

Leading in a Knowledge Society:

A Teachers Journey into Medical Education

Abstract

Overview: Narrative is an effective method to illustrate an autobiography and self-narrative. It is especially effective at highlighting cross cultural connections and enabling female empowerment. The narrative style of writing was used in this story to highlight significant developments which led to the journey of a young teacher into medical education research. It began from small humble experiments in different medical education contexts, namely: pre-clinical, undergraduate medical school, residency training and continuing medical education, to advising leaders and regulators of the medical profession how they can participate in a knowledge society in the Knowledge Age. **Objective:** This paper tells a story of a teacher who stumbled her way into medical education, by meeting people, locating opportunities and finding inspiration along the way. This story is my living educational theory. **Methodology:** The style of my narrative is supported by an analysis of research conducted by Connelly, Claudinin, Polkinghorne as well as other experts in narrative interspersed. It is a free flowing story starting with excursions to Kenya and Pakistan where the Aga Khan Development Network operates hospitals and universities, higher education opportunities in educational technology and finally work with medical schools across Ontario, Quebec and the New England Area. **Results:** Generally speaking, this narrative provides a convincing account of how one can develop a professional identity, set in motion innovations and assert influence on the development of thought in a specialized community through knowledge building processes. Success at becoming an entrepreneur involves social

factors (e.g. inspirational/like-minded people, guidance, external motivation) and structural factors (opportunities, pressures) aspects as well as the personal characteristics (personal motivations, determination, willingness to work hard, looking for opportunities).

Recommendations: Students should aspire to do innovative and creative things with knowledge. They should be encouraged to experiment and try new ideas in new fields. When there are no funds to test ideas, volunteering is a good mechanism to get your foot in the door and get experience and insight into the work of the profession. This will yield paid opportunities in future as well as opportunities to get your name in the field. **Conclusion:** Leading in the knowledge society means becoming a knowledge builder. Knowledge building should be taught to all learners in every discipline at any point in their life. The theory and pedagogy holds great merit and is something the society and individual can benefit from.

At almost every job interview I go to I am asked: “How did you become involved in medical education?”. That question might be a no-brainer for a person who did their undergraduate studies in the hard sciences, but for someone who did their degree in teacher education and psychology, it is not very common for them to end up in the business of studying the training of doctors. I get asked this question by medical doctors I work with, by colleagues in education, by family and by friends. It seems that few people know that medical education is a field you can study, that you can get trained to work in it and that you don’t have to be a medical doctor to do it. In this essay, I tell a story of my journey into medical education using narrative methodology. Connelly & Clandinin (1990) argue that, “Narrative is both phenomenon and method.... Narrative names the structured quality of experience to be studied, and it names the patterns of inquiry for its study” (Connelly & Clandinin, 1990, 2). My narrative will not tell the story of my whole life, but instead will

focus on my university years and beyond, from 1992 to present. Thus, my narrative like all narratives has “No beginning, no end. [It is] all middle....” (LeGuin, 1989, 39). The sequence of my narrative will follow the natural emergence of the events, which is pretty typical for narrative inquiries: “One method of recapitulating past experience by matching a verbal sequence of clauses to the sequence of events which (it is inferred) actually occurred” (Labov, 1992, 359-360). My conclusions will consist of insights I gained from my narrative journey, that is, on reflecting on my journey in the last 15 years and providing some lessons learned along the way to inspire others to become leaders of the knowledge society we live in.

My Goal was to be a High School Teacher

My journey into graduate studies was a great surprise to me as much as it was for most of my family members. It was not exactly planned from childhood or even early in my undergraduate studies, although the dream to become a university professor was always there. I still remember my first psychology lecture in 1992 at York University where I had a young stylish lady as a professor and the only thought that ran through my mind back then was: “I would love to be her!”. That was just a thought that I never believed I could achieve. While this memory remained strong in my consciousness for most of my undergraduate studies, I became preoccupied with my goal of being a high school biology teacher. My dream was to work with at-risk youth and cultivate in them a passion for sciences like I had. My dream of becoming a biology teacher fell short when one day in 1993, I opened my report card and a grade of D+ was beside my name. This D+ in Biology drastically lowered my Grade Point Average (GPA) and there was a threat of me being disqualified from my

concurrent teacher education program. That threat scared me to pieces, as I had dreamed of being a teacher since childhood.

I quickly had my teachable changed from Biology to Environmental Science to raise my GPA up again. Environmental Science wasn't as prestigious as being a Biology teacher, but I wanted to be a teacher at any cost and changing the teachable would help me to achieve this. Most of the courses I took in biology were transferable to the environmental science teachable, so luckily I only had to take a few more courses in science in areas I was interested in. That was a welcoming change, as having Biology as a teachable meant taking required courses like: *Chemistry, Physics, Genetics, Plants* and the sort - hard subjects to wrap your mind around. Instead, I was able to take courses which interested me like *Animals, Ecology* and the sort. I also made a pact with myself to work very hard at each course and to score only A's. So for the following year, I was able to pull my grades back up to an A average and reinstate myself in the Bachelor of Education degree program.

My dream to be a Jane Goodall in the African Jungles

In 1994, when the school term ended, I finally had an opportunity to travel. After 6 years of working as a Camp Counselor each summer, I wanted to take the summer off and travel. I had taken an *International Development* course as an elective the previous year, and the dream of travelling to Africa remained on my mind. I imagined myself to be a Jane Goodall, working in the rainforests of Africa studying apes and monkeys. Working at the Metro Toronto Zoo Camp was my way of being Jane Goodall. It was too much fun to stop, so before my job started there, I took a 6-week trip to East Africa. I wanted to visit Tanzania where my parents were born and grew up, but we had no family there anymore. My dad's only cousin Sadru had resettled to Nairobi, Kenya. Upon Sadru's visit to Toronto in

February of that year, my dad and I had a chance to speak to him about my interest visiting East Africa, and despite the gory war going on in Rwanda at that time, a decision was made: I was going to Africa.

I had always heard stories since childhood of my parent's experiences growing up in East Africa and I always had wild imaginations of the animals and tropical life there. I was very interested in travelling and seeing this part of the world and so in the early part of the summer after I finished my courses, I travelled to Kenya to see the life my parents left behind before coming to the West in the 70's. Kenya was beautiful and had a vast and rich landscape. I remember how fascinated I was by the beauty of the lush plant life and the red soil everywhere we travelled.



Figure 1: Rich Landscape of Kenya

My very generous uncle arranged a 10-day camping safari for his daughter and myself to visit the major game parks of Kenya. We visited Masai Mara (the famous Serengeti on the Kenya side), Samburu National Park in the North, Lake Nakuru and Amboseli National Park in the South tip of Kenya. We were lucky to see lions, cheetah and elephants close up. We were so

daring to want to live amongst the baboons and crocodiles in our close vicinity as we camped in the jungles and savannah.



Figure 2: Lion after a Kill in Masai Mara, Kenya

When we returned from our safari, my uncle took us to Mombasa, Malindi, Nairobi and Kimlili where we met many Ismaili's. Every Friday we attended *Jamatkhana* (an Ismaili Prayer Hall) in each city we visited. We visited the Aga Khan Hospital in Nairobi, a institution I worked with in a voluntary capacity 10 years later. My dream was to come back there one day and serve in the Aga Khan Development Network as I just loved East Africa.



Figure 3: The Camp Trip Group

My Teaching Expeditions to Pakistan

Later in 1994, as my parents had made a donation to the Aga Khan University our family was invited to attend the celebration for the 10th Anniversary Convocation. In November I flew to Karachi, Pakistan with my parents to see the Aga Khan University. Because it was the 10th Anniversary Convocation, there were 10 days of activities planned from 6am to 12 midnight everyday. We came a little early so we could fly to the North of Pakistan into Islamabad, to take a tour to Muri Hills in the Kashmiri Region. Muri Hills were beautiful. They are the hills that are the beginning of the Karakoram Range in the Himalayas. Although the people wore Indian dresses, they looked Caucasian, with their colored eyes and light skin. I was thinking, are we in Pakistan or Europe?

On our return to Karachi, we visited the Aga Khan University campus with its majestic red marble walls. We also visited several Aga Khan Schools and at one of them, I met a very kind and approachable Principal. I told the Principal that I wanted to return the following year and volunteer in the summer as I was training to be a teacher. He told me that

when I return to Canada to write to him and he would help me find a placement. He told me that Karachi was not in as much need of volunteers as the Northern Areas of Pakistan were. The idea of returning to Muri Hills fascinated me and so that became the plan. Upon returning home, I corresponded with the Principal so that I could volunteer in the North.



Figure 4: The Young Professionals we travelled with in Hunza, Pakistan

In summer 1995, I returned to Pakistan only this time I went high up in the Karakoram Mountains near K2 and Rakaposhi Mountains. The valley was called Hunza and the majority of the inhabitants were Ismaili Muslims. This mountain range has the second and third highest mountains in the world after Mount Everest. As my parents felt it was not very safe for a young Muslim girl to be travelling alone in these places, my mother had located an Ismaili girl, Salima, to travel with me during my return trip to Pakistan. Salima and I became best friends instantaneously. We visited and taught teachers about progressive models of teaching pedagogy at the Aga Khan School in Gilgit, the Aga Khan Academy in Karimabad, the Aga Khan School in Gulmit and Sust, under the supervision of the Executive Officer of the Aga Khan Education Services Pakistan Sadru Juma. Sadru Uncle

treated us like his daughters and on his travels throughout the many villages in the Northern Areas to the different schools, we were invited to tag along and meet principals and teachers with him.



Figure 5: The Children in Hunza, Pakistan

We crossed over and went into China and met Chinese Ismaili's. Most interesting to me was the mixed ethnicities of these Ismailis in Hunza. I had never seen Muslims with fair skin, blue eyes and blond hair. We met a few local girls at the Aga Khan School in Sherquilla at the hostel we stayed at and learned all about the local culture. Interestingly, one of the local teachers Nahida found me on Google in 2005, 10 years later, when she completed her Masters at the University of Guelph and we have been in touch since. Salima went on and became a teacher and is now completing her PhD at the Ontario Institute for Studies in Education at the University of Toronto (OISE-UT). It appears that experience of travelling to the remote areas of Pakistan inspired all of us to pursue higher education and work in developing countries.

Advent of Information Technology and Changing Times

In 1996, I worked very hard at York University to complete my Honours Bachelor of Arts degree in Psychology and my Bachelor of Education degree. In 1996, one of my peers in teacher education introduced me to the world of internet technology. For my environmental science teachable, I took a course that focused on the impact of technological transformation in society through tools. For this course, Professor Joe Sheridan had us read *Technopoly* by Neil Postman. That book changed my life but never did I think at that moment that I would continue those lines of study in my graduate degree. While reading *Technopoly* to understand the transformation from technology in oral cultures to written ones, I did my student teacher placement at W.I. Porter Collegiate Institute and witnessed the school being transformed into a technological school. I thought at the time: "I need to study information technology as it applies to education as that is the future". So I did my research and through Salima's inspiration, I applied to a few Masters in Education programs in Toronto and Quebec. I was most interested in Concordia University's Masters of Arts in Educational Technology Program in Montreal because it was the only program in Canada at that time that offered a graduate degree in Educational Technology. I also applied to the Ontario Student Assistant Program (OSAP) for funds as I knew my parents would never let me attend without this necessary funding. I was determined to acquire this new expertise in a world that was changing.

In 1997, I started my Masters program in Educational Technology at Concordia University. To get started on a research project, I took a tour to the Montreal's *Collège d'enseignement général et professionnel* (CEJEP), translated as "College of General and Vocational Education" Schools, thinking that this is where my future was at. Little did I know that this was where my journey would change. In Montreal, I was living at the corner of Durocher and Sherbrook Est, in a small building which I chose because of the bright sunlight and the

cute layout of the apartment. Coincidentally, as I moved into the building I discovered that there were 6 other Ismaili students living there studying at McGill University. In fact, I was the 3rd Zahra in a row to rent out the apartment I had in that building. With all of us on the same side of the building, we got to know each other very well and became close friends. I remember how we all bonded during the Ice Storm in January 1998, when our building was the only building in the McGill Ghetto with electricity.

Experiencing Medical Education Realm for the First Time

Most of my friends studied Human Anatomy at McGill University, and upon learning that my undergraduate degree was in teaching, one of my neighbors, Hussein, invited me to observe his teaching as a Teaching Assistant (TA) in the undergraduate anatomy class. He was intrigued with the idea of witnessing my reaction to seeing a cadaver, a dead body. But I had no “spooked” feeling. Instead, I was humbled by the experience of seeing medicine for the first time.

For my Masters research project in the Human Performance Technology course, I had to do a needs assessment, develop a teaching guide and student guide, and give a workshop for an educational context I wished to study and observe. Through Hussein’s help I managed to speak to his Human Anatomy professor Dr. Hermo, who referred me to Dr. Bergeron, the Chair of the Department of Dentistry and Cell Biology, who then referred me to Professor Eugene Daniels, Chair of the Anatomy Advisory Committee. During the meeting with Dr. Daniels, I presented him my preliminary observations of TA teaching in Anatomy and a proposal of what I wanted to do as an Internship under his supervision. To my great surprise, Dr. Daniels accepted my proposal and invited me to study the anatomy teaching setting at McGill University. Later, Dr. Daniels informed me that many students

had approached him in the past to study the anatomy setting but it was only my proposal that he approved. He told me that the written observations I had prepared for him was very scientifically formulated and that was something he appreciated. Thus, I felt very lucky to be allowed to study his setting.

Through close work with Dr. Daniels during that year, he showed me a real human embryo as his field of expertise was embryology. He invited me to observe the teaching of dentistry students in the human cadaver lab where I observed medical and dental students learning the different parts of the human body. Through his close supervision, I co-authored with him a teaching and student guide on different educational strategies that human anatomy TA's can use when teaching in the human cadaver lab. We covered issues like using mnemonics to remember the many anatomical parts of the body, using case studies to understand diseases, as well as instilling respect and appreciation of the cadavers and their grieving families. Finally at the completion of the project, I gave a workshop to TA's covering all the topics on different teaching strategies from the Student Guidebook we developed together. We also gave them a copy of the Student Guide and a certificate which I developed myself. Dr. Daniels was instrumental in helping me to develop the confidence in myself to succeed at the graduate level. He encouraged me and provided many opportunities for me to learn and grow. He even invited me to work on an e-learning project he had funded for the development of digital anatomical images on CD-ROMs. Through the writing of our guides, I think he saw the possibilities of e-learning for medical education as much as I did. I even wrote a proposal for him on using computer-mediated communication to link all the medical schools across North America with each other.

Upon completing the project, he asked me about my plans after my Masters degree. I told him that I intended to return to Toronto and work in a high school teaching science.

That is when he planted the idea of doing a doctorate in my mind which was something I never had the confidence in myself to think I could do. He not only suggested it but told me that I was “PhD material”. He said that I should study medical education and felt I could make a unique contribution to medical education with my educational technology background. He told me that that was a new area of study and it was very promising. He told me that for all the work I did at McGill University during that year, he couldn’t offer me any money compensation but he did give me an honorarium, something reserved for more experienced scholars and scientists to thank them for their work. More importantly, he offered to write me a reference letter which would get me into any PhD program I wanted to go to. With that conversation, which I still remember as if it happened yesterday, I applied to Queen’s University, McGill University and the Ontario Institute for Studies in Education at the University of Toronto (OISE-UT) in February 1999, six months before the completion of my Masters degree.

Medical Education in the New England Area

At the start of the 1998-1999 academic year, I had to do a 400-hour internship and write a thesis at Concordia to fulfill the requirement of doing a Masters in Arts. Originally, I had opted for the Non-Thesis Option, but once the idea of doing a PhD was planted in my mind, I changed my degree requirements and selected the Thesis Option. Given my new interest in medical education and my work experience at McGill University, I approached the Program Director at Yale University and asked if I may collect my Masters data from his hospital. I was really interested in medical education at the clinical level and thought doing it at Yale was perfect.

Through the Program Director's supervision, I successfully studied the training of internal medicine residents and fellows in the hospital setting. This is where I learned about bedside teaching, problem-based learning and evidence-based medicine, as the main conceptual frameworks for medical education. I gave workshops on health informatics to physicians and became friends with most of them as we were all around the same age. I conducted my study on developing an online patient education system similar to that of Health Watch System by Shoppers Drug Mart. But my idea was that doctors give a print out of information and follow-up web addresses on the diagnosis after each consultation. I created an interactive health management form for the top six diseases and created an information sheet on the biology, treatment and management of the six diseases. Who ever imagined at that time, that this idea would spread like wildfire and become available now in so many different formats for patients to access from?

After my data collection period in Connecticut, the Toronto District School Board called me in October 1998 to offer me a full-time permanent teaching opportunity in Toronto. I was undecided on what to do. I had completed my 400 hours of placement and had collected all my data in Waterbury, so I felt I could fulfill my calling as a teacher before I decided to give it up all together for research. I accepted the position to Dr. Daniels great disappointment and decided to write my Masters thesis while I worked full-time. I promised Dr. Daniels not to worry. I was determined to do it all.

Teaching at the Toronto District School Board: My Calling

Working as a teacher during that year was most definitely a calling for me. I loved every moment of it. At Western Technical and Commercial School, I worked with at-risk youth and young adults who had just immigrated to Canada. I really cared for these students

and wanted all of them to be inspired by my example that if I could make it through the system, so could they. I wanted to provide unique learning experiences for them so that they would feel motivated to learn. Instead of having them do the boring drill-and-practice textbook exercises, I developed for them assignments which were based on their interests and taught them how to do library and internet-based research so they could develop their ideas properly. I even fought with the Head of Science so that these students could do dissections and experiments, to experience the magic behind science. I taught them all about the Chaos theory under the guidance of a Toronto Cardiologist Dr. Vivian Rambihar and organized for all the science students a conference on Chaos Theory and Complexity. I remember how impressed my Principal was with my teaching when she saw one student in my class, a tall Jamaican student with long frizzy hair do an in-depth poster presentation to the class on how our society produces abundant chicken wings and the lack of ethics society places on chicken breeding. We were really impressed with his enthusiasm and compassion on the topic. Most of my class passed my science course with a few of them gaining the necessary confidence to pursue advanced studies.

Preparing for the PhD Journey which Lay Ahead

In February of 1999, I received news from all three universities that I had been accepted to do my PhD. It was the hardest decision to make to leave teaching and on where to pursue advanced studies. McGill University had great expertise in medical education under the leadership of the Director of Medical Education Professor Vimla Patel. She had published some profound research on clinical reasoning through traditional methods of teaching which were contrary to all the research on problem-based learning. Similarly, Queen's University Faculty of Education Dean had offered me a scholarship had I accepted

my place there as well as many teaching opportunities. University of Toronto had a Computer Applications program in the Curriculum, Teaching and Learning Department at the Ontario Institute for Studies in Education, which I thought was cutting-edge for the changing times.

During this year, I also had an offer of employment for one year at the Aga Khan University's Institute for Educational Development (AKU-IED) in Karachi, Pakistan. It appeared that my background in distance education was needed there to conceptualize future projects. So many choices I didn't know what to do. Was I suppose to work or continue my education? The Chair of Information Technology at AKU-IED Professor Gordon McLeod was visiting OISE's Dean in February 1999 and wanted to meet me during his trip. During that trip, I met with Professor McLeod who informed me that AKU was planning on expanding its campuses in Central Asia through distance learning technologies, and that if I was considering doing a PhD in an area that will help the Aga Khan Development Network in the future then I should consider working with Professor Marlene Scardamalia and Professor Carl Bereiter. The only problem was, there was no scholarship offered to me at OISE-UT and that meant I would have to work part-time while I studied. I really wanted to be supervised by Marlene and Carl and so with Marlene accepting my request to be my supervisor, I chose to do my PhD at OISE-UT.

Before I plunged into the start of my PhD, I spent the summer of 1999 at AKU-IED in Karachi Pakistan. This was my third trip to Pakistan. For the summer, I helped build the storyboard for AKU-IED's website which needed development and helped cultivate the team's talent to do so. I also travelled to the Northern Areas of Pakistan for the second time, to collect data on the feasibility of online learning in Hunza Pakistan and the rest of Central Asia. I interviewed many local people on internet technology in Pakistan and upon my return

to Karachi, I presented my data to the AKU-IED faculty and directors at the Faculty Meeting. In my presentation, I discussed Indira Ghandi's National Open University (IGNOU) as a model for distance education in developing countries. I had acquired knowledge of this model when I had taken the *Distance Education in International Development* course at Concordia University the previous summer, and thought that that was a good model to emulate. Interestingly, when I went to Hunza I also reconnected with my old friend Nahida, whom I had met in 1995. She had moved to Gilgit and was working as a teacher at the Aga Khan Boys School.

Commencement of my PhD Program at OISE-UT

Upon my return to Toronto in September 1999, I commenced my doctoral program in Computer Applications in Curriculum, Teaching and Learning. I took courses like *Experimental Design, Computer Based Instruction, Instructional Technology, Doctoral Seminar in Computer Applications* and *Research Issues in Computer Mediated Communication*. During the course *CSILE-Computer Supported Intentional Learning Environments* and my *Telementoring Practicum*, I had the opportunity to work closely with Marlene Scardamalia and be supervised by her on understanding her knowledge building theory and getting practical experience using her knowledge building technologies: Knowledge Forum, WebKF and CSILE.

During the first year of my doctoral studies, I worked part-time at York Central Hospital where I led the Multicultural Breast Cancer Program for York Region, a project funded by the Canadian Breast Cancer Foundation. For this position, I organized and led focus groups on cultural myths and health beliefs associated with the cause of breast cancer with health professionals from the three York Region hospitals. This led me to research and compile the *Multicultural Breast Cancer Diagnosis Information Handbook* prepared for newly

diagnosed Gujarati and Chinese women. My manager was so impressed with my work that she showed my work to the Chief Operating Officer of the hospital, who at the time happened to be an Ismaili lady by the name of Asmita Gillani.

Professional Connections: Emergence of New Opportunities

Asmita called me into her office, asked me what I was studying at OISE-UT and after discovering it was in medical education, she invited me to be part of a project she was leading for the Ismaili Health Professionals Association USA, the Aga Khan Health Board for USA and Canada, the Aga Khan Health Services East Africa and the Aga Khan Hospital Dar-e-Salaam. So, for three years I worked closely with her and her team in a volunteer capacity helping to write a funding proposal to the Aga Khan Foundation USA on a proposed international telemedicine software. This software was intended for East African doctors to seek advice on diagnosis and treatment from North American doctors based on disease symptoms, radiographic images and numerical data they reported or uploaded into the technological infrastructure developed. I also helped analyze the data collected from the telemedicine technology for further development of the idea and technology. Generally speaking, the project was a moderate success as East African doctors felt they were experts at diseases inflicting the developing world and did not feel the need to seek advice from North American doctors. Thus, few doctors used the technology present. Additionally, this project design promoted dependency on foreign expatriates instead of cultivating local expertise. The problem that remained unsolved was that local doctor's lacked access to current medical information that would help their clinical decision-making processes. This is something I predicted and the rationale for my proposal to institute knowledge building at the Aga Khan Hospital Dar-e-Salaam. But I was young and naive and no body took my

suggestions seriously. I did however learn a lot from the experience as it brought to light an international perspective to healthcare that I needed for my personal development.

Critical and Creative Guidance from Peers

In 2001, I worked as a student leader, otherwise called a Don at the Victoria College Residence at the University of Toronto. This was the second year of my PhD and I still had no contexts to study. AKU was not ready to engage in online learning in the Northern Areas of Pakistan and the University of Central Asia was not yet established so I needed to change gear. I remembered the promise I had made to Dr. Daniels and Dr. Sadigh who both encouraged me to do my PhD in medical education. I was one for living up to my promises. But the question was how and where to study medical education?

In 2000, I approached the Dean of Medicine at that time Dr. David Naylor to ask him if I could try Knowledge Building at the University of Toronto's Faculty of Medicine. He just dismissed the idea and said it would never work. One of the medical students, who worked as a Don in the same residence as me suggested I approach all the medical professors at the University of Toronto to see if they would allow me to try an experiment of knowledge building with their medical students. So under the direction of my peers, I set out and did exactly that. I sent an email to all undergraduate medical school professors at the University of Toronto, introducing myself, outlining my work experiences and asking if I may try a small experiment in their class. Out of the many I asked, one professor responded with a positive answer. It was a "yes". He was willing to try out knowledge building and its technology in his undergraduate problem-based learning (PBL) tutorial.

Start Small, Think Big

At first the idea was to keep the study small and think big in terms of its implications as that is what the educational reform literature suggested. So I followed him around for a few weeks and observed all the PBL tutorial classes which he led. As to be expected, his students became curious of who I was and asked me a lot of questions. When I got to know them a bit better, they became interested in trying PBL online the knowledge building way. So after their exams finished, we spent the summer trying different ways of integrating knowledge building activity in the PBL tutorials - of course, through a series of small pilot studies. To the professor's surprise as well as mine, the students discovered the gaps in knowledge and discovered the right answers mainly through their own self-directed learning and problem solving. This proved that the knowledge building theory had merit and potential in medical education and clinical decision making. I remember Marlene being so proud of me, and during one conversation she said to me: "You are a Knowledge Builder!". The professor was then invited by the Knowledge Building Team to work more extensively in a more structured way with other more experienced knowledge building researchers than myself.

In the process of his advancement, he referred me to his close friend and colleague who I had met previously in one of my doctoral courses at OISE-UT. Richard invited me to study knowledge building in his *Surgical Skills* course. In this graduate medical education context, we were unsuccessful and were greatly disappointed. The Obstetrics/Gynecology residents were simply too busy to participate for any length of time.

Networking with Friends and Professional Colleagues

My mentors Dr. Rambihar having heard of the progress I was making through networking connected me to his colleague the Chief of Medicine at the Scarborough General

Hospital and the former Program Director of the Family Medicine Program at the University of Toronto. Through this connection, I was further connected to the current Program Director of Family Medicine at the University of Toronto who agreed to try out knowledge building in family medicine residency training at the Scarborough General Hospital. After a few months of trying Knowledge Forum out with his students, the current and former Program Directors decided to try Knowledge Building in a more formally integrated way. They assigned residents to lead the online discussion each week on an interesting clinical case they found most difficult to solve. Again, this experiment was more successful than the *Surgical Skills* course, but did not yield huge advances in clinical problem solving as we had hoped. The one week time period to engage in in-depth discussion was too short of a time to do so. They suggested I try a Continuing Medical Education course to really explore the potential of Knowledge Building and its technology in medical education.

Doing Research to Find More Opportunities

So in 2002, I located a medical doctor who was providing a series of seminars on psychiatry on the Ontario College of Family Physicians website. Upon my meeting with him; he agreed to try a new way of teaching his *Seminars in Psychiatry*. I met him each week for 2-3 hours, for approximately six months to plan a course that resembled knowledge building pedagogy. The final plan consisted of practicing medical doctors analyzing current research to address the gaps in knowledge that existed in the analysis of a published psychiatric case 20 years ago. This was a moderate success. The medical doctors explored the case deeply using scaffolds we had created for them and using the scaffolds pre-existing in the Knowledge Forum database, however, were not able to fully engage in the assigned activity as they did not have access to an online library of current literature. Had we provided them

with a course reader which should have been consolidated for a continuing medical education course, this would have solved problems of lack of access and lack of time to search for the right information. This was the last experiment I conducted for my PhD data collection. I then proceeded to the analysis stage after this study during the summer months of 2003.

Work Opportunities during Studying Deepened my Expertise

While I analyzed my data, I needed to work part-time to pay for my degree. Luckily, in September 2003, I got a call from University of Toronto's Faculty of Nursing to be a TA for a graduate nursing course called *Culture and Relations*. The professor invited me to facilitate her lectures and mark the papers in her course. I was also invited to sit in on all her class lectures and provide her with feedback. I remember after each of her classes, Becky and I would go for coffee and discuss the concepts taught in the course and the application she had made to Caribbean-White relations. I used to challenge her on her ideas of ideologies constructed to perpetuate stereotypes and racism, and for that she welcomed my rebuttals and asked me to commit my thoughts to paper. I completed a proposal for a new curriculum for her course focusing on humanism, global history and collaborative knowledge building which she attached to a report she prepared for the Canadian Race Relation Foundation. She also invited me to write an annotated bibliography on *Racism in Nursing Education* experienced by the Aboriginal Peoples of Canada by providing me with all the necessary resources to review. She was so happy with my paper that she recommended me to TA another non-clinical graduate nursing course: *History of Ideas in Nursing Practice* which I facilitated in 2005.

These experiences gave me the necessary confidence to teach as an Instructor for Ryerson University in 2004. While I worked in medical education I also stayed in the loop of

education activities, as all my ideas that advanced medical education originally derived from theories in teacher education. The Director of the Early Childhood Education Program hired me to teach an undergraduate education course called *Computers in Education*. In this course, I taught theories of human development, cognition and online learning/knowledge building to undergraduate students. I really expected a lot from the students and was really impressed at how hard the students worked. One of them found free architectural software online which allowed them to create digital sketches of technology design centers for the school classroom! That was not only impressive but highly innovative.

During the final year of my data analysis and write-up of my PhD thesis, I made the grave mistake of working full-time instead of part-time as I had done before. There was an amazing opportunity to work as an Education Specialist at the Department of Critical Care Medicine at Sunnybrook Hospital which I could not pass up. And although now in reflection it made the completion of my PhD difficult in many ways, it also helped direct me to critical literature that I needed to include in my PhD thesis write-up. My supervisor was the Chief of Medicine who asked me to evaluate a critical document that had just been published by the Royal College of Physicians and Surgeons of Canada. This document provided a conceptual framework for the medical profession to direct its education activities and initiatives for each subspecialty of medicine. The CanMEDS framework proved to be instrumental in my introductory chapter of my PhD thesis and helped me to shape the work I contributed there. It also helped my rationale for the radical approaches I brought to medical education. For example, my idea to make *Morbidity and Mortality Rounds* online, rounds which serve to disclose and discuss mistakes in a confidential group setting, was rejected and thought of as “outrageous” idea given the medical liabilities in disclosing medical error that currently exists. I even led the development and compilation of print-based Critical Care Medicine

Orientation Handbook which had leading research articles published by experts at Sunnybrook addressing the key topics taught in the rotation for incoming medical students, the surgery, anesthesia and internal medicine residents and critical care fellows. Even though this idea was rejected originally and argued to be too expensive for the department to produce, I was told by the Critical Care Department Secretary recently that this handbook, although updated with current research now, is still being used in the Department of Critical Care Medicine. It seems that my radical ideas, applying teacher education theories to the practice of medicine, did advance them in some small way. And the reaction I faced originally by some of the medical educators has now been realized as helpful to their profession.

The Beginning and the End

In December 2006, I defended my PhD. My thesis title was: *The Role of Knowledge Building in Medical Education*. My PhD introduced the goals, problems and history of innovation in medical education in Canada and proposed how knowledge building theory, pedagogy and technology could help to solve the problems that exist in traditional medical education. My PhD was the first thesis at the University of Toronto which focused on online learning in medical education at the University of Toronto, and because of my small and humble experiments, the Faculty of Medicine decided to try online learning and knowledge building in larger scale efforts later. I am proud of that as I had invested a lot of effort into my idea that I thought of during my Masters placement at McGill University and it was very satisfying to see that that idea had merit and potential to revolutionize the medical profession. When OISE-UT's Dean read my name and title of my thesis, Dr. David Naylor former Dean of Medicine and now President of the University of Toronto smiled at me and

shook my hand when I received my doctorate at the convocation ceremony. I wondered if he remembered me from 2000 when I first approached him to explore online learning in medical education in his department.

Fellowship Experience with the Aboriginal People of the North

Around the same time as my PhD convocation in June 2007, I received news that I obtained a Post Doctoral Fellowship at the Northern Ontario School of Medicine (NOSM). In April of that year, I had sent an email to the Founding Dean at the Northern Ontario School of Medicine to work under his supervision. In early June, I had an interview in Sudbury and in mid-June I received an offer. My close friend and colleague Gail whose expertise was narrative research suggested I conduct educational research on helping the Aboriginal People of the North. I really wanted to capitalize on the experience of being in the North and so I spoke to my Post Doctoral Supervisor about my interests. I was informed that research in the North on the Aboriginal People was non-existent because of the terrible name research had in the past. The exploitation and patenting of Aboriginal ideas was well known in the literature.

I was also interested in building on my research I conducted at University of Toronto's Faculty of Nursing on the experience of racism experienced by Aboriginal Peoples. So I prepared a *Cultural Competence Curriculum* for the Year I undergraduate Aboriginal community placement students. This idea was well received by the Founding Dean but poorly received by some of the faculty who felt that NOSM being a new medical school should not discuss these delicate and sensitive ideas. Thus, my position there became very trivial and tricky. Despite the politics which I triggered in my naiveté, I was still asked me to prepare a literature review for a major grant proposal on the development of a Tri-

Council Ethical Review Protocol for the study of Aboriginal-Western medical research in the North. When I submitted my paper, I remember the Dean of Research having just read my paper tell me that he thought I was “a very gifted researcher”. I was glad to contribute something of value to an institution with a great mission. I also prepared two online faculty development courses: (i) the *Foundations of Educational Theory, Pedagogy and Software*, and (ii) the *History, Goals and Philosophy of Medical Education* while I worked there.

Applying my Knowledge of Teacher Education to Chiropractic Medicine

In early 2008, I relocated back to Toronto to take on a position at the Canadian Memorial Chiropractic College (CMCC). I was originally interviewed for a position as Director of Faculty Development, however, my young age served as a impediment in securing that position. Thus, they hired me as an Education Consultant instead where I researched and wrote a paper on the merits and drawbacks of college admission tests and standardized testing for the President’s decision-making on the issue. I also researched and developed a comprehensive curriculum on the chiropractic profession for usage by other universities and institutions to promote chiropractic as a promising field of study. My role here was mainly to advise faculty, directors and deans on e-learning strategies and online educational research for chiropractic and medical science courses. Because they had hired a Director of Faculty Development as well as myself at the same time, our roles and work became duplicated and thus, my role as Education Consultant ceased to exist six months later.

The Highlight of my Career: Working at the Royal College of Physicians

Shortly after my position at CMCC, an opportunity was presented to me to work in Ottawa at the Royal College of Physicians and Surgeons of Canada (RCPSC). This was the highlight of my career in medical education, as the leaders in medical education could finally hear my radical ideas on online knowledge building in medical education. At the RCPSC, I worked directly under the two Directors at the Office of Professional Affairs. I was given the unique task of designing the future work of the RCPSC conducting research and developing educational research proposals on online patient safety, self-assessment and lifelong learning. This was the peak of my career, as I had read about the RCPSC but it was only a dream to work there.

My most significant contribution was my work on patient safety. I designed research on medical error and disclosure using internet technology under the supervision of the former Director of the Canadian Patient Safety Institute. Interestingly, while I had suggested a small scale version of online patient safety at the hospital level in 2005-2006, I was now working with the regulators of the profession on the development of technology and nationwide activities which would enable the profession to take charge. Thus, at the RCPSC I felt really important to be able to do that. It was important work and I was simply delighted and honoured to be the one chosen to do this work.

To Be Continued....

As for my future, I have no idea where it might take me, but I am involved in a voluntary capacity at the moment with the Aga Khan Development Network. I am also working as a consultant at the moment on various projects in the medical profession. My story is to be continued as life unfolds and new opportunities present themselves to me. At present, I am preparing manuscripts for consideration to leading journals in medical

education. I am also applying for grants to fund research in new areas in e-learning. Since 2007, I have been a Reviewer for the *Journal of Medical Education*, and recently I was invited to be a Reviewer for *Medical Teacher* and the *Journal of Learning Sciences* where I provide input to the Editor if the articles on problem-based learning, continuing medical education and online learning in medical education should be published in the journal. As a reviewer, I provide feedback to the authors on literature areas and make suggestions for improvement of the research manuscript. This has really helped me see examples of formats and styles of literature submitted to journals, which has helped me to craft my own publications.

Lessons Learned about Leading in a Knowledge Society

There is a reason I named my paper: *Leading in a Knowledge Society: A Teachers Journey into Medical Education*. My narrative is one example hopefully of an individual who was determined to do exactly that, but who never thought that it was possible. Much of my inspiration came from reading literature, travelling to remote places of the world and following the advice of my spiritual leader, the Aga Khan. In seeing the institutions of the Aga Khan Development Network throughout the Muslim and Non-Muslim world, I was able to see great ideologies in action. The Aga Khan, leader of the Ismaili Community, is constantly advising his followers to become leaders in the knowledge society, and thus, the source of my determination and focus is from my faith. This is consistent with what Niyozov and Punja (2010) discovered about the Ismaili teachers in Central Asia – that they had a deep connection to their faith and that their inspiration to become teachers and leaders of the community was derived from Ismaili teaching and spirituality. Niyozov and Punja (2010) elaborate on this point by arguing: “Ismaili teachers in Central Asia taught with their hearts, minds, bodies, and souls without expecting much in return” (pg. 203).

It was only a few generations ago in India that my family were farmers and to be advising the most elite members of society on what educational theory can advance their profession just goes to show how we live in a meritocratic world now where the merits of an individual's credentials and ideas speak for themselves. Most of the medical educators I worked with came from upper class families. Most people who work in medical education have parents who are professors, doctors or health care professionals. Most of the scientists in medical education are Caucasian. It was no wonder that everyone wondered how a young Muslim girl from Scarborough got into medical education.

What are my lessons learned from my experience and journey so far? One, new researchers must believe in themselves. Most young people have fresh ideas, especially in the Knowledge Society we live in. It is important for these young individuals to have opportunity to explore their ideas freely. They must also find supporters of their ideas to help them develop their talents and expertise and connect with relevant networks that will allow those ideas to flourish. It is important for young people to become entrepreneurs in their own right and innovate in new and radical ways that advance society and the age we are living in.

The second lesson I learned is that if you have a really good idea, the trick is to find like-minded people who will let you explore that idea. It is important to network with your colleagues to identify who these people could be, as like-minded people usually stay together, thus networking with peers and colleagues is best to discover the potentiality of your ideas.

The third lesson I learned was, when there are no funds to carry out something innovative, volunteer. Most of the work I did for my Masters and PhD was as a volunteer. But in being a volunteer, I got the freedom to try new and innovative ideas with leaders in

the field. As well, my name was out there and when paid opportunities emerged, they thought of me.

The final lesson I learned was that it is very important to read theories while engaging in practical work experience, as the theories and work experience feed into itself allowing one to deepen the inquiry and understanding of the knowledge to be acquired. For example, during my PhD studies when I was really struggling with these medical contexts trying to innovate in new ways and facing resistance, one of my committee members recommended I read Michael Fullan's books on innovation, change and educational reform. In doing so, I was able to appreciate the logic behind the resistance I was facing and was able to overcome it with the knowledge I had gained from reading the literature.

Conclusions: Leading in the Knowledge Society means Becoming a Knowledge Builder

In 1976, Daniel Bell first imagined the coming of the Knowledge Age where he coined the term *Knowledge Society* (Bell, 1976; Hargreaves, 2003, 14). According to Hargreaves (2003), teaching as a profession is expected to develop "human skills and capacities for students to succeed in the knowledge society" (p. 9). It is the teachers who are the builders of the knowledge society we live in, and who are the ones who cultivate talent in young minds to innovate and create new knowledge. Peter Drucker (1993) elaborates on this idea by arguing: "Value is now created by *productivity* and *innovation*, both applications of knowledge to work. The leading groups of the knowledge society will be 'knowledge workers'. The economic challenge will therefore be the productivity of knowledge work and the knowledge worker" (p. 8). With this focus on knowledge production, enabling educational activities which promote creativity is critical to the development and formation of a strong knowledge society.

Contributing to the knowledge society means making leaders out of young people, and inspiring in them the desire to contribute to the collective wealth and health of the society. When we create citizens that care for the welfare and advancement of the people they live with, it is important to not only develop their personal abilities but also their intellectual capabilities so they may reason their way through new problems and situations. One effort to make this happen is by the Knowledge Building Community model by Marlene Scardamalia and Carl Bereiter of the Ontario Institute for Studies in Education at the University of Toronto. In their work, they have created a Knowledge Society Network of researchers, teachers and students over the globe who share their advances in hopes of advancing symmetrical communities. This idea they call *Symmetric Knowledge Advancement* is facilitated by their software Knowledge Forum (Scardamalia, 2003, 63). A knowledge society is in the business of producing and capitalizing on the efforts of “great entrepreneurial geniuses” (Hargreaves, 2003, 17). In conclusion, leading in the Knowledge Society means becoming a *Knowledge Builder*. Thus, teaching Knowledge Building from an early age will advance societies goal of becoming a Knowledge Society.

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