adults learn -Helping adults learn -Assessment
Molenaar, 2009	Task force composed of representatives of all Dutch medical schools, one veterinary school and dental schools, to develop a framework of medical teacher competencies	Six teaching domains: -Development -Organization -Execution -Coaching -Assessment -Evaluation These domains develop across 3 levels of organization (micro/teaching, meso/co-ordination, and macro/leadership)
Steinert, 2012	Semi-structured interviews with 12 medical educators at McGill University	-Content knowledge -Critical appraisal skills -Core interpersonal skills (communication, collaboration and leadership) -Core attributes (passion, enthusiasm, insight) - “Real world” experience

Higgs and McAllister 2009	Phenomenology and narrative inquiry, observation and interviews of 5 speech-pathologists	Six dimensions of the experience of clinical teacher: -Self identity -Sense of relationship to others -Clinician-educator identity -Purposeful action -Dynamic self-congruence (reflection and insight) -Growth and change (Becoming a clinical educator is a developmental process that mirrors the students' development)

Table 3 – Motivators and Barriers to Teaching

Author	Design	Barriers	Incentives
Skeff, 1999	Pre- and Post-Faculty development	Time Space Remuneration	-Personal gratification -Affiliation with academic institution

	survey of community based and academic based clinical teachers	Confidence in teaching skill Patient acceptance Opportunity	-Perceived elevated status
Piggott, 2015	Interviews with DME faculty and leaders	-Elapsed time since training -Practice environment and schedule -Financial considerations -Administrative barriers	-Interest in teaching -Opportunity for Continuing Professional Development Education
Steinert, 2012	Semi-structured interviews with 12 medical educators at McGill University		-Interest in teaching -Desire to teach
Hanlon, 2010	Semi-structured interviews with 21 clinical teachers in Northern BC DME site	-Time added to clinical work when learner in attendance	-Recruitment of new specialists -Improved relations with government -Increased networking with educators and researchers -More professional development activities
Maley, 2010	Observation and analysis of 29 Medical Co-ordinators at a rural DME in Australia	-Lack of knowledge of curriculum -Need for feedback about teaching performance -Need to create “equal but different” learning experience	-Feeling of adding value to system -Increased recruitment to rural areas

Wong, 2012	Solicited teaching tips from DME clinical teachers and residents	-Challenges of e-learning, specifically using videoconference -Adequate clinical exposure for learner -Heterogenous groups of learners	-Opportunities for 1:1 teacher to learner exposure
Blitz, 2018	Qualitative interpretivist design with interviews of 9 “emerging” clinical teachers at a DME in South Africa	-Responsibilities (of the students to learn and of the medical school towards its faculty) -Need for feedback and reassurance -Resources including need for mentors and a network of teaching colleagues	-Relationships (with students, with the main campus medical school) -Enjoyment of learning from and with learners -Feeling of contribution to healthcare needs of region

The above cited literature regarding the role of the medical teacher emphasizes the importance of content expertise (both medical knowledge content and educational principles knowledge content), dynamic interaction with learners, and feedback and reflection. Ongoing development and growth are important, especially when a clinician takes on a new teaching role, or when a new teaching site is being cultivated. Faculty development is described as an added value for the participation in teaching, as well as an important tool for teacher development. The need for networking opportunities and a community of teaching peers is highlighted.

1.5 Faculty Development

Earlier in this chapter, we described what is found in the literature about the competencies of a medical teacher, and some of the perceptions of teachers in a distributed site. To close the skill gap between a community teacher's current skill set, and that of the ideal teacher, some training and practice must take place. Traditionally, this need has been met through faculty development. Faculty development can be described as teaching teachers how to teach, but research into the components that make it effective has helped to refine this definition. More than simply running a few workshops per year, effective faculty development must be well supported by institutions, should encourage or even formalize collaboration and mentorship, and allow for practice and feedback. In Canada, early faculty development was informally organized and not universal (McLeod 1983), but currently faculty development programming is required for accreditation of medical schools (RCPSC, 2011 and CACMS, 2015). Done correctly, faculty development could contribute to the training of physicians to optimally serve a diverse and distributed population. In Ontario, over 40% of the provincial budget is earmarked for health care (Lavis, 2016). Like many systems, the medical education environment is one of limited resources and high stakes, namely scarce public funds and the health and wellbeing of the community members. Insight that could guide the implementation of strategies to effectively support the ongoing development of a DME site and its teachers and learners would be valuable. The

identification of DME-specific incentives and disincentives to the participation in faculty development will allow resources to be used more effectively and would result in a better educational experience for learners and teachers.

In this section we will briefly review the definition of faculty development and the elements that make it effective. We will review recent perspectives on the role of context and community on teacher development, and the concept of communities of practice, with an exploration of the relevant literature specific to DME.

Definition and key elements

Faculty development is defined as a program of instruction for clinical teachers to enhance knowledge and skill in teaching, assessment, research and/or administration of medical curricula, and is a key component to the success of a distributed medical education program, with its potential to enhance recruitment and retention of new teachers (Christner, 2016). Faculty development program topics have expanded beyond how to teach such that, at least in some settings, the boundary between CPD and faculty development has blurred, or even dissolved (Wilkerson, 1998, Hesketh, 2001, Steinert, 2010). Effective teachers need skills in all areas of professionalism, and many learning activities could be considered part of a comprehensive approach to faculty development. Others have maintained that medical teaching is a separate competency with core skills that are specific to the teaching role (Srinivasan, 2011). There is ongoing debate as to how best to situate

faculty development within the larger umbrella of CPD, however in most academic institutions faculty development activities are explicitly defined as such and have a separate administration structure. In general, faculty members who participate in faculty development are highly satisfied with the experiences and have improved attitudes towards teaching (Steinert 2016). Medical teachers who feel part of a community of educators also derive intrinsic satisfaction from this affiliation (Starr, 2003). Participating in effective faculty development can be one of the rewards of being involved in teaching and in turn can enhance engagement in teaching but getting this momentum to take hold can be a challenge at the community site (Ullian, 2001). Teaching skill, like clinical skills, can be enhanced with practice, and Irby and O'Sullivan (2018) state that faculty members can be transformed into educators through participation in faculty development. In a recent systematic review of 111 faculty development interventions aimed at improved teaching effectiveness, Steinert et.al. enumerated the key features of effective faculty development to include: (1) Evidence-informed design, (2) Relevant content, (3) Experiential learning and opportunity to practice, (4) Opportunity for feedback and reflection, (5) Educational projects, (6) Intentional community building, (7) Longitudinal design and (8) Institutional support (Steinert, 2016). The authors found that overall, interventions were satisfactorily viewed by participants, and resulted in self-reported gains in knowledge and skill. Participants in the studies also generally reported changes in behaviour towards more effective teaching (Steinert, 2016). Less robust conclusions were drawn regarding impact of the

faculty development interventions on student learning or organizational change. This validated a previous review by Leslie et.al. of 22 studies of medical education faculty development, (Leslie, 2013), which found that many interventions had a longitudinal design (27%), and most outcomes were based on participant surveys (55%), although some looked at teaching scores or other objective criteria. The most commonly reported outcome was a self-reported change in teaching behaviour, or an improvement in knowledge, skill and attitude (Leslie, 2013).

Faculty Development in the DME site

Physicians can transform into medical teachers with the right amount of feedback, faculty development participation and support (Lieff, 2012). Community-based faculty members have access to faculty development, which can enhance the efficiency and effectiveness of the teaching experience (Steinert, 2012), but there are barriers to optimal participation in these activities. Community teachers who eschew faculty development may become disenfranchised or persist in poor teaching habits, and opportunities for networking and peer support are lost. In contrast, community faculty who have a pre-existing or developing interest in medical education have the potential to become expert medical teachers with the right support. There has been little published about faculty development specific to the distributed campus site. In most DME settings, faculty development offerings are organized, facilitated and delivered locally, with facilitation by a DME campus faculty developer. Community faculty are also invited to travel to the academic site

to participate in sessions there and academic site faculty will visit DME sites to facilitate sessions on request. Physicians in the digital age have had the opportunity to use remote learning tools such as e-learning modules and videoconferencing. These tools may be particularly useful for faculty at DME sites. A report by Biery et. al. describes using teleconferencing technology to provide direct observation and feedback of family medicine teachers (Biery, 2015). Although innovative, this is not the most common form of faculty development. Distributed site faculty attendance at sessions is sparse at best, despite considerable effort and expense. Faculty development training is not obligatory for distributed campus faculty and usually occurs after work hours, nor is the time spent in faculty development remunerated. Clinical teachers come from diverse backgrounds (specialists, primary care physicians, interprofessional faculty, outpatient or hospital-based, new to practice or mid-career, etc.). Many of the barriers to attending faculty development sessions have been identified and are similar at both academic and DME sites: competing responsibilities, time constraints, travel time and cost, perceived lack of value (McLean, 2010). A needs assessment of rural faculty in Newfoundland, examining access to faculty development in research skills, found that rural clinician-educators did not participate in research primarily due to busy schedules, followed by a lack of skills and knowledge around research (McCarthy, 2016). In developing a faculty development program to enhance research skills, the needs assessment identified the importance of ongoing logistical help and support, collaboration and networking

and development of local resources (McCarthy, 2016). Another study in Newfoundland examined barriers to participation in continuing professional development for physicians outside of an academic centre. The authors found that barriers were grouped into the following categories: geographical, financial, attitudinal, technological and organizational, and the most often cited challenge to the effective delivery of CPD to a rural practitioner was geographical isolation, followed by lack of funding or other resources, poor technological infrastructure, and lack of management support. (Curran, 2006).

Incentives to participation in faculty development that are specific to community DME faculty are not extensively explored in the current literature. Christner suggests advising faculty about the potential benefits of students, including the student contributions to patient care (such as patient engagement, patient education, pre-visit and post-visit services), and participating in quality assurance work (Christner, 2016). The authors describe free faculty development as a potential benefit to preceptors, as it could overlap with other CME needs.

Communities of Practice

A response to the challenges of faculty development delivery and uptake, common to DME and academic settings alike, may be found in the work of Irby and O'Sullivan (Irby and O'Sullivan, 2011). These authors advocate for the adoption of a model of dual communities of practice in the professional development of medical

teachers: the faculty development community and the workplace community, emphasizing the importance of context and community building in the faculty development process (Irby and O'Sullivan, 2011). Communities of practice derive from a theory of social learning, first proposed by Wegner (Wegner, 2010). In a community of practice, a learner's social network forms the substrate for situational workplace learning, which is thought to be applicable to a healthcare setting, with its abundance of teams and groups (Cruess, 2018). The traditional view of faculty development is one of linear progression of medical teachers to undergo training, affect student learning, and subsequently, the learners influence patient care (presumably as they become competent clinicians). Another perspective on Communities of Practice and faculty development comes from Cantillon et.al., who interviewed 14 hospital physicians as they moved along a developmental timeline to become teachers (Cantillon, 2016). Study findings were reviewed through the lens of communities of practice. The authors proposed that there are two planes of accountability: one vertical (accountability to hospitals and medical schools) and one horizontal (accountability to peers and other professionals), and that there is some tension between these competing planes. A parallel between these two planes of accountability and Irby and O'Sullivan's two communities of practice could be drawn. Cantillon et. al. further indicates that a change in how teaching is valued or rewarded on the vertical plane (by the medical school, for example) could increase the effectiveness of faculty development (Cantillon, 2016).

Faculty development entails the ongoing professional development of physicians who teach, in both academic and distributed settings. Effective faculty development includes a component of longitudinal participation, mentorship, and networking. In general, faculty members who participate in faculty development are highly satisfied with the experiences and have improved attitudes towards teaching. In the community, technology can enhance learning and present challenges. Communities of practice, a theory of social learning is a recent model that can provide a framework to develop medical education programming. In the DME, consideration of the duality of the faculty development community and the workplace community will enhance the utility of the Communities of Practice model to make faculty development effective and acceptable.

Conclusion

Distributed Medical Education is important because it can contribute to the balancing of health resources across geographic areas and expand the capacity for medical training in Canada. DME sites appear to produce comparable educational experiences and outcomes to traditional academic centers and can have positive effects on faculty morale and community esteem. Learners at DME sites appear to find these settings acceptable and even advantageous. Learners with a rural background or interest are more likely to choose to train and remain in a DME or rural setting, which can further offset geographic disparities. Faculty at DME

campuses share many of the challenges as their academic, urban colleagues, in addition to some related to geographic isolation and lack of financial incentive.

When a campus is implanted in a community of clinicians, a developmental process can occur, whereby the new medical teachers form a professional academic identity. This process can be advanced with the support of faculty development, which is most effective when it is longitudinal, relevant, and combined with mentorship and networking. Barriers to participation in faculty development by community medical teachers may not be particularly different to those of academic urban teachers, but there is little in the published literature related to this topic. In the DME community setting, the concept of workplace situated, relationship-based learning, or community of practice may be particularly useful, although this potential relationship has not been well defined in the current literature. More research into the perceptions of community faculty regarding their experience of becoming clinical teachers at a distributed campus, with a focus on the role of faculty development would help to close a gap in the body of knowledge in this area and could help to advance innovative models of faculty development for clinicians in the community.

2. Methodology

2.1 Introduction

In the previous chapter we reviewed the literature about the expansion of medical education into the community, in response to societal need and limited capacity in the academic settings. From this review of the literature, we identified a gap in our knowledge of the evolution of the medical teacher in practice at a Distributed Medical Education (DME) site: the optimal approach to training and sustenance of the community-based expert medical teachers, and the role of faculty development in this process. To contribute to creating knowledge in this area, we designed a study to answer the question: **How can medical teaching expertise be developed and sustained at a Distributed Medical Education Campus?**

To answer this question, we chose to explore the perceptions and preferences of community-based faculty. Using constructivist grounded theory methodology, (Charmaz, 2014) we conducted semi-structured interviews with community-based faculty and observations of faculty development events at two distributed medical education campuses affiliated with McMaster University. We chose to limit our study to two campuses in Southern Ontario, affiliated with McMaster University in Hamilton, Ontario because it was highly accessible to the primary researcher, who is a faculty member at the Waterloo Regional Campus. All participants had educational roles in distributed medical education; some of the participants are

educational leaders, others only peripherally participate in the education activities. Using the constructivist tools of iterative semi-structured interviewing, coding, and comparative analysis of data, we extracted themes and developed a theory of faculty and community transformation.

This study received ethics approval through the Hamilton Integrated Research Ethics Board (HiREB Project # 2559). Recruitment and consent materials are included as appendices in this thesis.

2.2 Methodology

The goal of constructivist grounded theory methodology is the development of a theory based on iterative analysis and sorting of rich data which has been gathered according to a predetermined systematic process (Charmaz, 2014). This methodology is appropriate to answer our question as it affords the opportunity to delve into perceptions of individuals in a way that a quantitative approach would not. Another aspect of constructivist grounded theory (CGT) is that it emphasizes the shared relationship between the participants, the researcher, and the topic of interest, and considers the data and the analysis within the participants' and the researcher's respective (or in this case, shared) contexts. Our question was about the perceptions of faculty at a DME site, and the main researcher was also immersed in a teaching role in the same setting. This contributed to an opportunity for reflexive analysis of data, which is important in CGT methodology. One of the

challenges to applying Charmaz's recommendations was in Charmaz's emphasis on the importance of the richness of data, and the considerable need for reflexivity as part of the analytic process. These parameters were difficult for a novice qualitative researcher to grapple with and required in depth examination of the researcher's professional relationships, experiences, and assumptions, which was not always comfortable.

2.3 Study Context

We interviewed faculty at two campuses of a major Ontario university medical school, the McMaster Michael G DeGroote School of Medicine in Hamilton. The campuses: Waterloo Regional Campus in Kitchener and Niagara Regional Campus in St Catharines, are located within a 1-hour drive of McMaster. Niagara Region and Waterloo Region have populations of 450 000 and 535 000 respectively, and are home to several universities, although none with a standalone medical school. The DME sites have campus buildings with classrooms and lecture theatres (both of which are equipped with late model teleconferencing equipment), anatomy and clinical skills laboratories, libraries, and an administrative staff, as well as an Assistant Dean at the head of the teaching faculty. The DME site campuses host undergraduate and postgraduate learners, with MD program classes of about 20-30 students in each of three years, and family medicine, internal medicine, psychiatry and pediatrics residency programs. The learners complete almost all clinical rotations in the DME site community and there is a need for a large cadre of

medical teachers. Most teachers are drawn from the pool of practicing clinicians and have varying levels of teaching experience or interest. All clinicians are required to have an academic appointment according to governing college accreditation standards, and the entry level academic appointment is that of adjunct assistant clinical professor. This level of appointment requires minimal paperwork and a commitment of 150 hours of teaching over three years and is renewable. In exchange for this role, faculty have access to faculty development, academic rounds offerings, and off campus library access. For most community faculty, the title of assistant clinical professor (adjunct) is not one that is highly prized, in contrast to full time faculty who practice in Hamilton. Full time faculty are conscientious about tracking hours of teaching, research contributions and faculty development participation, since these activities are supported by salary or overhead payments and contribute to a promotion and tenure scheme. Despite these differences, the faculty at both academic and community sites have very similar teaching roles, as tutors in the pre-clerkship phase, clinical supervisors in clerkship and residency, and taking on administrative leadership roles, which in the community are called Regional Education Leads (RELs). Some of these activities consume several hours per week, at the expense of remunerative clinical time or valuable personal time, and there are stipends available for many community faculty to offset these costs (however most stipends are nominal and do not fully compensate for comparable clinical time). To support clinical teachers, formal faculty development is offered at the DME site campuses, and in Hamilton,

consisting largely of traditional large group sessions or workshops, sometimes leading to a certificate or other type of formal recognition, and often accredited by the physician's professional college as continuing professional development activity. This organizational structure is similar to that of other DME site campuses, although some sites are more rural and remote in terms of proximity to academic site or a major urban centre. Despite this geographic closeness, there are logistic challenges, with reliance on technology and commuting to make everything work smoothly.

2.4 Study Design

In our study we interviewed participants and attended two faculty development events for observation and data collection. We began with interviews, crafting an interview guide based on our literature review, followed by a pilot of the guide and revision. After several interviews, while reviewing data and beginning to do initial coding of our data, we chose to observe one faculty event at each campus site. In part, this was related to convenience, as both events fell within the time frame of our data collection, but we also made a deliberate decision to observe one session at each site, to broaden our perspective. Each campus has a distinct culture and we felt it important to include both in our observations. We also selected faculty development events that were outside of the observer's clinical department, which allowed the researcher to observe without being an active participant. It was an advantage to have two types of data (interview and observation) as it allowed for

constant comparative methodology in the analysis of our data findings. Constant comparative methodology can be used in initial data analysis and involves comparing data to data to discern similarities and differences. Having data from to different types of sources lends itself well to this methodology.

2.5 Participant Sampling and Recruitment

We wanted to examine the perceptions of medical teaching faculty at a distributed medical education (DME) campus and recruited participants from McMaster's two distributed sites to broaden the range of perspectives that were surveyed. Recruitment took place in two stages, the first one involving a combination of convenience sampling and purposive sampling. For the convenience sampling, we sent an email to members of the Department of Medicine (Appendix A, Recruitment Email). We chose the Department of Medicine because of its high number of learners, from undergraduate and postgraduate programs, its large size compared to other departments and diversity of membership. The Department of Medicine includes members with a wide range of practice settings (e.g. Inpatient clinical teaching unit, intensive care unit, outpatient clinic) and a variety of durations of time in practice (Appendix B, Participant Characteristics). We purposively interviewed education leaders, specifically the Regional Assistant Deans of both campuses and the Faculty Development Regional Education Leads at both regional campuses. We wanted to get the perspectives of the local education leads, as they had an insider's view of some of the administrative and regulatory issues that would be

relevant to our exploration. In constructivist grounded theory methodology, the analysis and data collection occur simultaneously, and this led us to a second stage of recruitment, which was purposive, and entailed the recruitment of faculty members from the Department of Family Medicine in Kitchener. The DME campus in Kitchener has a large Family Medicine residency program and numerous community primary care physicians as preceptors. These preceptors supervise learners in inpatient (hospitalist) and outpatient settings, and many of the challenges and opportunities for teaching encounters would be like those of the Department of Medicine faculty members. The primary care preceptors would also have a stake in wanting to recruit from the learner pool, as primary care continues to be underserviced in the region (although less so since the DME site has been in operation). In contrast, the pedagogical tradition in primary care is different to that of the Internal Medicine one, in that it is less rigorous and academic, and we felt that it was important to sample from this group as well.

2.6 Data Collection

To construct our theory, we gathered data utilizing semi-structured interviewing and observation. Interviews and observations were done by the author (ND), also a faculty member at the Waterloo Regional Campus, and consent was obtained in writing from participants. Data collection and analysis took place concurrently; that is, analysis of initial data continued to inform the ongoing interviews and observations. An interview guide was developed (Appendix C) and was revised 3

times during the data collection and analysis process. The methodology of using semi-structured interviewing, with iterative adjustments to the interview guide, was appropriate for our research question, as it provided a loose framework for the dialogue, but allowed generous latitude for the participant to share their own experiences and views without being restricted by a rigid questionnaire (Charmaz, 2014). The interview guides elicited information about the participant's prior experiences with teaching and with faulty development. Acknowledging the current debate regarding the difference between traditional faculty development (instructing medical teachers how to teach) and CPD (ongoing professional development of a physician), our interview guide included an introduction with a reference to faculty development as " training in how to teach and evaluate" and indicated that we would also ask about CPD in general. Questions in the guide asked about definitions of CPD, about teaching experiences, about training to develop teaching skills, and about monitoring and accrediting faculty development participation. In this way we differentiated between faculty development and CPD, while acknowledging that broadly defined CPD encompasses all aspects of ongoing health professional education, including faculty development. As we started interviewing, we found that the questions were more effective when less vague and open ended, for example we deleted the question: "Are you aware of any faculty development offerings?", not only because it is a yes/no question, but also when it became apparent that all of our participants had a familiarity with faculty development and it was more efficient to ask about faculty development

experience directly rather than gently lead the participant into this topic. To that end, we revised the guide to include a more detailed introduction which acknowledged the shared background in community clinical teaching participation between the interviewer and the participant. We also added a question about the participant's definition of "expert teacher" as we sought to determine the qualities that were felt to be important in a medical teacher's skill set, and which could be a focus for a faculty development intervention. The "expert teacher" concept was one that seemed to be explored naturally in the interviews and the felt that it should be a standard question. Interviews were semi-structured, one on one, and approximately 20-60 (average 42) minutes in length. Sixteen interviews were completed, for a total of 615 minutes and 395 transcribed pages. Appendix A describes the interview participants' characteristics. Interviews were recorded and transcribed verbatim. The participant was assigned a numerical code to allow for anonymization of the data. The transcribed interviews and the audio files were stored in a password protected database that was maintained by the author. Direct quotes from the participants were included in the reporting of the results and attributed to the participant's numerical code. We omitted identifying details from any quotes that were used, such as place of practice or reference to other faculty members.

Two separate faculty development events were observed, and field notes were recorded. One faculty development session took place at an education committee

meeting at the Niagara Regional Campus site, at which faculty and learners were present, the other was attended by faculty from the Family Medicine group at the Waterloo Regional Campus. The author was the observer at both events, and was invited to participate as appropriate, however, the author was preoccupied with recording observations and significant contribution to the events was minimal. The characteristics of the faculty development events are outlined in Appendix D. We selected these events largely related to convenience, as they took place during the data collection period. The events included a cross section of participants and one event included student participation and were both in different formats which added to the richness of data collected. One event at the Niagara campus took place prior to a Regional Education Committee meeting, so included many Regional Education Leaders, who were from various disciplines. The other event was a faculty development event for a group of family physicians at a teaching family health team. We recorded observations about the logistics of the events (setting, timing, duration), participants (number, age group, practice type), and the session itself (academic focus, topic, format, accredited or not). Beyond this factual data we also recorded observations about participants' behaviour, comments, interactions and contributions. We considered whether it would have been advantageous to observe a higher number of faculty development events, however due to time constraints, we only observed these two. In addition, we found that the interview format allowed for more in-depth exploration of concepts of interest and were a more efficient use of time.

2.7 Data Analysis

In constructivist grounded theory methodology, data collection and data analysis take place concurrently, with iterative comparison of findings and adjustment of methodology for further data collection (Charmaz, 2014). The core technique for data analysis in grounded theory is coding, which is the review and classification of gathered data as a form of interrogation and examination (Charmaz, 2014). In coding, the researcher builds a relationship with the data and seeks patterns and themes therein. We performed coding in two stages: initial coding and focused coding, and N Vivo software version 11 was used to organize data. In the initial coding phase, transcribed interviews were reviewed in electronic format by the author, with line by line classification according to the theme or central idea of each line. This code (or "node" in NVivo terminology) was then added to the NVivo data base. As ideas recurred, they were grouped under a larger heading, eventually leading to a master list of initial codes with several items per code, and sub-codes as necessary. After 5 interviews had been "initially coded", the master list was printed, including each coded line of data, and reviewed by the author for the purposes of comparing and editing or expanding the code list, as well as seeking to draw themes and central ideas from the data. At this stage, the interview guide was edited (see Data Collection, above). The author reviewed the field notes from the observed faculty development events at the same time as reviewing the interviews. The field notes contained recorded observations about the setting,

timing, participants, content and format of the faculty development sessions. These observations were organized into discrete lines of data and coded according to the same method as the lines of interview data. Ongoing review of the transcribed interviews involved line by line coding, with classification of lines into pre-determined codes from the master list, and addition of new codes or sub-codes as necessary. After all 16 interviews, and the field notes from the observations had been analyzed in this way, we moved on to focused coding and tapered the list of codes, through a process of comparison, testing the codes against the body of the data, and collapsing codes into other codes. In this stage we sought gaps in the data and moved towards the extraction of themes as we pared down the list of codes. Saturation is a property of data analysis whereby no new insights are gained through continued data gathering. It may coincide with the lack of addition of new categories as the data is reviewed, or the repetition of themes or codes. Other authors have considered saturation in the context of “information power”, such that the design of a study has sufficient number of participants, depth of dialogue and strategic analysis to allow for confidence in the findings (Varpio, 2018). As we analyzed the data and sought a metaphor or a model to explain our findings, we found that the review of additional data did not contribute novel constructs that significantly changed our approach. We were satisfied that more or deeper interviews or observations would not have been useful, and at that point, we determined that we had reached theoretical saturation.

Our research question was modified as analysis was completed. Our initial question was: "**What are the perceptions of faculty at a Distributed Medical Education site regarding effective and acceptable faculty development activities for improving their skills as medical educators?"** We were able to provide an answer to this question, but in analyzing the data from a constructivist perspective, we developed a theory that was more related to the transformation of the faculty and community culture. As participants shared their perceptions about teaching and learning to teach at a DME campus, we gathered information about the development of an academic identity in a community-based physician, and about the best way to integrate faculty development in the DME campus setting. As a result, we modified the research question to: **"How can medical teaching expertise be developed and sustained at a Distributed Medical Education Campus?"**

2.8 Validity

There are various criteria for evaluating the quality and rigor of qualitative research. The criteria Charmaz suggests as applying specifically to Constructivist Grounded Theory research include credibility, originality, resonance and usefulness (Charmaz, 2014). Other authors have included reflexivity as an important property of CGT, and this will be discussed in a separate section. Below, we will focus on the strategies that were used to produce a credible work, and briefly discuss the other criteria of originality, resonance and usefulness.

Credibility is comparable to the concept of external validity in quantitative research and is enhanced using triangulation, instead of randomization or blinding. In our study, triangulation was achieved by having a mixture of participant backgrounds, of sources of data collection, and of members of the research team. Participants included specialists and primary care providers, those in practice for long periods of time as well as recent graduates, hospital-based and outpatient practitioners and a balance between the genders. Almost all our participants had a faculty appointment, although two did not, and several were not aware of their faculty rank, nor were they invested in maintaining or promoting academic rank status. The number of participants involved in our study is important to consider when discussing credibility. Although the concept of sample size is emphasized more in quantitative research methodology, it is nonetheless in keeping with our methodology to attend to the number of interviews based on other work in the field, and to try to achieve an adequate sample size to reach saturation, as described above. We aimed for an adequate sample size of between 10 and 20 participants which aligns with size expectations from other similar qualitative studies on medical faculty development (Piggott, 2015, Hanlon, 2010, Blitz, 2018, Maley, 2010). We combined interview data with observations from another setting, namely the faculty development sessions, which allowed us to compare data from both of those sources to ensure that they were concordant. The richness of this comparison may have been enhanced by including more observations, however, due to timing and time limitations, we limited our observations to two events.

The research team consisted of individuals from diverse backgrounds: the author, (a community based medical teacher), two academic full-time clinical teachers with leadership roles at the main campus, and an academic health policy scientist and researcher. These team members were selected in part for their common interest in medical education and research, and each brought strengths to the project, with varying degrees of knowledge of and familiarity with the settings and participants. As a result, input into the design, data collection, data analysis and interpretation came from individuals with a variety of perspectives and experiences, which is comparable to a triangulation methodological technique.

For our study, we did not use member checking to ensure credibility, mostly related to time constraints on the part of the participants and the researcher. Member checking is a process of reviewing interview data with the participant, to ensure accuracy and seek additional comment (Varpio, 2018). This technique would have potentially deepened the richness of the data and allowed the author to get feedback about preliminary impressions and findings. Instead of employing member checking, the author met with co-investigators regularly to review data and early findings, to validate themes and to suggest alternative avenues for consideration of data interpretation.

We ensured originality by completing a thorough literature review and identifying that our study would respond to a gap in the literature, rather than duplicate an existing construct. We also discussed the rationale behind our study with experts

in the field prior to embarking on the project and were encouraged that this area required further exploration. Our study findings build on previous work in the domain of DME faculty development and add new material to the body of knowledge in this area.

Resonance was apparent during presenting preliminary findings to peers who are immersed in the area which we studied (i.e. DME medical education and community medical practice). The interest of these individuals signaled to the author that our findings spoke to the participants about their experiences. As mentioned above, member checking would have been an additional methodological step that could have ensured that our findings resonated with participants.

Finally, the usefulness of our study comes from its provocation of additional questions about faculty development in a DME setting and in the clear indications for more investigation, which we will expand on in Chapter 5 (Discussion).

2.9 Reflexivity

In contrast to quantitative research methodology, in constructivist grounded theory methodology the researcher is not at arm's length from the study data, but rather the researcher's viewpoint and experience is implicit in the observations and interpretation of findings and is explicitly described. In our study, the interviewer

and observer was the author, myself, a part time clinical faculty member and former education leader at one of the DME sites. I opened a Geriatric Medicine practice in the DME site region two years before the campus was established, leaving a geographic full-time academic role at McMaster University for reasons of family and geography. I had previously planned to pursue an academic career and the shift to a community-based practice was an adjustment, mitigated by the establishment of the satellite medical school, the Waterloo Regional Campus (WRC). At the WRC, I was involved in undergraduate and postgraduate education as a tutor, clinical preceptor, clerkship subunit co-ordinator and postgraduate residency program director. In these roles, over more than 10 years, I had the opportunity to develop a network of clinical teaching colleagues, mostly within my own clinical field (Internal Medicine and its subspecialties), to participate in numerous faculty development sessions, and to experience the transformation of medical students to fellow colleagues several times.

The motivation to take on this topic as a research project also grew out of personal and professional experience. In my roles as an education lead, I had to trouble shoot when a teacher had a challenge with a learner, commonly related to feedback (trouble giving or receiving), or a learner in difficulty. I was also involved in helping to organize and run faculty development sessions and would experience dismay when some of the faculty who had expressed concern over gaps in their own teaching skills would not attend these expensive and time-consuming

sessions, which would be populated by the same (accomplished) medial teachers repeatedly. It became clear that there was a gap in our ability to attract community faculty to important faculty development activities, and the goal of this research is to determine an approach to bridging that gap. As a community faculty member who has been an education lead and a teacher in the trenches, I am well positioned to examine this topic with interest and insight.

This background was helpful in recruiting participants, many of whom had a working relationship with me. It also encouraged the use of probing and follow up questions in interviews, as I often had some shared experiences with participants (e.g. we had attended the same faculty development event, had worked together on a common education project or had been involved in working with the same group of learners). The relationship between myself and the participants also made the interviews more efficient, in that there was a shared understanding about the structure of the DME site, and less time could be spent on the participant describing these elements, and more time describing the participants' experiences and impressions. Although the interviews were identified with a numbered code only, the author was often able to discern the "voice" of the participant during the analysis. This was a benefit as it lent additional context to the participant's statement which helped when choosing how to code the data.

A challenge of this proximity to participants may have been a perceived power imbalance on the participants' parts. As a local education leader, some

participants may have been guarded in their criticisms of the medical school or the faculty development programs. During the interviews and observations of the faculty development events, the author was careful to adopt an inquisitive approach rather than one of a fellow expert or leader. For example, the faculty development events that were observed were at a different site to that of the author in one case, and with a different practice group to the author in the other. This promoted a more objective perspective on the part of the observer.

3. Results

3.1 Overview

Participants

We interviewed 16 faculty members from two distributed campus sites, both of which are satellite campuses of McMaster University Michael G DeGroote School of Medicine: Waterloo Regional Campus and Niagara Regional Campus. Most faculty were from the department of Internal Medicine and its subspecialties, one was a surgeon, and five were family physicians. Amongst the Participants were both Regional Assistant Deans and the Faculty Development Regional Education Leads, as well as Regional Education Leaders in undergraduate and postgraduate medical education. Most faculty were part time, clinical faculty; two had geographic full-time appointments based in the community, one as a researcher, one as an educator. Almost one half of the Participants had fifteen or more years of experience, and around one third were five years or less into practice. Table 4 provides more detail about the Participants.

Table 4 Interview Participants

Participant characteristic	% of interviewees (n=16)
Internal Medicine and Subspecialties	63(10)
Family Physician	31(5)
Surgical subspecialty	6(1)
0-5 years in practice 5-15 years in practice	31(5) 25(4)

15 + years in practice	44(7)
Gender Male Female	 50(8) 50(8)

The findings of this study reveal how a community hospital is transformed into a clinical teaching site through a process catalyzed by the addition of learners, feedback, and faculty development. The process is illustrated in Figure 1. Our data revealed a process of interaction between faculty members, students and the DME setting that was at first transitional, and then transformative. We draw upon the metaphor of a chemical reaction to explain how learners and feedback act as catalysts to change the clinical staff at a community site, to clinical teachers at a distributed medical education teaching site.

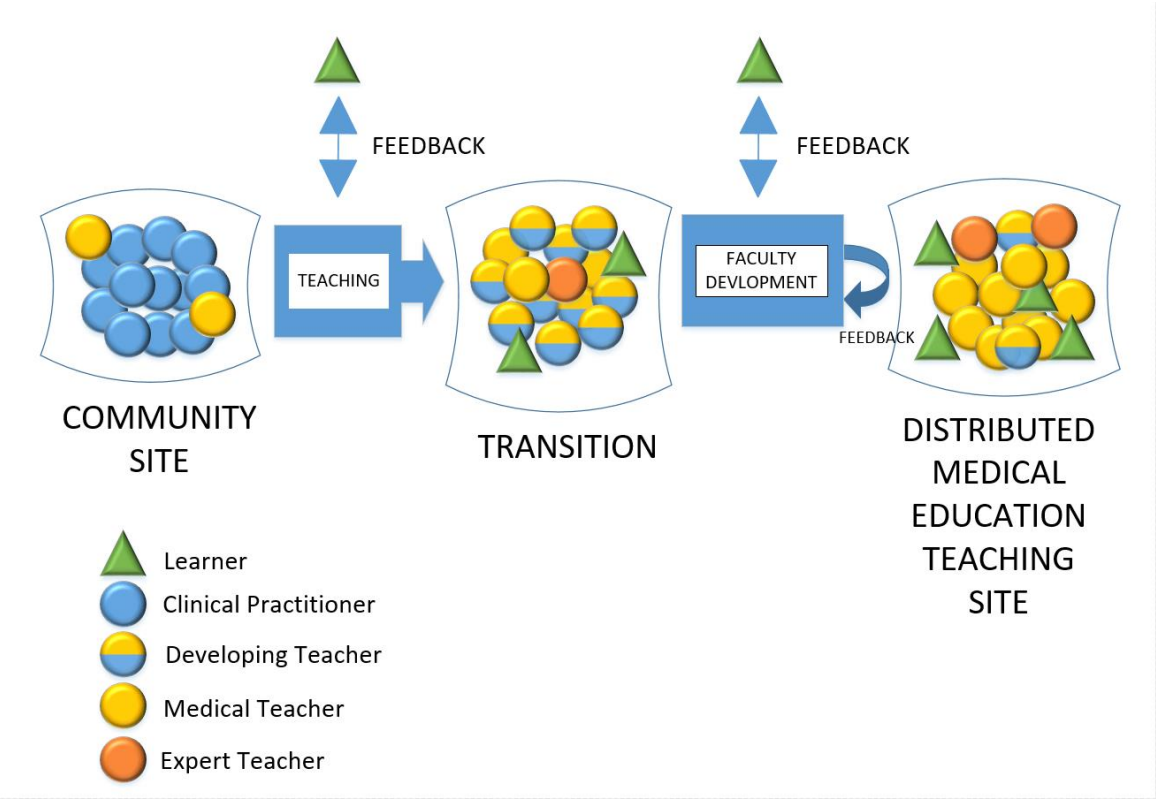

Figure 1 – Transformation of Community Site to Distributed Medical Education Site

The initial state, the Community Site is the site of practice for the non-teaching, non-faculty Clinical Practitioners, with only a few Medical Teachers. The establishment of the distributed campus is symbolized by the introduction of Learners, who catalyze a Teaching reaction. Unlike in the pre-campus Community, Learners affect the Teaching process through a Feedback mechanism and subsequently, the Community site enters a Transitional phase. Non-teachers begin to develop into Medical Teachers. There is ongoing Teaching activity (with Learner Feedback). Medical Teachers who had some prior experience and interest in Medical Education can progress along the spectrum to become Expert Teachers. The completed Transformation requires Faculty Development, which is inspired by Learners and sometimes involves Learner participation. Initial faculty development offerings are largely facilitated by the parent academic site, and later there is more involvement by local faculty and learners. The skills introduced in faculty development are honed through more teaching opportunities. There is an iterative cycle of teaching, feedback and faculty development with progression of faculty along the spectrum of teaching skill, from non-teacher to medical teacher, and then to expert teacher. In the Transformed Distributed Medical Education Teaching site, there is a steady state with Medical Teachers, Developing Teachers, and a higher number of Expert Teachers. Learners are now embedded in the matrix. The Teachers at the Transformed Site facilitate Faculty Development and provide Feedback to catalyze its ongoing reactivity.

In this chapter, the transformation of the community site and its faculty will be described, with an emphasis on the roles of learners, faculty development, and feedback. We will begin with the pre-campus Community site, then discuss the

Transitional site and finally, the Transformed Distributed Medical Education Site. At each stage, the relationships and interactions of the learners and faculty, and the roles of feedback and faculty development will be described, using examples from our data analysis.

3.2 The Community Site: Before the Distributed Campus

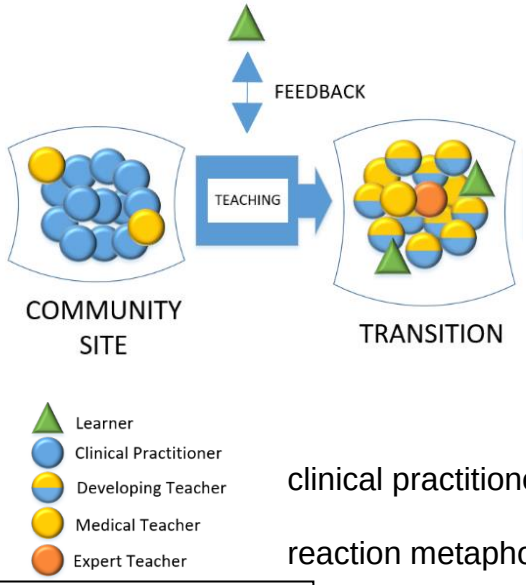

Figure 2 – Community Site Before the Distributed Campus

As the distributed medical education site is established, learners arrive on the scene, creating a need for teaching encounters. This initiates the development of community physician faculty members from clinical practitioners to medical teachers. In our chemical reaction metaphor, this is the step that kicks off the transformation process. But like a chemical reaction, the reactants are not always in perfect stoichiometric proportion. The limiting reagent in this situation is the willing, available, capable clinical teacher, in proportion to the amount of teaching that is needed. Not all community physicians are enthusiastic about taking on a new role, and many may be supportive of the campus, but insecure about how they can contribute.

3.2.1 Faculty – Recruitment of Clinical Practitioners

Distributed campuses are established as part of national and provincial directives to expand and broaden medical training experiences (Association of Faculties of Medicine of Canada, 2010). Most of the practitioners at the Community sites in our study were not involved in the decision to establish a campus in the region. They experienced the initiation of medical education in their community as a "top-down" directive from the administration of their clinical site.

> "What is a regional campus, why it exists, is that, you kind of have [a] top down decision…made by somebody up at the very high level of the university thinking that it would be a great idea if we have a regional campus in so and so place, we are just going to do it, and so they do it."
> – Participant 2

A new regional campus has many elements: learners, teachers, administrators, curriculum developers, and more. There must also be development of the physical clinical teaching environment in offices and hospitals. To encourage faculty participation in the new campus, there is a public relations campaign, led by the academic parent site and municipal and provincial government stakeholders. The presence of local champions and leaders is critical to recruitment of teachers.

> "I know for sure in the [DME site] experience, [Regional Assistant Dean] was just so actively engaged in talking to people and just going out and beating the drum and meeting people and driving to different sites to let the faculty know they were part of the campus and that they mattered."
> – Participant 2

The parent academic site also has a role in encouraging recruitment of community practitioners at the clinical site, and this may be most effective if the potential recruits are met on their own turf:

> "A portion of them [community faculty], might get a little more interested, motivated and positive in term of their feelings about education if … the university came out and engaged with them. It is not going to work for the university to invite people to come to them. The clinicians are just too busy." – Participant 2

There are environmental and cultural challenges, and many are not very interested in doing more work outside of the clinical sphere:

> "People don't elect to come to a community…because they want to spend a lot of extracurricular time doing non-clinical activities, [like] faculty development, rounds, teaching. They will frequently attend…meetings…that have direct relevance to their clinical practice. But outside of that, they want to raise their kids, they want to have families, they want to take down time, they want to spend the money they're earning by working long hours, right?" – Participant 9

Clinical practitioners in the budding campus don't conform to a phenotype. The practitioners come from a variety of backgrounds and are at various stages of their careers. The presence of the campus can be a draw for new clinicians to come and set up practice. Younger faculty are usually closer to their own training while more experienced medical staff can be thrust into a more intense teaching role at a DME mid-career, presenting an opportunity for peer to peer learning:

"You have mentors that are much more experienced around the junior faculty. Maybe we should be learning from them [the junior faculty] as opposed to be the other way around". – Participant 8

Some of the early recruits into clinical teaching are less enthusiastic about taking on the role:

> "We don't feel like we're professionals, we feel like this is forced conscription. And there's very little choice to do it whether we wanted to or not and so instantly it sets up an atmosphere of I'm doing it, I enjoy doing it but kind of there's no choice or option." – Participant 7

Even if willing to take on learners, community faculty may feel that their teaching skills are not up to date: "I know for those of us who are teaching in the community, a lot of us are just falling back on things we learned or things that were modelled by people during our training a few years ago." – Participant 8

At the community site, there are a few practitioners who identify as teachers, but there can be a feeling of disconnection form the academic parent site:

"I think that I'm an experienced teacher and taught a lot, still teaching a lot…and have some experience at all these levels of Medical Education but I never really got any kind of interest back." – Participant 2.

There is a heterogenous pool of potential teachers at the pre-DME community site. The recruitment of these clinical practitioners requires top-down encouragement and support, as well as local, peer or near-peer based interaction. Recruitment needs to consider cultural factors to be successful.

3.2.2 Learners – A Catalyst to Development

At a community site, the medical culture is focused around patient care and clinical skill. Before the establishment of a distributed medical campus, there are some teaching activities, with learners coming from academic sites to do community electives and placements. In general, however, there are far fewer learners. Our data analysis suggests that community faculty identify the potential benefit to having more learners and longer learner rotations. The value of the learner presence at the DME site is different to that at the academic site. For example, the effect of learners on the clinical workload of the faculty in the academic site is significant. Learners offset a large clinical service commitment on behalf of the attending physician faculty members. This is not the case in the community, related to the lower volume of learners and the established culture of attending physicians taking care of on call responsibilities themselves.

> "There [at the parent academic site], they have big pressures, they have all the stuff that we do, but they go home and sleep in their beds every night because they have residents in-house taking calls. The culture is just different. Here, the demands from a clinical perspective on clinicians are far higher, no matter what anybody says." – Participant 9

Learners can set an example of scholarship and evidence-based decision making, as they are more likely to look up the latest guideline or clinical trial to expand their developing fund of knowledge and skill. The lack of learners in the community,

particularly senior learners, affects the clinician's ability to maintain a current knowledge base:

> "So that is the biggest reason that I was scared to leave the academic centre. Because when you are in the academic centre, the chief residents come along, and they hear [about] every new…trial [that] comes out. There is no contentment with the status quo…People who work in academic centres, have that position and are paid in some form of currency to pay attention to that." – Participant 9

At an academic site, there are more faculty engaged in teaching, and a larger peer group with which to share experiences. A community teacher in the early stages of the campus may feel isolated until there have been more learners through the campus, and more experiences teachers with whom to collaborate. In this way, the relative paucity of learners in the early days of the campus can pose a challenge for networking and sharing amongst teachers.

> "I suspect that at main campus the opportunity for sharing and networking amongst teachers is much easier because there are more learners and they are all kind of in one space. So, there may be more discussion that goes on, right? Like: 'I have this learner, this learner seems to be struggling here, what would you do?'" - Participant 8

Some of the challenges of interacting with learners are likely similar between the academic and community sites. For example, having a shorter rotation for learners is a challenge, it is hard to get feedback about teaching, or to have enough observation of a learner to give them feedback in a short time span:

> "[Learner is present for] one 4-week rotation minus a week for vacation and a few days for post call. And all of a sudden, you're talking now, a handful of

> days and so, how do I become a better teacher? It's difficult to know where the gaps are. It's a 100-metre race and you look back and you're not sure where you technically could be better because it's such a quick race." – Participant 7

Another Participant indicates that sometimes due to the brevity of the teaching encounter, the deficits would need to be evident for a teacher to give negative feedback: "The ability to kind of say a lot of damaging, negative feedback only comes into play when it's clearly obvious that they're not doing well. The signals just, you don't have enough time to pick up on these subtle weaknesses." – Participant 7

In a community environment, learners are perceived as bringing some challenges, but potential advantages are also identified. Teachers need feedback and guidance to optimize the value of the learner presence, and an understanding of how to realize the benefits that they identify from learners in the academic site, at their own site.

3.2.3 Feedback – A New Concept

The Community site is not a particularly feedback-rich environment for practitioners. There is some feedback about clinical performance, through the multisource evaluations required by the hospitals, as described by one of the Participants, below. The feedback in this example was not perceived as being helpful.

> "The problem is feedback. So, you know you have to pick nine people to assess you and then you look at the aggregate data then the chief and the chief of staff sit down with you and have a little chat and mine was like two seconds of: "Well, everybody thinks you're safe and reasonably competent." And then we talked about something [unrelated], because whatever…they were uncomfortable? I don't know what the issue was...but that's not good feedback for me. I needed something constructive…specific." –Participant 13

Community practitioners identify the value of feedback in maintaining or enhancing clinical proficiency:

> "That's the key…and that's what has been shown in a lot of research in adult education to be the driver of change – it's feedback. And the thing about feedback…is that it needs to be constructive, and it needs to avoid adjectives like you are bad or you're incompetent. There's a gap here. The current standard for the management for x condition is this. You're doing it this way. How do we get you from this to this?"– Participant 13

When a DME site is implemented, clinicians receive feedback from novel sources, including students and peers. This is described by a senior faculty member participant:

> "I think it will be interesting as we have more junior faculty coming in. I think feedback makes it all better and I think that as senior clinicians, we are very unaccustomed to getting feedback. It really has not been part of [the culture], until very, very recently here." – Participant 8

Giving and receiving feedback is a new experience for many clinical practitioners. Feedback is essential for learning and skill development in clinical areas, as well as in medical teaching and evaluation. Many clinical practitioners perceive a need for improvement in the giving and receiving of feedback, and feedback skills can be developed through education and training.

3.2.4 Faculty Development – A New Part of Continuing Professional Development

Clinical practitioners are obliged to participate in continuing education activities, although our Participants describes prioritizing activities which will keep their clinical skills up to date. Understanding how to make education-related CPD relevant to clinicians is a key step in encouraging participation. A Participant describes how the choice of Continuing Professional Development (CPD) activity should be purposeful and relevant to practice:

> "I think part of CPD is looking at your practice. What kind of cases do you see? What kind of work do you do? What kind of resources do you have available to you? What can you do? What can't you do? What do you want to develop? And then see if it's feasible to develop it here, say in the future, and then you go and learn it."– Participant 13

The Participant went on to give an example of a new program for patient care that may be implemented in the community, if there are practitioners who have the required skill set. Planning to do some CPD in that area would fill a gap in clinical service. "This is a need in the community, it's feasible, and that's a very current example … and so it is going to be purposeful to my practice and where I am practicing." – Participant 13

Our data indicated that Participants prioritized the enhancement of medical knowledge and clinical skills in choice of CPD. However, some Participants offered that CPD can be important for medical educators, to develop teaching skills and to be able to teach the most recent and evidence-based material to learners. "For

me, personally, [CPD] means I am keeping up to date. It means that I can teach, stay relevant and know I am not getting caught in ancient, and untested things." – Participant 3

A Participant gives a typical sketch of CPD activity, a combination of local and national or international activities. Learners are involved in some of the local journal clubs.

> "I do…reading around cases with electronic resources, and we have a monthly journal club in our group so, bi-monthly…we review five or six papers that are relevant and we have learners come and learn together with consultants…they [learners] present the paper and we discuss the findings. We have a monthly department business meeting and the first 45 minutes is clinical rounds where we'll have an invited speaker or one of us presenting a topic… um… so those are kind of the day to day ongoing routine stuff and then there are two or three huge [specialty area] conferences each year."– Participant 15

Another Participant includes the need to retain licensure as a reason to do CPD along with development of knowledge and teaching skills: "I guess [CPD] would mean two things. Firstly looking at it as a professional requirement for being in good standing. And then secondly, an opportunity to find improvement in our clinical skills, in our teaching, in our overall knowledge level." – Participant 14. Summarizing the role of faculty development in lifelong learning, a Participant notes: "I think all of us are really focused on education. But we don't do much education about how we teach and learn."– Participant 8

As the Clinical Teaching Site is getting started, faculty can identify the role of faculty development to enhance teaching skill. Our participants shared many examples of CPD topics related to teaching and education that they would prioritize for attendance. For example, one participant identified a desire for CPD to improve evaluation and assessment skills, which this person identified as a challenge because she is exposed to a relatively small number of learners:

> "[In the community] where you are exposed to far fewer of the same level of residents at one time, it becomes harder to know what is the standard for JMR verses the SMR versus a chief resident and is this chief resident actually good or are they just average. But…how can I make it better, that sort of the thing. So, evaluation, like any sort of activity that's focused around those areas." - Participant 6

An experienced community clinician may feel they know how to teach, but still needs to undergo faculty development to put teaching skills into a medical education context. One of the participants reflects on a faculty development workshop on feedback, on the importance of learning the correct language:

"(In the workshop) I learned the language that they use to do the exact same thing that everyone in education uses, and the lay of the land and the hierarchy of who is supposed to listen to who, and how you're supposed to listen to them."– Participant 5

There is a perception that the community site has a different culture of learning,

such that faculty members have less time protected for continuing professional development, including faculty development:

> "[At the academic centre it is] easier to get to journal clubs that are held, because…you can take that hour at noon and go and attend the journal club, whereas here, if you take an hour off, you know you're leaving 2 hours later at night, you just know there is no other way around it." – Participant 9

People in the community are busy: "The challenge is getting them [faculty] to the actual [faculty development] event. It is very, very difficult. And most of it really…boils down to clinicians just being so busy in the community setting." - Participant 2

Community practitioners, like all medical professionals, make ongoing learning a part of their professional practice. When learners are introduced to the practice milieu, there is an added reason to maintain and expand knowledge base – to be able to teach. There is also a need to learn how to teach, a need for faculty development. Despite identifying the need for education-relevant CPD, the challenges of prioritizing these activities with other CPD needs, clinical demands, and personal life remains a barrier.

3.3 The Community Site: Transition

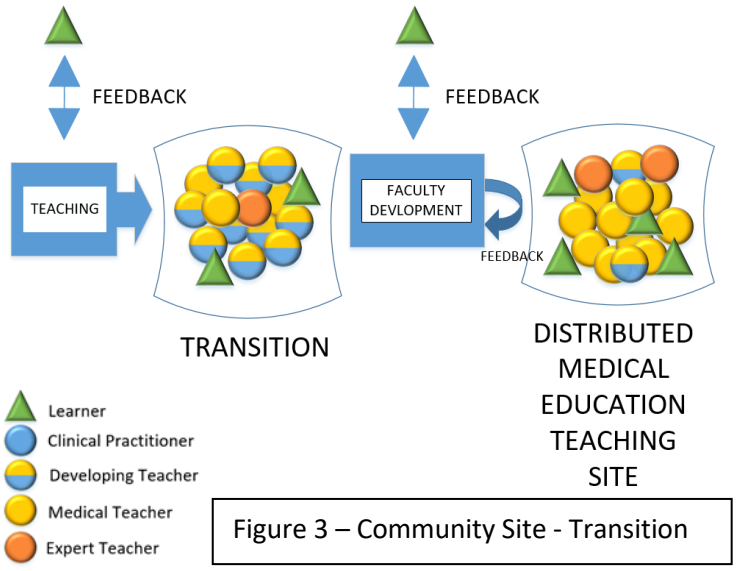

Figure 3 – Community Site - Transition

The distributed site of the medical school campus becomes a fixture of the regional healthcare landscape. Many clinicians have had the opportunity to participate in teaching. Leadership roles at the distributed campus are staffed with local physicians, many of whom are established in the community and have a network of peers. There is ongoing support from the parent academic site. In chemistry parlance, a transition state describes the state in an irreversible chemical reaction in which there is the highest potential energy, and the state at which the reactant molecules will inevitably go on to form products. In the Transition, the community site is changed but not yet transformed, as the transformation takes time. Administrators] just decided to do it and damn it, we are just going to have regional campus and so when you do that, you are kind of implanting a culture in a foreign environment and it takes time for it grow."– Participant 2.

Much of the novelty of having a campus placed in the community has worn off and the hard work of continuing to develop educational experiences and facilitators

becomes a reality. Clinicians move along the developmental spectrum of novice teacher to expert teacher, but this can't happen without a robust feedback cycle, and deliberate attention to the development of teaching skills.

3.3.1 Faculty – The Developing Clinical Teacher

During the Transition phase, the teaching role is no longer novel, and some of the challenges of ongoing accommodation of learners become apparent. Our analysis indicated that while faculty consider teaching to be valuable, they are realistic about the cost of participation in terms of time and money. The perception of our participants is that the career structure of the academic physician is different to that of the community physician, and so participation in teaching should be rewarded differently. This transitional phase of the community site is also a time when those faculty with an interest or skill in education may take the opportunity to develop these skills and move into leadership roles.

When the transition from community site to DME site transition begins, medical teachers are at various stages of development. Even before the campus came to the community, there were a few Medical Teachers, and even Experts in the area. These individuals can become local leaders or facilitators and tend to be those who can readily recognize where faculty development could help. One of the Participants describes their high level of engagement with Medical Education when relocating to the community:

> "But maybe that's just because of [X] years' academic full time that was very heavily invested in [an academic site] and medical school and I…was just completely infused with teaching culture. I can see…people who have not been teaching regularly for a good portion of their careers, suddenly having to try to deal with somebody who's at very different stage, and they are learning and trying to manage their knowledge base and understand them." – Participant 2

During the transition phase, some local clinicians who are "latent" teachers can step up to get involved. There is ongoing recruitment along with nurturing of existing, interested faculty. The latent clinical faculty can stretch their skills with the right encouragement and motivation:

> "There [is] a lot of untapped talent for sure, and I think there are some people…who're already doing a lot, who probably can do a lot more even, and enhance the local curriculum. I think if we saw that happening that might actually lead to some…interesting things." - Participant 2

One of the factors which may impede this development and recruitment of teaching talent is the perception by some teachers in the community that they are not appreciated by the parent academic site. An early to mid-career Participant at the DME had trained at the parent academic site. Although the Participant expressed a level of enjoyment in teaching, they felt undervalued by the parent academic site.

> "I think the biggest problem is we have an identity crisis in this campus about how we are to be viewed by [the parent site]. Some areas are very successful, other areas are held back, some areas ask for more assistance from the mother ship, but I feel we are just something that off loads the steam and their pressure valve of teaching, like we're being more engendered to do teaching for them because they can't manage their own numbers." – Participant 7

The community teaching faculty experience competing priorities. The hospitals and clinics value clinical efficiency and productivity, whereas the incorporation of teaching affects the pace of clinical activities: "It is very confusing if you are a clinical teacher as to quite how you are valued by both organizations, because different wants have different expectations and unfortunately a lot of this stuff comes at times when you want have a life." – Participant 7.

Faculty at the academic parent site have similar challenges in balancing clinical and teaching activities, however, at the parent site, there are mechanisms in place to compensate for the temporal cost of teaching, such as alternate payment plans, protected time for non-clinical work, and academic promotion models. Participant 7 reflects: "[In the community] there's no protected time, there's no reasonable remuneration. We're not treated like our academic colleagues with respects to how we're allowed structure our day because of our teaching needs." Our data analysis revealed some expected challenges of teaching at a community site in transition and gave insight into some of the rewards. Teachers may progress at various rates. Some of the variability in progression may be related to the teacher's starting level of interest and expertise, and some variability is due to competing priorities.

3.3.2 Learners – Meeting the Challenge

Learners are one of the main drivers of the transition of the community site to a teaching site. Teaching opportunities offer a substrate for the practice of medical education skills.

Medical learners are more visible and involved in the community. Their presence in hospitals and clinics has become routine. As clinicians develop into Medical Teachers, they can consider their interactions with learners in a more complex way, according to our data analysis. Having had a higher number of learners, developing teachers can compare these learners to one another, and similarly compare their teaching experiences. Participants shared some of their more challenging teaching experiences and posited strategies to learn from them. A Participant reflects on the commonly described trade-off involved in the dual role of the students – service and learning. The Participant identifies positive attributes of the learners in general: professionalism and industry.

> "I think it is important also to recognize that the trainees are there to learn, they do service, but, and I mean at this site, I have to say they are so good at doing the service, they are so professional, that I usually have to go: 'No, your job is to learn…I prefer that you focus on the learning piece of this', like, so I mean they are fantastic." – Participant 10

Some teachers or teacher groups are involved with many learners at various levels. This is valuable in that it helps a teacher get a sense of where a particular level of learner should be on average. This Participant describes the parade of learners through the service: "We have a learner schedule every month: usually 2 or 3 clerks that rotate through every block, a few family medicine residents come

and go and then there is the [specialty] residents that come most months of the year." - Participant 15. Even with all this exposure to learners, there can be a struggle with aspects of teaching, notably feedback. The Participant goes on to discuss learner difficulties and how to deal with them:

> "There's the very advanced senior learner who perhaps needs some coaching on softer kind of skills, there are people who are fairly advanced in that but they need more confidence and then there are the really junior learners who are basically unconsciously incompetent - they think they know right? I find that difficult. A lot of the times it's personality too." – Participant 15

The more exposure to learners, the higher the likelihood of encountering a learner in difficulty, and some developing teachers are uncertain of the resources available to assist them as they work through this situation. The Participant teacher in the quote below appears to have concerns about the learner's progress and wellbeing and expresses a desire to avoid applying an unfair penalty. The teacher considers reaching out to other faculty for help and guidance.

> "Right now, there is [a learner] who is a bit of wobbly. And the wobbliness is much more to do with [the learner's personal] situation and emotional state, than I think [the learner's] knowledge base. Who would I talk to? Who would I get help from? Like where do I go? Like what is the pathway, if you have concerns? You don't want to burn someone; you don't want to give them an F, right?" – Participant 10

With the community's emphasis on the value of clinical skill and medical knowledge, the developing teacher may need to adjust to a more comprehensive evaluation approach. Medical teachers must evaluate professionalism and "soft

skills" as well as knowledge base. This may deviate from what a community clinician would historically value.

> "Just speaking from the sort of more senior clinician point of view, I think we were all taught…[that] the whole concern was knowledge, right? I think that a lot of senior faculty still see the world through that kind of lens, right? And their concerns are always I think this student needs to learn more …and read more, around the cases. So, if they have a student who has professionalism issues, or who is not interacting with the nursing staff very positively…they don't kind of know how to manage that kind of situation." – Participant 4

As learners appear in greater numbers and with greater frequency in the community, developing teachers accumulate more education experience and the campus continues to solidify its position. Within this site in transition, the value of learners is less tied to their role in service provision, and more related to their role as catalysts to teacher learning and development. An interaction with a learner, especially when not so positive, can promote reflection and the need for peer networking. In this way, learners can promote collaboration within faculty departmental teams.

3.3.3 Feedback - An Iterative Cycle

During the Transition phase, Learners and Teachers interact through the clinical teaching rotations of undergraduate and postgraduate programs. Feedback given and received during these interactions is an essential component for the perpetuation of the educational process. Feedback requires the opportunity to

directly observe a behaviour and must be timely and specific. It must be delivered in a manner that is effective and constructive. In the transitional campus, there is no shortage of feedback nodes. Students provide feedback to the administration about their experience with faculty. This feedback eventually is received by the faculty member, although there are mechanisms in place to ensure the feedback is anonymous. Teachers provide feedback to learners on a more immediate basis, in the middle of a rotation as well as at the end of the rotation. Formative feedback may be given throughout the rotation as teaching encounters happen. Teachers provide feedback to faculty developers, local or departmental education leaders and administration about their teaching experiences, their own educational needs, or their perceived needs for system development. Self assessment is also a feature of this feedback rich environment. These feedback reactions occur repeatedly and cyclically. Our data analysis provided numerous examples of the role of feedback as a component of the campus' transformation.

3.3.3a Teacher to Learner Feedback

Developing Teachers may struggle with certain aspects of teaching. An example is the challenging process of learner evaluation as described below. Assessment tools, such as In-Training Evaluation Forms (ITERs) need to be filled out by faculty to give feedback on learner performance. The constraints of the ITER form can make it difficult to determine the validity of the feedback.

> "[It is] hard to know at the end of the period of the time where things did or didn't go right. It is tough…when you look at where you are supposed to evaluate them…well, most of them produce work at level consistent with their R1 status, so...you check on the ITER that they're functioning at their level. And you get to free text a few things, but again…I don't want to be too strong with what you say because it is a short observation window with a small number of cases that are reviewed." – Participant 7

The brief duration of a rotation can be a challenge to providing timely feedback, such that the learner may not be able to address the gap within the rotation period, as Participant 7 describes: "There is a lot of difficulties for me to say I, if I have this skill, I'll be able to rectify some of the problems, because some of them is just the constraints of one month." The more opportunity there is to teach and practice teaching skills such as feedback delivery the more rapidly a teacher can build confidence.

> "At the main campus, you may have essentially a continuous stream of learners, so you accrue experience much more rapidly. Because of the nature of our scheduling, I may have exposure to a resident or not, depending on my rotation, so the experiences are more intermittent. And it takes a little bit longer then to build the confidence level up." – Participant 8

3.3.3b Learner to Teacher feedback

Learner arrival is the catalyst for Teaching and for the development of the DME site. Learners provide feedback to the teaching faculty in direct and indirect ways. Indirectly, student presence can encourage clinical teachers to examine their own habits and behaviours and reflect on the need to continue to learn themselves. For example, Learners can help to keep their supervising faculty "on their toes" with

their own knowledge base. Teachers want to keep their fund of information current and their clinical skills sharp to be able to pass on the right information to students. A Participant describes this phenomenon:

> "I think when learners are asking you all the time about why you do something in the certain way, statements like "I've done that for 20 years" don't cut it with students who are sitting there with their iPhone and can look at the most recent evidence and have a dialogue with you about why we are doing this way." – Participant 4

Another Participant shares this view of wanting to stay current to be able to teach more effectively: "I think trying to stay ahead of curve in terms of the evidence and then explaining that to the learners, I think that is the point of continuing faculty education." – Participant 5

There are logistical factors that can get I the way of direct Learner to Teacher feedback, which are somewhat exacerbated in the community as compared to the academic site. Learners complete feedback forms about faculty, however, to protect learner identity, these forms are not released to the faculty member until there have been at least three evaluations, or until after the learner has graduated. In such case, feedback may not be delivered in a timely way.

> "The big…problem is the lack of feedback for teachers in a more immediate thing…the embargoing of student evaluations if they're done, [which] means there is no hope that I will ever know in more real time what is going on. And so, this is a huge problem...if there is a bad experience, I can honestly say I don't know because unless they tell me, you don't find out for 3 years." Participant 7

When feedback is received though, it can make an impact. During Transition, the presence of more students means more opportunity to have one's teaching observed, and to receive feedback. Such feedback may make a significant impression on the faculty member, especially since the experience of getting feedback is novel and somewhat jarring. This feedback may drive behavior change as described by this clinical teacher with over 20 years in practice:

> "We [don't receive a lot of feedback] and probably that is not a good thing, because then you don't see criticism as being constructive…I got given my annual review and there were a couple of students that commented I have been late several times for my tutorials, and that really bugged me at the time, I thought that is not professional, and so then I asked my secretary to not book anybody later than such, such time. So, this time, I have not been late, so I guess that is a good thing. Somebody called you on that, and it is a change in thinking. To see that feedback could be very, very constructive, and not a negative thing." – Participant 8

The above illustrates a change in behaviour because of student feedback. The other side of the coin is that when feedback is not received, there may be a missed opportunity to change and develop, as the Teacher may then not perceive that there have been any deficits identified, and thus nothing to work on in faculty development. If a teacher doesn't receive any indication of a problem with the teacher's performance, they will not prioritize faculty development:

> "And so, there's less inclination to spend my free time, doing this [faculty development] when I'm not well recognized for my contributions currently, I can't see any reports of criticize my teaching skills quickly enough so it's kind of like when you ask me to come on a weekend or evening, I'm going to spend it with my family." – Participant 6

3.3.3c Campus to Teacher Feedback

As outlined above, there are some barriers to the provision of timely Learner to Teacher feedback, however Teachers can get feedback about the DME educational activities in a more general way, which may also be helpful in piquing interest or motivating ongoing participation. Another Participant reflects that there may be benefit to an exchange of feedback between the DME teachers and the administration, both at the DME and the parent site. "It would be…very appropriate to have the regional dean come to give a talk on distributive medical education, [DME site] 2017, you know, where are we at? Where were we? Where are we now? Where are we going?"– Participant 2

This feedback could include an exchange between the campus and the teachers, in a bi-directional or cyclical format. The Participant continues: "To inform people of what's going on in campus and [parent academic site] as a whole, find out from people what their feelings are about the university and get some feedback as to where faculty or potential faculty feel, what the pros and cons are of being part of faculty." In general, our data analysis brought out the idea that to change, feedback must be received. The feedback process can identify gaps that can then be closed with the appropriate educational intervention. Receiving the feedback and identifying the gap is a big part of the faculty development process, but it is only half the battle. The next component is the delivery of the continuing education itself. In the increasingly feedback-rich educational environment of the developing

campus, the stage is set for effective faculty development. The faculty has accrued enough teaching experience to identify areas of need for skill development or are open to feedback from others about thee needs. The tools to close a gap in teaching skill can be found in a faculty developer's toolkit.

3.3.4 Faculty Development – More Relevance and More Value

Faculty development in the transitional campus is more than just a means to upgrade skills or find out about the nature of the campus organization but can be a vehicle for networking and peer to peer collaboration. More faculty development is developed and delivered locally. The faculty development sessions are perceived as being more responsive to the community teachers' needs, and faculty development sessions offer a forum where community teachers can share their increasingly vast experience in teaching at the DME site.

As the campus grows, faculty development takes on a new importance and a more local flavour. Faculty development is more relevant when the practitioners have some teaching exposure. In the analysis of our data from the observations of the two faculty development sessions, we noted that in both sessions there was significant deviation from the prepared agenda or module, and much time was spent on the sharing of anecdotes about successful, impactful, or challenging teaching encounters. The settings were informal and local, and the atmosphere in both cases was collegial and accommodating. At one of the sessions, learners

were also present, and faculty in turn drew not only from their teaching experiences, but also from their own student days, to give examples of educational experiences. The importance of the teacher having had some experience with learners to make faculty development more useful was a common finding in our data analysis. Below is an example of a faculty member's impression of this relationship:

> "I do think that because we know the learner is here…and almost all staff now have some interactions with the students, that the relevance of having some faculty development is becoming increasingly clear. Because they're then in the hot seat with a learner, and they are thinking: 'I don't really know...how to evaluate the student', right?" Participant 8

In the context of adding the role of Medical Teacher to a community physician's job description, the faculty begin to consider keeping up teaching skills as part of overall maintenance of competency. Before the DME site was established, the focus for CPD was mostly clinical skill and knowledge, but in the transitional campus, there is a need to develop other skills too.

> "So, for many years, that was always the concern that you would keep up that knowledge base and that you would be aware of new diagnoses and that you would be aware of new treatments and you would go to various rounds and meetings to meet that need, but these other areas, say, advocacy or practice management or teaching [that] maybe didn't have the same…value in the way. There wasn't the same kind of value placed on that in the past. But you can see it has increasing relevance." - Participant 8

Developing teachers can also make the connection between a difficult teaching moment and faculty development. For example, having a chance to practise giving constructive feedback in a faculty development setting may be the key to improving one's feedback technique. A Participant suggests this model as a faculty development exercise: "I have this imagination that, I don't know, maybe one day we will do this [session whereby we] have a standardized learner or something and make them terrible and then the task is to give them feedback." - Participant 15

Although the faculty development sessions we observed had an informal, relaxed atmosphere, our analysis suggested that community medical teachers value the use of faculty development activity to get CPD credit. There was a perception that getting CPD credit for faculty development would be an incentive to the community medical teacher. One Participant opined that perhaps community faculty should get more credit for doing faculty development than non-community faculty, as an added motivator.

> "One of the challenges is, that in the community there are not really that, very many rewards as it were, for doing faculty development, and I think, that if the [regulatory college] were to see this as a priority, and we are to place particular value in faculty development, and that there was awareness among the community physicians that they are going to get, two credits per hour…that might be a bonus, a bit of reward. Because they don't look at this as professional development, but really it is."–Participant 8

While doing traditional CPD activities, the community medical teacher notes that faculty development skills are also being covered, as described by this Participant:

"Even at those big meetings, you begin to see some creep of simulation sessions…You're beginning to see faculty development at those meetings." – Participant 8

A needs assessment, or survey of feedback about perceived gaps in teaching knowledge, may be more useful in a campus that is in transition, rather than at the earlier, pre-campus stage because the faculty have more experience from which to draw.

> "I think a needs assessment would be far more useful now because…for instance in this specialty, the students have gone through. You had, now, a few years' worth, right? And you have little spectrum of, you know, super stars, and not so super star [learners]." – Participant 11

The ongoing success of the campus faculty development relies on the networking and relationships between the faculty members themselves, and between the faculty and the campus leaders. A sustained effort to build a relationship can encourage ongoing participation in activities such as faculty development.

"I think once you get to know people and you really, actually have a relationship with them and find ways to keep meeting, then people are going to be more likely to come out to Faculty Development sessions as well."– Participant 2

The development of community practitioners into medical teachers is a central component of the campus transformation process.

3.4 The Transformed DME Clinical Teaching Site

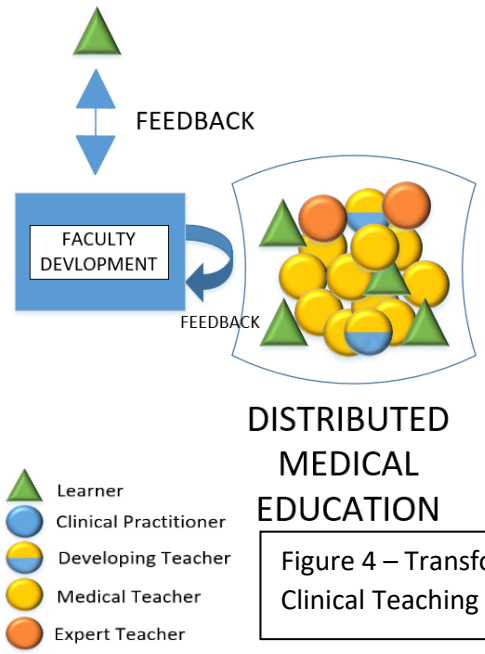

Figure 4 – Transformed DME Clinical Teaching Site

The Distributed Medical Education Teaching Site is the end-product of the reaction that occurs with the combination of clinical practitioners and teaching experiences, catalyzed by the introduction of learners, and continuing with the facilitation of additional reactants in the form of faculty development and feedback. This is a new, previously unformed compound made up of its component reactants. The reactants retain their original properties, although they too are in a transformed state. In the Transformed Site there is a higher proportion of Medical Teachers and Expert Teachers than in the initial state. Expert Teachers seek and respond to feedback and are adept at delivering feedback. The Learners are more numerous, and their presence is woven throughout the community. The Learners, as they complete their medical training often seek to remain and practice in the community and thus transition to faculty and Medical Teacher. All the reactants have a role in faculty development which is essential to sustaining the compound. Learner feedback may inspire or drive faculty development, and in some cases, Learners were participants in the faculty development sessions. The difference in the Transformed site compared to

the initial site is that the faculty development content is more likely to be delivered locally, with locally relevant motivators and rewards.

3.4.1 Faculty – The Expert Teacher

The role of medical teacher has levels of mastery, from novice to expert. In the initial state, most individuals are in a pre-developed or beginner state. Learners appear, and there is no choice but for many of the clinicians to take on the role of teacher. As teaching encounters proceed, the beginner teacher climbs the rungs of the ladder, some all the way to the expert level. Our data analysis revealed a definition of the expert medical teacher in the context of the community site. In most descriptions of an Expert Teacher, there was a statement about the Teacher's focus on the student and the student's needs and goals. Such a teacher would be more likely to foster a feedback-rich educational environment. Participants noted that Expert Teachers also appear to be capable of self assessment, and to seek feedback from Learners and peers. Expert Teachers do exist in the community and the DME campus administration seeks to acknowledge and encourage these individuals. Expert Teachers may be sought out by the Learners because of their teaching abilities. A Participant lists the qualities of an expert teacher: "Clinically excellent, to start with. Good communication. Enthusiasm to teach and to impart knowledge. And the ability to adapt to changes. You can know everything, but you got to be able to find the way to get it across to that learner."– Participant 7

One description of an Expert Teacher included the ability to observe a student's behaviour in a teaching scenario and offer feedback, which is a common topic for faculty development, and is a cornerstone of medical teaching.

> "[The Expert Teacher] has an ability to sit back and look at the dynamic…in the encounter…and be able to point out: "Ok, how did that go, how did that feel, did that work, any other ways, what if we did this?" and then to actually go in to demonstrate that."– Participant 9

Community faculty have academic appointments, often at an adjunct assistant clinical professor level. Once the community has been present for several years, these appointments are up for renewal and this requires a review with an education leader. One of the Participants has an administrative role and has been involved in reviewing and providing feedback to Medical Teachers, and describes in general terms some of the qualities that are found in Expert Teachers at the DME site:

"… People that students naturally gravitate to because they are just kind of cool people and then you got one that much more straight-laced and stern but are exemplary clinicians and they fire up their enthusiasm." – Participant 11. The administrator goes on to further describe the calibre of teachers at the DME, indicating that there is a high number of high-quality ones. The Participant indicates that these expert individuals, although different in teaching style and presentation, can connect with students, which would make them more likely to be responsive to student feedback:

> "We have a lot of really great teachers and they're not all alike. Some are compassionate, and empathetic, and student focused and kind of, in the student's skin...others are more distant…but experienced and can articulate and demonstrate exceptional care and compassion to patients that resonates with the learners so everything that that person says becomes a teaching moment." – Participant 11

Our data analysis indicated that feedback from learners and others, in an iterative cycle, is a key process in the campus transformation and faculty transformation. This is well articulated when a Participant describes how an Expert Teacher would seek feedback to hone teaching skill: "If your learner is not getting it, change your style. If you don't know how to change your style, figure [it] out, ask someone else, ask someone to watch you teach…" – Participant 10

Implicit in the description of an Expert Teacher as one who strives to develop their skills is the concept of participation in faculty development, formal or informal. The Expert Teacher has an interest in teaching and wants to improve, as described by a Participant: "The people who are really excellent teachers, look at teaching not as a sort of an evil necessity of their day but as an added skill set that they want to hone and develop."– Participant 15. The Participant goes on to acknowledge an element that was described repeatedly in our analysis, that of competing priorities and time management challenges: "…and sometimes it is hard to do both. Sometimes is hard to do that because time restraints."

Accordingly, there may be a place in a Transformed campus for a community Expert Teacher to take on a role with a higher academic rank. This would imply

that the individual has some protected time and remuneration for doing educational activities, and may have more involvement in research, administration and formal teaching. This could have consequences for the organization and delivery of the department's clinical services. As a Participant notes:

> "You might have one [medical teacher] that was prepared to take on a significant portion of the work and be supported through a faculty position. Then the question is how that individual would function with the rest of their duties. The easiest way to run this division is just to say everybody's doing the same thing, right? Same call, same responsibility. And any other paradigm is going to be a shift." – Participant 9

The Participant goes on to note that this change may not be all negative, as other members in the group may benefit from this leadership: "The other members of the group might actually see that as a positive thing. Ok, this person's prepared to actually take on being our teaching champion."

Academic advancement is not a common aspiration for teachers in the community, and many faculty who have seen the campus develop from community site to DME site may be reserved about the level of expertise they have achieved. The comments of one very experienced and dedicated medical teacher, indicate a humility about expertise level that may be more common in the community setting. The Participant reflects that she started teaching, continued to develop teaching skill through faculty development, and reached a higher level of teaching competence:

> "You know, when you've been out in community practice for a long time, you never have any formal instruction and then you kind of just start doing it. Does that make you an expert? I guess it is a lifelong learning, or it is a continually evolving process, because I think that I have been to enough faculty development myself now and…observations standing over quite a number of years, you have a framework on which to put some of that stuff." – Participant 8

The Transformed DME campus is a site where there are more Medical and Expert Teachers. Some teachers have a higher starting point on the teaching skill ladder, and some have more ultimate potential to excel. All are practising in an environment where feedback from learners and peers drives ongoing growth and can inspire participation in faculty development.

3.4.2 Learners – Transition to New Faculty

When a campus is first implanted in a community site, all the local clinical practitioners and new local faculty were trained at other centres, usually at academic sites. One of the reasons to implant a campus is that administrators hope new graduates of the DME campus will stay and practice in the area and alleviate local health workforce challenges. During the launch of the campus, the opportunity to alleviate provider shortages was promoted to the public and was very popular. As DME graduates complete training and seek a practice site, many do remain in the area and become new faculty. This process lends further momentum to the transformation of the campus site. A higher number of faculty can promote teaching participation, as there are more hands on deck to share the

workload. The transfusion of new, young, community trained faculty can change the culture of the teaching environment. New recruits enter the community with the awareness that it is a teaching site and that teaching will be a part of the job. There are many opportunities for new faculty to take on local campus leadership roles and perpetuate the growth and development of the DME site.

Our analysis revealed that there is a sense for a need to renew faculty, such as happens when DME graduates stay in the area. A Participant discussed the need for faculty renewal: "You had the 'hostages' before me then there was sort of a core group people who were taking students over and over again…we want to expand the pool of preceptors try to not burn out the people who were supervising people all the time." – Participant 12.

An example that was discussed during our data collection, that highlights the potential for learner recruitment is that of the Emergency Medicine residency. A third year of training in Emergency Medicine for Family Medicine residents is offered at the Waterloo DME. Funding for this year of training is provided through a grant by community partners, as the community perceives a need for Emergency Medicine physicians in the region (Weidner 2016). One of the emergency medicine physician participants speaks to this relationship:

> "The fact that we have this [Family Medicine Emergency Medicine] program means that we are attracting better people that are more valuable in the long-term. Twenty years ago, there wasn't this [DME campus] right? So,

> people [choose to] settle here because they want to see patients, and that comes with a package [that includes teaching]. Over time I hope we find the right match between the learners and the faculty, and the culture will change." – Participant 15

There can be momentum when the education culture is building. As more learners stay on and when the department is fully staffed, it is easier to get everyone to participate in teaching and get a faculty appointment, except for a few holdouts:

> "I think it ebbs and flows depending on the man power and situation so when we were full … we tried to make it mandatory [to get a faculty appointment] so that worked well so basically most of us are faculty appointment now. There were a few people who wouldn't make the jump and they've been around forever, and I've given up on them." – Participant 15

Being a newer campus, opportunities to get involved are available for even learners and junior faculty to take on leadership roles. In the transformed campus, new recruits who are interested in teaching may be a better fit.

"So, they [the new faculty] are a new generation of people. My perception is, if you just want to kind of come here and put your head down and do clinical work, that is not the right fit…We're not "community" enough for that anymore!" – Participant 11

3.4.3 Feedback – DME Site and Academic Site Feedback Exchange

The Transformed DME site is a feedback laden environment with multiple exchanges of feedback at all levels. Our data analysis revealed some of the characteristics of the DME that promote feedback exchange between faculty and students. The smaller size and of the campus and proximity of learners to teachers may promote the use of student feedback to make changes to learning materials and curriculum (although the smaller size can also lead to delays in teachers receiving direct feedback about teaching skill, as described earlier). The feedback loop between the DME campus and the academic campus site is also unique to the distributed medical education model. The presence of videoconferencing and other distance learning equipment at the DME may allow for some transmission of feedback to the main campus site and vice versa. Feedback from the public is an interesting concept that was brought forth in our data analysis.

At the DME site there is a less hierarchical structure and much more contact between faculty and learners. Student feedback is incorporated into curriculum development, leading to locally tailored solutions to challenges, in addition to its use in identifying gaps that could be filled with faculty development. The following is a description of how a learner at a DME campus helped to develop a curriculum for clinical skills. The resident had received positive feedback from students: "There is a [resident] who really does great job with this, he teaches at one of clinical skills MFs [Medical Foundations pre-clerkship modules] and the students love him." – Participant 12. This encouraged the faculty to promote his

involvement in curriculum development. This is an unusual project for a resident to take on, on such a scale as is described. The curriculum is successful, and the resident becomes a recruited faculty member, who also steps into a leadership role on the campus. This rapid promotion to leadership and the close relationship between a learner and campus administration faculty is more likely to be observed at a DME site. After the faculty observed the teaching materials that the resident had developed, the resident was encouraged to expand the material, with some faculty feedback and support, and in due course, the learners graduates and becomes a faculty member: "[The resident], of course, has now became director of clinical skills for [the campus]." – Participant 12.

In the setting of the Transformed campus, receiving feedback is seen as a tool for improvement, rather than as a punishment, and this signifies the maturity of the campus culture. A Participant shares the idea of using feedback as a constructive tool:

> "The feedback should not be about: 'You're bad because you missed something', but: 'Okay, you need to be aware what has happened and going forward you need to develop a plan for how not to happen.' And that's a very different way of giving feedback. 'What are we going to next time?'" – Participant 13

In this spirit, our data analysis indicated that feedback can be gathered from faculty who have been teaching for a while to rejuvenate departments and revive the

faculty's energy. The description below also speaks to the iterative nature of the feedback cycle:

> "…Doing outreach to our preceptors in [place name] and [place name] and other places to find out what's working for them at their site. What is not working? To update them continually on our program and the…just to find out…what is working when you take our…residents?" – Participant 11

One of the faculty development events which we observed in our study was a meeting of faculty from a residency and some of the specialist supervisors who were having contact with the residents during rotations. One of the purposes of that event was to get feedback from the specialists and the core residency supervisors about the teaching sites and the teaching experiences in that area. This was feasible given the smaller size of the community and manageable number of preceptors.

Distance learning technology, such as videoconferencing, is an essential tool at a DME site, and can be used to exchange feedback between the DME and the main campus. It can also allow for the Transformed DME site faculty to reverse the usual direction of information from academic site to DME. Below is an example which illustrates this.

A faculty member in the community who has recently relocated from main campus describes how student feedback about videoconferencing motivates an examination of the level of expertise needed to deliver curriculum content to

learners. Distributed sites learners demand more locally delivered content which not only requires infrastructure support, but also faculty commitment and skill. The DME faculty could even provide content that could be transmitted to the learners at the parent academic site. This would signal an equivalence of faculty at both sites. The participant reflects that the DME campus has matured and has more capable faculty.

> "Whereas the big challenge and complaint (at a DME site) was: "How come we have to sit here and get so much of our content delivered by Hamilton? Why can't we deliver it locally? Why can't the flow go in the reverse direction for a change?
>
> I think that you're now seeing some maturation within the regional campuses that there certainly are people that can more than adequately deliver great content from the regional campuses and direct them out to (the main campus).
>
> It would go a long way to boost the image of students that are getting their training out here in these campuses and raise the profile of the (DME) campuses in the eyes of (the main campus)." – Participant 2

Another source of feedback about a community DME site and its people is the community itself. Although this was not a major theme in our data analysis, we did find some data that the transformed DME campus may better respond to society's expectations of its medical professionals. A Participant who has been involved in liaising with community partners offered:

> "I think [the DME campus presence] does drive quality, drives change and in fact, I think the public likes it. They like knowing their hospital is looking out for them in terms of best or better practices and that they, they can actually showcase what they can do to future practitioners. And the hospital, and the patients actually generally like to participate in that."– Participant 15

Feedback is implicated in the maintenance of a high functioning and quality driven distributed medical education site. When the campus has gone through its Transformation, there needs to be continuous and iterative feedback between learners, faculty at both DME and parent site, and the community itself. Some of the unique characteristics of the DME site facilitate these robust feedback loops.

3.4.4 Faculty Development – Towards a Locally Based Model

When a campus opens its doors in a community site, faculty development is essential for clinical practitioners who are new to the teaching role. Early faculty development topics may be introductory, such as the content and structure of the medical school curriculum, but a more developed campus needs more sophisticated faculty development. In our chemical reaction metaphor, the maintenance of the reaction requires the addition of new reactants. Some of these reactants may already be in the reaction environment, and just need the right conditions to combine. Creating the right conditions for the product compound to be produced means overcoming barriers to faculty development and identifying and creating motivators.

Barriers

In describing the barriers to participation in faculty development, many of the participants included barriers to teaching in general. These barriers are likely very similar to those at the academic site, such as: competing priorities, perceived lack

of value, inconvenience, time pressure, and unappealing format. Below, a Participant recites a list of the common deterrents:

> "People are so busy … many would view teaching and education, especially in the more distributed sites, just almost like a sacrifice…something that they do because they know it's a good thing, it makes their life busier, maybe makes their day slower. The stipend you get is negligible and so it's a…professional sacrifice of some kind." – Participant 7

Being at a DME, much is offered at the academic site, but the travel is a deterrent:

"I think people are disinclined to travel to [academic site]. I've gone…myself a couple of times for orientation for new faculty, it wasn't particularly geared to the distributive campus, so there was a lot of stuff, there wasn't really relevant to me." - Participant 8

Working in a smaller group within one's own department, using technological educational tools as needed, would be preferable:

> "A lot of our CPD now is being delivered very close to home, right? It is OTN [provincial videoconferencing network] , or it is webinar, or it is in the hospital. And so, a lot of these groups, you take the [subspecialty] group, it is 12 people, 15 people…would be a in fact, would be a quite nice size group to do something with." – Participant 4

Our data indicated that there are frequent faculty development offerings, but their low rate of attendance may be due to a lack of connection with the community faculty. A Participant with a community faculty developer role describes the frustration that can be associated with some of the feedback that has been received:

> "The feedback that we heard back is that…we don't offer anything. Well, I would have loved to have gone to talk with these people, said you know, we sent you this, and this, and this. The newsletter come out every Thursday, and you know it is all in there. But, I think what they are trying to tell us is we are not reaching them personally, we are not reaching their personal needs and questions." – Participant 12

A Participant touches on the role of 'connecters' in the milieu who can help overcome the barriers, which can be small but significant:

> "[Name] talked about 'connectors', and they make things happen. But if you just put out a sterile message to people, it's like, 'Where do I go?'. Even the parking's a bit funny when you go to the medical school, don't you find? It's awkward, so there's little things, little barriers." – Participant 4

Technological tools arose in our data analysis as potential ways to bridge a barrier:

> "If you look at the number of hospitals now, they're getting their rounds broadcast…and interactive. You can tap in, we talk, and so they then establish themselves as the center of excellence where it reflects well on them and yet there is good education going on at the other campuses, but sometimes it's not championed." – Participant 4

Motivators

Motivators at the DME site share some similarities to those at the academic site, and include: recognition and reward, need to close a perceived gap in teaching skills, economy, and peer feedback.

The rewards of teaching and attending faculty development at a traditional academic site may not be attractive to community faculty. A Participant describes the lack of appeal of the academic merit points system: "In an academic center…being a program director, being on different committees for education …

that gets you AFP [alternate funding plan] points. We aren't part of that. We don't get those academic merit points; they don't mean anything to us."– Participant 9

Another Participant alludes to the differences in the motivators:

> "It's always…about keeping people engaged in the community and teaching, and how to do so without the different kinds of incentives compared to academic center. Most people here aren't concerned about getting tenure or whatever, right? So…I hope the people who are teaching and the people who want to be teaching and not because they have to." – Participant 6

Our data indicated that more immediate small rewards, or a more locally relevant form of recognition has value. For example, a Participant shares examples of the small forms of recognition that he finds motivating: "…Even little things, in terms of…teaching recognition…a little plaque saying: 'This is an official teaching site' from the med school. I had a pre- clinical student…who gave me this little thank you card…little things like that, right?" – Participant 4

A trackable record that the teacher participated in the faculty development session is also of value:

> "I think a lot of people also feel that if they are going to do this, they might get one CPD point if they can figure out how to put it on their file. So, maybe there is a regional or local 'bon-bon' that says, you know, [Name] has demonstrated or attended these core sessions for teaching students." – Participant 5

Peer feedback, or peer pressure can play a role in encouraging participation. The culture of the DME site changes as more faculty are recruited. A DME campus

education lead describes using positive peer pressure to encourage attendance at faculty development events. This is more effective when done by a peer leader, and when there is a culture of group co-operation in teaching duties. The participation in faculty development is implied as an obligation and feedback is given to those in the group who do not attend.

> "Newer faculty are pretty pliable. They're going to probably show up [to faculty development sessions] because it takes a lot of, you know, to tell you no. Or to tell you yes, and not show up. So that's why we're going to start this thing where our team leader will call them [the no-shows]. Like, "Wished you would've been there." And so that's probably a step towards mandatory. You know, you get people kind of going with an implied obligation. And then eventually make it an obligation." – Participant 12

As programs at the DME move from being novel to being established, they periodically undergo curriculum renewal, an arising condition that can drive faculty development. Below is a description of a new element to the family medicine curriculum, which leads the faculty members to determine if one of them has some expertise to share with the rest of the group.

> "One of the more recent ones is the students' requirement to do some narrative writing in palliative care. That used to be sent off to [the academic site] … but now they've decentralized that out to the community preceptor ... Many of us are not that comfortable in writing them let alone offering feedback and critique on someone else's narrative writing so this is the next opportunity that I want to work on for faculty development. We'd have to just source out some experts within our group … to get their expertise." – Participant 14

Clinicians in the community have many competing priorities and the traditional model of taking a half day or evening to do a faculty development workshop is unattractive. The option of a local session with peers is more appealing.

> "You have to decentralize it a little bit where I'm not giving up office time, not travelling and paying for it. It speaks a little bit to the idea of like a community of practice of people who are teachers. In those settings its almost the more the informal discussions that are the most helpful. You can go through the module and that's fine but it's often the off-topic conversations that are triggered, in the other discussions about challenges and opportunities that you really do learn the most from." - Participant 16

Towards a new model

For any medical teacher, faculty development needs to make economic sense, in terms of time, energy, and money. In the community, this factor can promote locally delivered and developed faculty development content. A Participant describes this: "So there has to be the currency that matter to them [DME faculty] as well. Bringing the faculty development sessions to them instead of expecting them to come, I think is the only way we're going to move forward in the community." – Participant 6. The Participant goes on to propose a model for local, convenient faculty development:

> "Delivering it in a half an hour session at their business meeting, delivering it in a 30 minutes session at their journal club or grand rounds or something else, and showing them every single way they can get currency out of it. For example, you can get 15 credits per hour of faculty development related to curriculum designed for CPD." – Participant 6

The model of a smaller group, local session was also described by a Participant who is also a faculty development lead, and part of the idea comes from the feedback that has been analyzed:

> "We've gone through a couple cycles here of needs assessment, until I have more needs assessment then I know what to do with. And faculty development hasn't changed. So, where I think the future lies, is in smaller groups. Often identified at a departmental level or in a discipline." – Participant 12

A specific example:

> "The [subspecialty] physicians say: 'We want to learn about the evaluation.' And use the campus, or faculty development network, as a resource to provide that what they want, in their space, at their time, when it is important to them to hear about it and to give them ownership of it." – Participant 12

Eventually, a culture of locally based, regular faculty development can precipitate out of the solution. The correct conditions include the co-delivery of brief educational sessions with activities that clinical practitioners are more likely already to be involved in within their own group, and the addition of regular feedback from the leaders at the main campus. In addition to promoting the formation of the insoluble DME compound, there may be the additional facilitation of the reaction with increased recruitment of new faculty. The vision is described below:

> "Sometimes you need to tap in to existing structures and co-opt them for your academic purposes. You can clearly deliver some faculty development type topics there [in departmental rounds] and some of the people that attended won't even be faculty but that could be an opportunity for them to sign up and become faculty … Once they start seeing it, then there will be questions then there will be engagement, then it could lead to more connections. And frame it in the way they can say: 'Hey you guys, after you finish this session, you will achieve x, y, z, right?'" – Participant 2

In an aqueous solution (community site), positive cations (faculty) and negative anions (learners and faculty development) are attracted to one another, and combine to form a new compound, which is insoluble (the DME site).

3.5 EXAMPLE: Problem Based Learning for Tutorial

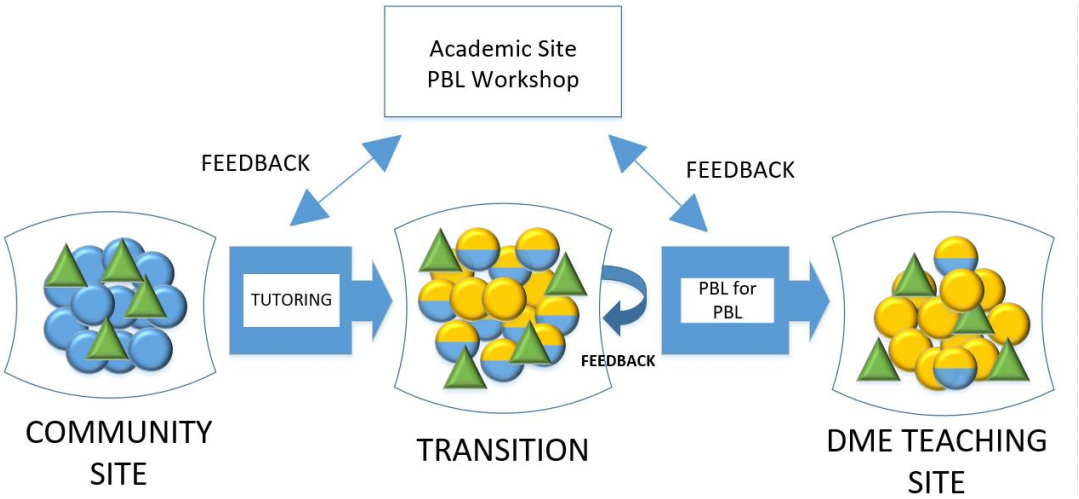

Figure 5 – Problem based Learning for Tutorial

"[Teaching] may be harder for senior people who have been out of the teaching world, out of the lingo of medical education. Some of us were never exposed to problem based learning and we are very removed from the modern teaching technique."

"The…problem that we had was getting tutors … we were responding to real life requirements. We thought: 'Let's get people to get the hang of PBL by doing a PBL session.' So, I just gave them, read them the cases, we did 2 or 3 PBLs. We twisted the arms [to get participants] at first … and then eventually those people talked to other people and said: 'Hey, tutoring is really cool … I went to that PBL thing and … I really liked it.'"

"So, I developed a little course called PBL for PBL. It was 2 nights, and we ran it. This is what [the main academic site campus] does, basically *our* program. We started it here, what all [the main academic campus] is teaching tutors with. You see those slides? Those are our original slides, most of them are from here!"

Community Site: The undergraduate campus was first to be implemented at the regional site. The students required tutors to facilitate 6 hours of tutorial per week,

for an average of 12 weeks at a time. The format was Problem Based Learning or PBL, a longstanding concept, but one with which many clinical practitioners were not familiar.

Transition: There was an immediate need for faculty development. A PBL tutoring workshop at the traditional academic site was four half day sessions, which was not thought to be feasible at the community site. A more locally suitable model was developed by the local faculty development leader. There was some identification of potential tutors from the local pool of clinicians, and these individuals were encouraged to participate in the workshop.

Transformed DME Teaching Site: The local campus adapted existing modules for training PBL tutors for use in a community setting. The main adaptations were to make the modules shorter and more interactive. The main academic campus was so impressed with this community-based innovation that the materials the community developed are now used at the main campus for all tutor training.

4. Discussion

4.1 Introduction

Distributed Medical campuses are a newer model of medical education delivery that addresses social accountability and capacity issues. Medical education had previously been delivered in a silo at an urban academic centre attached to a major university. This model, which advanced medical knowledge and research pursuits, nonetheless had a perhaps unintended consequence of concentrating medical professionals and healthcare delivery around these geographic sites. Health inequity is naturally associated with geography, as it can be more challenging to deliver healthcare resources to those living in remote or rural locations, but this phenomenon can be exacerbated if there is a dearth of medical personnel as well. At the same time, capacity in urban medical schools was reaching a breaking point, with more students than available clinical placements. Enter the DME (Distributed Medical Education) site, which can take the form of clinical placements for students sent out from the academic site, all the way up to a stand-alone (but typically affiliated with the urban university) campus. These DME campuses were charged with educating future physicians in a community setting, and meeting all standards of accreditation, which include the recruitment and maintenance of a fully trained and capable teaching faculty. As a side benefit, the expectation was that many of the DME site graduates would remain in the community to address local health

care personnel shortages. Addressing health inequity and expanding medical education are laudable goals, but to make them a reality, there were growing pains. Community-based medical education activity, sparked by the arrival of learners, meant that community clinicians had to take on new teacher roles and identities. Many of the challenges of becoming a medical teacher are similar at an academic or DME site, but there are some features of the DME campus which are unique and require locally relevant responses. Faculty development is designed to give medical educators the necessary skills to teach in an effective and efficient way, and we wondered what the community faculty thought about the role of faculty development in their own teaching practices. We found that DME site faculty did recognize the value of faculty development in facilitating the transformation of teachers and the campus itself, but our findings suggest that it is most effective when tailored to the DME setting. Our study delved into the perceptions of DME campus faculty and added to our knowledge of the transformative nature of teacher development, the roles of learners and feedback in this process, and the potential to amplify the effectiveness of faculty development with innovative and customized community-based approaches.

After summarizing the findings, I will discuss four key elements:

1. Perceived cultural differences between academic and distributed sites,
2. Developmental arc of DME site faculty,
3. Value and role of learners at the DME site, and

4. Faculty development importance and optimization at the DME site.

These elements will be related to existing knowledge on the implementation and maturation of distributed medical education sites, the development of community teachers, and the importance of responsive and curated faculty development for different teacher populations, and will point to intriguing implications for research and practice such as the central role of learners in teacher development, and the potential for communities of practice to be an effective model for faculty development at DME sites.

4.2 Summary of Findings

4.2.1 Faculty and DME site transformation

Clinical teachers are the backbone of medical education, which is largely workplace based, and all the participants in our study fit this descriptor. Most medical teachers are also busy clinicians, particularly outside of the academic teaching centre. When a distributed medical education (DME) campus is implanted into a community, the clinicians are asked to take on teaching roles, because of a top-down administrative decision. In practical terms, this translates into having a student implanted into the clinician's workplace, which can add additional work for the preceptor. The temporal and practical cost of participating in teaching is shared by academic and community teachers alike, however there is

a perception by community faculty that the academic physician has enhanced support from the university. This support is perceived to be in the form of academic merit points, promotion and tenure, direct financial remuneration, reduced overhead costs and protected time for education-related activities. The presence of postgraduate trainees to share on call responsibilities was also mentioned as a significant cultural difference between the academic and DME site. The challenge of this new teaching role, coupled with a perception of a lack of support, results in feelings of conscription into the new regime of medical education. These findings are shared in other studies of DME: Piggott found that DME teachers perceived that their academic colleagues had some perks and advantages that were not shared in the community (Piggott, 2015) and Blitz reported that a preceptor described the experience of the regional dean assuming that the community faculty would embrace teaching willingly as feeling like "colonisation" (Blitz, 2014).

In the current study, community teachers felt they had a lot to offer learners and the university. They craved feedback about teaching skills and welcomed the cycle of input from learners. Some community teachers expressed that they feel underappreciated by the parent campus, which, although a negative perception, speaks to a sense of esteem in one's own abilities, and a sense of the inherent value of the DME site. Our study found that community teachers experienced an enjoyment of teaching, a sense of satisfaction in contributing to medical education,

and a desire to learn more about education, which has been identified in prior qualitative work with DME site teachers (Blitz, 2018, Maley, 2010, Piggott, 2015, Hanlon, 2010).

In our study, there were individuals in the DME campus who meet criteria of an expert teacher, and who identify as such. Some of these expert teachers came into the DME environment with some academic experience, while others matured into expertise at the DME campus. The DME campus at which we interviewed participants has been in operation for over ten years, and the current teacher mix is a combination of new faculty, who joined after the campus was established, and those who had a clinical career in the community before the campus opened. There are experts from both populations, and our group was similar to groups of community teachers described in other literature, in that it was heterogenous (Hanlon, 2010, Maley, 2010, Blitz, 2018, Piggott, 2015). Other authors have described stages of maturation of teachers in a distributed campus (Maley, 2010, Blitz, 2018). Using this lens to consider our setting, we conclude that our faculty is at a mature stage, having moved beyond concerns about the basics of curriculum content and teaching logistics, and discussing the importance of recognition and increased responsibility for teaching activities. The implication of this finding is the demonstration that a clinical community site can transform into a teaching campus, with a cadre of teaching experts, catalyzed by learner presence and facilitated by faculty development, although there is more work to do to ensure the ongoing

vitality of the DME site. Like a chemical reaction, the metaphor upon which we drew to describe this transformation, there is a need for monitoring and ongoing addition of reactants for the production to continue. Mentorship from more experienced or expert teachers, and networking with peers who are engaged in teaching are two ways to ensure the persistence of medical teacher enthusiasm and engagement. These can grow naturally out of existing working relationships in the physician's environment, such as a practice group or specialty department, although ongoing support from the academic site is also vital. The relationship with the university can evolve over time, so that as the DME site matures, community medical teachers look to the university less for reassurance, and more for recognition and receptivity to community-based innovations. There also needs to be ongoing addition of learners to the scene, so that medical teachers can practice learned skills and face the challenges that inevitably arise.

4.2.2 Role of learners

The role of the learner as a catalyst to teacher and campus transformation was a surprisingly important finding. As in other studies, our participants indicated that student presence can spur medical teachers to stay up to date themselves, and learners can even directly teach the supervisor about the latest clinical evidence. Students are developing their knowledge base and receiving training in making evidence informed therapeutic choices, whereas a preceptor may not have examined a practice pattern for several years, until questioned about it by a

learner. Additionally, at our site learners are required to participate in quality assurance research which can assist the preceptor in assessing his or her practice. These findings were similar to themes brought out by Blitz in her study of "emerging" teachers at a South African DME campus, in that preceptors enjoyed learning *from* and *with* students and felt the relationships with the learners was a positive aspect of teacher transformation (Blitz, 2018). Leaners can inspire faculty members to upgrade teaching skills, particularly if a difficult teaching situation is encountered. One of the participants in our study described a faculty development event which had direct student participation, whereby the student was simulating a teaching encounter with the faculty member, which was then observed for the purposes of feedback to the faculty member. This is a concrete example of how learner presence is integral to the transformation of the DME faculty and the campus.

Another advantage to having a campus in the community was the recruitment of new physicians from the DME campus learner pool. Echoing the findings of other researchers (Hanlon, 2010, Maley, 2010, Blitz, 2018, Rourke, 2018, Wenghofer, 2017), recruitment of new physicians into the community was a major advantage to the DME campus. Our study expanded on this concept in that participants saw new faculty as advantageous for their teaching skill, not just their ability to share the clinical workload.

4.2.3 Faculty development

Our study confirmed that there is a perception amongst community faculty of a distinct DME site culture, different to that of the parent academic site, and we used this perception as a launching point to explore potential locally relevant rewards for teaching, and for faculty development participation. For example, the opportunity to do accredited faculty development was a positive side to the campus presence, which has been reported in other studies of community preceptors (Hanlon, 2010, Piggott, 2015). This suggests that participation in faculty development is inherently valued, although barriers to feasibility and efficiency are real. The barriers to faculty development participation identified in our study were not unexpected and included time constraints, competing priorities, expense and perceived irrelevance. Many prior studies looked at barriers to participation in teaching in the community, and found that financial concerns (Piggott, 2015, Curran, 2006, Graziano, 2018), geographic isolation (Curran, 2006) and workload pressures (Piggott, Curran, Graziano) were most frequently cited. Graziano and Piggott also indicated that lack of confidence in teaching skill and difficulty giving feedback were challenges for community-based faculty, both of which are popular topics for faculty development sessions. We found that community physicians prioritize clinically related continuing professional development (CPD) over medical education skill development but considered faculty development to be a part of overall CPD, which is valued and seen as a necessary part of professionalism. Most clinically

related CPD takes place within a physician's specialty or practice group, and our findings suggest that this phenomenon could be leveraged to increase exposure to faculty development.

These findings resonate with the concept of a Community of Practice, which is a social group within which workplace learning occurs (Wegner, 2010). Irby and O'Sullivan draw upon the work of education researchers to propose that the workplace community (groups of physicians in practice) is as important as the faculty development community (administrators, facilitators and curriculum developers) in conducting research around faculty development. The ideal faculty development model for the DME campus would potentiate the combination of dual communities of practice: that of the faculty development community (parent academic site leads, local regional education leaders in faculty development) and the workplace community (hospital call group, practice group, interprofessional practice team or another clinical group). This could be operationalized in a variety of ways, from the careful assemblage of local communities of practice out of existing DME site working groups, to the ongoing encouragement and support of these groups by local and academic site teaching experts and leaders.

4.3 Alternative explanation for results

We found that the community in which the DME campus was placed had undergone a transformation of faculty, with many new recruits and a concomitant

change in clinical service delivery models. During the time that the campus got up and running, two family health teams were established in the region, which are large networks of primary care providers and other health professionals. These groups were established to address the fact that the region was designated as underserviced in primary care and are training sites for a satellite postgraduate training program in Family Medicine, so that there was an influx of postgraduate learners at the same time as the establishment of the undergraduate campus. The hope was that the residents who trained in the region would remain to practice. The enhanced resources that were injected into the community with the family health team establishment contributed to a synergy, whereby many undergraduate students went on to stay at the campus for postgraduate training and subsequent practice. Later in the campus' development, there was a recognized need for an enhanced Internal Medicine service at one of the hospitals in the region, which led to the establishment of a Clinical Teaching Unit ward and recruitment of numerous Internal Medicine Specialists. Like the family medicine teams, the expansion of the Internal Medicine service took place within a few years of the establishment of a postgraduate training program in Internal Medicine at the DME site, and again there was a synergy with recruitment of new specialists, some from the regional resident pool. The health service delivery changes were influenced by the implantation of the medical school campus but may have occurred in any event related to other developments and changes in the healthcare landscape, such as community need. If the campus had not been established, it is likely that learners

would have continued to be present in the community, in the form of electives or community core rotations, and some of the effects we observed may have occurred with this low level of student involvement, even without a discrete campus presence.

The value that our participants ascribed to faculty development may have been influenced by the increasing compartmentalization of physician competencies, à la CanMEDS framework, which has been developed over a similar timeframe as the campus expansion and may not necessarily be related to the insertion of learners.

4.4 Strengths & Limitations

The strengths of this study include the embedded nature of the researcher in the DME site, the breadth of types of data collected and the variety of settings in which the data were collected. The primary investigator, a faculty member at the main DME site in the study, has been a regional education lead in undergraduate and postgraduate internal medicine programs, and a clinical teacher for learners at all levels. During this work, many collegial relationships were built, which helped to enhance recruitment to our study and pique local interest in the topics of faculty development and distributed medical education. Having had the experience of being “in the trenches” with the interviewees, there was an atmosphere of openness and informality which promoted candid and in-depth sharing by the participants. In the interview setting, the investigator’s experience also encouraged

the use of probing, follow up questions which added to the richness of the data. Our data collection included interviews and observation of actual faculty development events, which broadened the types of information gathered and allowed for comparison of data between types of collection method. We also had the opportunity to interview participants from two different DME sites, each with its own culture and health services infrastructure, further enriching the data mix.

Our findings are limited by the type of clinical teachers who chose to participate. With purposive sampling, we focused on those who had experience teaching, and our sample may have been weighted towards those with an interest in medial education. Many of participants also had regional education lead roles, which would include individuals who have some enhanced knowledge of educational principles and would have most likely have invested some time and energy in faculty development, as a participant or a planner. Most participants were specialists, and views may be different among primary care providers in the community. We interviewed only physicians, not other health professions, many of which have a long history of community-based education at our site (e.g. nursing). Individuals from these professions may have been important to canvass regarding community medical education and faculty development in the region, and future research in this area may choose to expand to include these interprofessional perspectives. Our site is a DME campus, but is not particularly rural or remote, and is within a one-hour drive to the main academic site. Videoconferencing and other

distance learning technology is used regularly for learners and faculty members, but it is also feasible for travel back and forth for face to face interactions as needed. Findings may be different at more remote or distant DME sites, where there is more reliance on technology and less in person interaction with the parent academic institution. Some of the relevant literature was at DME sites that were more disparate and remote and may not have been as applicable to our study as we had assumed. We did not interview learners, although some were present at one of the faculty development events that we observed. Given the importance of learner influence on our findings, this is an area for expansion in the future.

4.5 Implications for Educators

Our study provokes more questions about how to nurture and reward community-based faculty at a DME campus. The culture at a distributed campus is different to that at its parent academic site, regardless of geographic proximity and strength of relationship. Recognizing and leveraging this difference will be important in creating an appropriate remuneration system for DME teachers, financial or otherwise. This reward is likely outside of a regulatory body-based certification system and must have value in the context of the local culture. It may include such things as verbal recognition at medical staff meetings, teaching awards or certificates of completion that have value for promotion or points that can be exchanged for “perks” (free coffee, preferred parking, a plaque, or whatever is locally valued).

Like the rewards system, the model for faculty development participation in the community must be locally relevant and locally based. A Community of Practice model for faculty development should be formally implemented at our site (or more formalization should be offered to existing educational communities of practice), and these should be evaluated regarding acceptability, feasibility and outcomes for effect on teacher skill and impact on learners. This model could be particularly relevant to faculty development in a DME setting for the following reasons:

1) *Efficiency in community setting.* The workplace community as a site for faculty development can increase efficiency in a community setting, with faculty development activities co-located with other work-related activities that clinicians need to attend. This idea came out strongly in our study, as participants indicated that community physicians are more likely to attend clinical practice related events, such as department meetings, and would be present for some "collateral" faculty development if it were offered simultaneously. For example, small portions of faculty development content (15-30 minutes in length) could be delivered by a local or academic centre education expert during existing clinical rounds or administrative meetings.

2) *Opportunities for Virtual Communities of Practice.* Communities of practice in the Irby and O'Sullivan model emphasize networking between faculty members at different sites, which could work well in a DME site that has remote or disparate settings. Most clinicians in a DME site, particularly those that are rural or remote,

have some experience with teleconferencing technology which would be a valuable tool in building and maintaining a DME site Community of Practice. Virtual Communities of Practice (VCoP) have been well described in the business literature, and to a lesser extent in healthcare databases (Barnett, 2012, Mather, 2014). When the right conditions are met, including facilitation, championing, a supportive environment, shared goals, measurement and feedback, and appropriate technology, a successful VCoP can flourish, and there are published examples from healthcare settings where VCoP have supported excellent clinical care (Curran, 2009, Kilbride, 2011). There is no reason to believe that this could not also happen in the realm of medical education. Most VCoP function optimally when the group members have periodic in-person meetings (Barnett, 2012), and this would be important to build into a DME site based VCoP model.

3) *Locally based education.* Locally initiated and managed faculty development is preferable based on our findings, although there needs to be adequate mentorship, support and recognition from the parent site. Irby and O'Sullivan's model emphasizes that faculty development learning should take place where the faculty is likely to be teaching, i.e. at the DME site, which would minimize the need to travel back to the academic site for faculty development sessions. Our findings included the idea that members of the DME site faculty can generate faculty development content which could be shared between the community faculty, as well as with academic site colleagues. DME site faculty, in the supportive

environment of a Community of Practice would have the scaffolding to make these educational offerings successful.

4) *Reduced isolation*. The Community of Practice model encourages collaboration and relationship building between teacher colleagues, which could reduce some of the potential isolation at a remote or far-flung DME site. Use of technological innovation could further bridge geographic gaps between Community of Practice members. A Community of Practice model for faculty development at the DME site would greatly reduce the need for travel back to the parent site, although it could be easily adapted to have input or mentorship from an expert at the academic site. Given the tension between parent campus and DME that was described in our study, any feelings of isolation, lack of support and inadequacy could be exacerbated if faculty development is fully centralized at the academic site.

With the right reward system and a robust faculty development program, expert medical teachers can be developed and can flourish in a community, DME campus setting. With time, there can be equalization of medical teachers and physician human resources across the country. The goal of having local individuals train, and then remain in the rural or remote region to serve as physicians is within reach, with the appropriate intervention.

The role of learners must be appreciated and examined in more detail in the context of distributed medical education. Learners are the raison d'etre of the medical teacher (as patients are the raison d'etre of the medical school) and are integral in the development of teaching experts in the community. Interactions with students can inspire the creation of learning goals and our findings included examples of direct learner involvement in faculty development which was innovative and positively received. Learners can provide valuable feedback to the developing teacher. It is still unclear how to best deliver timely feedback to teachers without compromising the impact on learners, and more research in this area is needed. Learners from a specific community, who have been selected for entry in a DME site medical school, to train in that same community, are most likely to remain there to practice. This pattern can enhance the development of a cadre of dedicated teachers, as this locally committed group will have a vested interest in providing excellent medical education for the recruitment and retention of colleagues. In future research into DME site faculty development, the learner perspective should be sought whenever feasible.

Table 5 – Summary of major findings

Key element	Implications for Educators
Cultural difference at DME site vs Academic site: • Financial remuneration less relevant at DME site • Promotion and tenure less important at DME site • Practical value of learner presence different at DME site (less on call coverage by learner)	• Reward system for DME faculty must be locally relevant • Learning communities (Communities of Practice for faculty development) should be composed of peer groups within the DME site with appropriate input from academic site colleagues
Faculty development: • Accredited faculty development opportunities are valuable • Faculty development is not prioritized over medical expert CPD	• Co-location of faculty development and other CPD may be an efficient strategy • Use of technology could increase efficiency at DME campus • Community of Practice model to address Faculty development in DME setting should be implemented and assessed
Expert teachers can develop in the DME site	Identification and empowerment of local experts can amplify DME campus efficacy
Learners add value to the DME site: • Learners encourage maintenance of up to date knowledge base • Provide feedback about teaching performance and can inspire teacher development • Staff recruitment from DME learner pool	• Feedback rich environment needs to be actively cultivated • Involvement of learners in faculty development should be considered • Selection of candidates with ties to DME region, and interest in medical education

4.6 Conclusion

The purpose of this study was to explore the perceptions of community-based faculty regarding faculty development participation, to determine barriers and facilitators. We found that the DME site, although affiliated with a parent academic site, has its own culture, with specific regional challenges and advantages, which should be considered and leveraged to enhance the development of local teaching experts. Learners are the main reason for the teacher development, and leaners can function as a resource, and as a source of future medical teachers. Community faculty enjoy teaching, are interested in feedback about their teaching skills, and can transform into expert medical teachers. They are active in continuing professional development and prioritize clinical skills and medical knowledge over medical education skills. As such, effective faculty development needs to harmonize with a community teacher's clinical activity and occur in the faculty member's circle of practice. A Community of Practice, whether virtual or in person, would respond to this requirement. It would foster the longitudinal, feedback-rich environment needed to transform the DME campus' faculty into a team of medical teaching experts, and in turn, to develop the future medical professionals for the community in need.

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Appendix A Recruitment Email

E-mail script:

“Dear Colleague:

You have been invited to participate in a research project. The purpose of this study is to determine the barriers and motivators to participation in faculty development sessions for clinical teachers at a distributed campus.

We hope that our study will allow our campus to offer faculty development sessions that are valuable and well-attended.

You are being approached to participate because of your role as a clinical teacher. Participation is completely voluntary and involves an interview of 20-60 minutes at the location and time of your choice, with me (Nicole Didyk). We will reimburse your parking if required.

Thank you for considering this invitation to help improve local faculty development and clinical teaching.

Please reply to this email or call me to arrange an interview.”

Appendix B - Interview Guide

Interview Guide, Version 2.4

Introduction: "We're doing a research project to determine the reasons why clinical teachers at a distributed medical school, like this one, decide to attend faculty development sessions, or not. At our campus, many physicians are asked to participate in teaching of residents and medical students and most physicians don't get a lot of training in how to teach and evaluate these students. The university runs several faculty development sessions each year at our campus and at the main campus in Hamilton, but they tend to be poorly attended. At the same time, all physicians are required to do some type of continuing education activity, broadly referred to as "Continuing Professional Development". I'd like to get your views about any faculty development experience you may have had and what you think would motivate you, as a community physician, to do more faculty development. I'd also like to talk to you about CPD in general.

1. Can you share with me what the term "Continuing Professional Development" means to you as someone with a community-based practice?

2. Tell me about what you do for Continuing Professional Development.

2.1What do you look for when choosing CPD activities?

2.2 What would make you avoid a CPD activity?

3. Now I'd like to ask you about your clinical teaching experience. I'd like to hear about the most difficult situation you have been in as a clinical teacher. Tell me about any experience or training that helped you in that situation. What kind of training or preparation would have made it easier for you to deal with?

4. How would you define an “expert teacher”? How does one get to this level of expertise? What skills do you need *you* need to develop to get to expert level?

5. What would you think about making faculty development a mandatory part of CPD? Who would be the facilitator/enforcer (i.e. Royal College, Chief of Staff of hospital, University)? How would faculty development fit into the MOCOMP or MAINPro framework?

6. Is there anything else you would like to add?

Appendix C Faculty Development Event Observations

Faculty development event characteristic	**Session 1**	**Session 2**
Location	Community hospital	Restaurant
Timing	Evening	Evening
Topic	Time Efficient Teaching Strategies	Teaching in the Long-Term Care Setting
Participants	6 faculty, 2 students	17 family physicians
Facilitator(s)	Faculty Development Regional Education Lead (NRC)	Family Medicine Residency Program Director (WRC)
Format	Problem-based Small Group Learning Module	Facilitated discussion
Data Collection	Field Notes	Field Notes

WRC: Waterloo Regional Campus, NRC: Niagara Regional Campus