Implementation and Evaluation of an Innovative Leadership and Teacher Training Program for Non-Physician Emergency Medicine Practitioners in Uganda

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Abstract

Implementation and Evaluation of an Innovative Leadership and Teacher Training Program for Non-Physician Emergency Medicine Practitioners in Uganda

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Background: Leadership and teaching skills are essential for faculty being trained as the first emergency medicine (EM) providers in their countries. In Uganda, EM is not established as a specialty and the only EM providers are non-physician clinicians (NPCs) trained by a foreign NGO, Global Emergency Care (GEC). Their curriculum focuses on clinical knowledge and skills without a leadership or teacher training component.

Methods: A week long course on leadership and teaching is described and evaluated for effectiveness using Kirkpatrick's framework for learner-centered outcomes. The course was requested by GEC and the Ugandan clinicians, and developed and implemented as continuing education (CE) initiative. Course participants consisted of all 15 of the current NPCs trained in

Uganda by GEC. Participants attended the week-long course consisting of lectures, role-playing, and small group discussions, as well as a personality self-assessment. The evaluation process consisted of: 1) an immediate post-course survey to measure learner satisfaction, 2) a retrospective, pre/post self-assessment with a Likert-type scoring tool to measure knowledge gains, and 3) a three-month follow up survey and structured interviews to measure knowledge retention and behavior change in practice.

Results: All 15 NPCs participated in the evaluation process. Learner satisfaction was high with an average score of 9.3 (on a 1-10 scale) for course content, amount learned, and use of time. Participants reported knowledge gains in all course content, with an average difference in pre-course and post-course Likert scores of 1.11 for all 24 competencies measured. Lastly, all 15 participants shared detailed examples of using course content in practice three months after the course finished. The most frequently mentioned themes were “giving and receiving feedback,” “delegating and assigning tasks,” and “communication.”

Discussion/Conclusion: This course was a successful CE intervention in this setting as measured by Kirkpatrick’s framework. The most frequently mentioned concepts used in practice point to the NPCs ability to take on leadership roles in this setting and shift the department away from the traditional physician-led culture. Further research and evaluation methods should focus on the influence of culture and personalities on leadership education and translation into practice in an EM setting.

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1. INTRODUCTION

Emergency medicine (EM) services are an important foundation of any healthcare system. It is the entry point for medical care, and often the point where timely interventions can make a significant impact on outcomes. EM has existed as a specialty for over 50 years in many Western countries, and over the last 8 years there has been a push to formally establish EM training programs in sub-Saharan Africa (SSA) (Bae, C., 2016). When establishing a new EM program, considering who the future leaders and teachers of the specialty will be and how they will be trained for this role is important to ensure program longevity. Historically, this falls on the first cohort of trainees, typically without any formal leadership or teacher training. EM, far more than other medical specialties relies on teamwork with clear leadership, direct communication, and rapid decision-making, and teaching these skills should be a formal and standardized curricular component of any new EM program. In Uganda, Global Emergency Care (GEC) is an NGO training a new cadre of EM providers who are non-physician clinicians (NPCs). As the only EM trained providers country-wide, they are expected to serve as faculty and teach the subsequent classes of EM trainees, yet have no formal leadership or teacher training. We propose that NPCs in this setting can be taught leadership and teaching skills in a way that results in behavior change in practice.

In an effort to demonstrate this, I worked in collaboration with the GEC staff to develop and implement a short continuing education (CE) course in EM leadership and teacher training. The sessions covered a breadth of topics ranging from basic teaching skills to complex interpersonal communication skills with a focus on leadership development. The intent was to provide already clinically competent providers with the tools to be leaders and educators in EM. The course was attended and evaluated by all EM NPCs working for GEC. This thesis first

presents the evidence supporting the need for EM faculty development among new EM programs like the one in Uganda, describes the course which was developed and implemented, presents the course evaluation methods and results, and provides recommendations for future EM faculty development in SSA. Overall the short course was well-received and successful in achieving the learner-centered goals established by our framework, and has potential to positively complement the new, developing EM program in Uganda. It also raises important questions about the interplay between culture, personality, and EM practice, and how best to provide successful EM leadership and teacher training in Uganda and other similar settings.

2. BACKGROUND

THE NEED FOR EMERGENCY TRAINING IN UGANDA

While SSA carries the largest burden of the world's acute injuries and illnesses, it has the fewest resources to successfully manage them. The top causes of under 5 mortality in SSA are still pneumonia, diarrhea and malaria; easily treatable acute illnesses, even in low-resource environments (Chamberlain, S. et al, 2015). Furthermore, trauma, namely road traffic accidents, accounts for one of the fastest growing causes of morbidity and mortality worldwide, with 90% of the burden concentrated in low- and middle-income countries (LMIC) such as sub-Saharan African nations (Anderson, P.D., et al, 2012). Just this year a single road in Uganda was named "the world's most dangerous road," with over 200 lives lost in just 8 months (Withnall, A., 2016). If unabated, the WHO estimates that by 2030 road traffic accidents will become the fifth leading cause of death worldwide (Wiebe, D., et. al, 2016). It was also estimated in 2001 that approximately 45% of all deaths and 36% of all DALYs in LMIC were due to conditions treatable by emergency medicine services (Anderson, P.D., et al, 2012). The need for trauma and emergency care services worldwide is self-evident. While most high income countries have

established emergency care systems in place, the countries carrying the greatest burden do not. In 2011, the World Health Assembly published a resolution on emergency care, urging governments and supporting organizations to establish emergency medical systems. Yet, to date, in the region in most critical need, only six SSA nations have established EM programs within their healthcare systems, and Uganda is not among them. While there are emergency departments (ED) at five of the regional referral hospitals (RRH) across the country, they are not staffed by EM-trained personnel, as there is currently no formal or recognized emergency care education for any level of healthcare provider in Uganda (Hammerstedt, H., et. al, 2014).

HEALTHCARE WORKER SHORTAGE AND NEED FOR TASK-SHIFTING

Establishing a new medical specialty such as EM and training providers is extremely challenging in most SSA countries for a multitude of reasons, but paramount among them is a severe shortage of skilled healthcare workers. While SSA carriers 25% of the world's disease burden, it has only 3% of the world's health workforce. It is estimated that SSA alone faces a physician shortage of approximately 420,000 clinicians (Hammerstedt, H., et. al, 2014). As countries in this region begin to build emergency care facilities and training programs, it is unlikely there will be sufficient physicians to adequately staff the departments or to train other novice providers. In Uganda, in order to address this shortage from both a staffing and a training perspective, GEC has developed a program to shift these tasks to nurses. Re-assigning tasks often reserved for doctors or clinical officers to nurses is a commonly utilized solution for the overall critical shortage of healthcare workers in SSA, and has been successful in HIV care, surgical care, and obstetrics (Chamberlain, S., et. al, 2015). In 2008 GEC developed the first program to train nurses to provide emergency care in a low-resource setting and established a new ED at a small, private hospital in rural Uganda. The program has been successful in

reducing mortality of those seeking emergent care at this site, and in 2015 expanded to a larger government hospital in an urban setting (Chamberlain, S., et. al, 2014). Currently there are 15 nurses with advanced training as emergency care practitioners (ECPs) by GEC in Uganda providing EM care at two locations.

CURRENT ECP PROGRAM AND TRAINING GAP IDENTIFIED

The current GEC program is built on a training model where second year students, along with those who have graduated, train the first year ECP students. Up until now this has occurred on a small scale at a private hospital and always supervised by foreign volunteer EM physicians. The resources such as lectures and simulation cases for the students have been provided by the GEC curriculum board members. As the program grows, the most senior ECPs, now referred to as ECP trainers or ECPTs, will take over the leadership responsibilities of the program and the training of the junior ECPs. This is an extremely challenging undertaking, but as the first clinicians in a new specialty, it is not unique. As Teri Reynolds, the director of the WHO emergency and trauma care program, acknowledges in a discussion on emergency care capacity in Africa, new clinicians "frequently serve as advisors and teachers for each other," and as the first and only EM providers in the country, "they are called into…service to a degree that only a handful of their international colleagues will experience much later in their careers" (Reynolds, T.A., 2012).

Unfortunately, unlike their international colleagues who often receive some degree of leadership education throughout their training, clinicians starting their careers in EM in Africa rarely do. Specialty training programs appear to focus the majority of time on clinical knowledge and skills, while curriculum on leadership and teaching has been absent in most programs (Bae, C. et al, 2016). The ECPs trained by foreigners volunteering with GEC in Uganda are no

exception; spending two years learning the basics of EM via didactic lectures and hands-on training. They are then expected to not only be clinically competent, but to also take charge of the curriculum and teach the incoming classes of ECPs despite not receiving any formal leadership or teacher training. In a review of the available literature on faculty development within new EM programs in Africa, only three articles mention this short-coming, and to my knowledge, there have been no program evaluations published which address it (Alagappan, K. et al., Bae, C., et. al., and Reynolds, T., et. al.).

Alagappan, K. et. al. provide a report outlining recommendations for EM providers from long-established programs to assist those starting new programs in limited-resource settings. They conclude faculty development and mentorship are key to developing EM and have been shown to have a positive effect on faculty members' teaching, administrative activities, and career satisfaction (Alagappan, K., 2007). Bae, C. et. al. provide more relevant recommendations for African programs after surveying 47 new EM specialists from Tanzania, South Africa, Ethiopia, and Ghana. They found that the burden on new graduates placed in leadership and mentorship roles without guidance has led to trainees leaving the specialty. Survey respondents reported that being ill-equipped for managerial tasks, teaching others, and clinical governance are significant barriers in their careers. Additionally, they frequently described needing mentorship and leadership development as "very important" (Bae, C., 2016). Reynolds, T., et. al. provide an in-depth evaluation of the new EM residency training program at Muhimbili National Hospital in Tanzania. At the time of publication, the program was supported by international faculty year-round with the plan to entirely transition leadership to local faculty over 2 years. The curriculum is outlined in great detail, and while other sections of the article express concern regarding the burden of leadership that will be placed on these new clinicians, there is no inclusion of leadership or teacher training during the residency (Reynolds, T., et. al.).

INTERVENTION

In order to address this training gap and support the Ugandan GEC clinicians transitioning to a faculty role, this short course in leadership and teacher training was developed, implemented, and evaluated for effectiveness. If effective, this course would provide immediate benefit to the clinicians expected to lead and teach subsequent cohorts of EM clinicians. As a CE intervention providing teacher training, leadership curriculum, and team building, the course also targets several key factors the WHO has identified as barriers to human capacity development (HCD) in LMIC: lack of professional development, poor staff motivation, and insufficient pre-service training (WHO, 2012). While difficult to assess in a short period how the course will impact these over-arching barriers, shorter-term outcomes can be measured to determine course effectiveness. Specifically, this evaluation will seek to demonstrate effectiveness by measuring: 1) increased knowledge of the course competencies, 2) knowledge retention after three months, and 3) participants' self-reported practice changes during the three months following the course.

EVALUATING CONTINUING EDUCATION INTERVENTIONS

The ultimate impact of this CE intervention on patient outcomes is hard to measure, especially given the small sample size, but in theory, if senior clinicians are trained and subsequently more effective in their roles, they will be better providers and teachers. Furthermore, while patient outcomes are important, it is only a subset of the possible outcomes of CE interventions. Donald Kirkpatrick provides a widely accepted four-level training evaluation model which includes additional key outcomes: learner reactions and satisfaction, the learning of knowledge, skills, and attitudes, and behavior change in practice (Cook, D. A., 2013). Steinert, Y. et al. conducted two systematic reviews of faculty development initiatives, one looking at leadership as an outcome and one focused on teaching skills. Both reviews as well as

the Committee on Measuring the Impact of Inter-Professional Education on Collaborative Practice and Patient Outcomes recommend Kirkpatrick's model to evaluate individuals learning and performance in practice (Steinert, Y., 2012, and Steinert, Y., 2016). Using Kirkpatrick's framework as a guide for this short course evaluation, the following learner-centered outcomes were proposed to measure effectiveness: 1) overall satisfaction with course content, 2) knowledge gains immediately following the course, and 3) knowledge retention and behavior change in practice. These outputs and outcomes are linked to the course inputs and activities as outline in the logic model below: (Figure 1).

Inputs	**Activities**	**Outputs**	**Outcomes**	**Impact**
NGO funding Volunteer time for course curriculum development and implementation	One-week short course on leadership and teaching for ECPTs: • Lectures on presentation skills, leadership, teamwork, communication, giving feedback, adult learners • Personality self-assessment • Interactive practice with teaching skills, simulation learning, dealing with students	Number of ECPTs trained Immediate reaction and satisfaction with education intervention ECPTs learn new skills and tools to employ when teaching new ECPs ECPTs reflect on their personality and communication styles ECPTs learn about teamwork in an EM setting	3 months post course: - ECPTs use new skills during their lectures and bedside teaching - ECPTs report improved department cohesion, staff morale, and teamwork - ECPTs identify appropriate methods for handling conflict and giving feedback	Enhanced medical teaching and learning lead to better patient outcomes in the ED Additional CE opportunities and improved ED leadership lead to staff retention and HCD

Figure 1: Logic Model

3. METHODS

This was a mixed-methods (quantitative and qualitative), retrospective pre/post, single-cohort design. Informed written consent was obtained from all participants. Research ethics

board approval was granted by the University of Washington in Seattle, Washington as well as Makerere University in Kampala, Uganda.

SETTING AND POPULATION

The short course took place at both GEC clinical sites in Uganda, Masaka Regional Referral Hospital (MRRH) and Nyakibale Hospital (NH), with all 15 qualified ECPs and second-year ECP students attending. While the course was mandatory CE for professional development for the staff, participating in the evaluation process for the purposes of this thesis was optional. Everyone who attended the course was eligible to provide feedback, and consent forms indicating their voluntary and willing participation were obtained from all participants. All the participants are Ugandan and fluent in English. Table 1 provides more detailed information about the course participants. The two sites where the courses took place are significantly different with MRRH being a large government hospital in an urban setting and NH being a private institution in a rural setting. Table 2 compares the two sites and ED metrics (UBOS, 2017). Both sites have a dedicated program director who works closely with GEC staff in the United States.

Table 1: ECP Participant Characteristics

	MRRH	NH
Gender		
Male	2	6
Female	2	5
Age		
< 25	0	2
>/= 25	4	9
Previous degree		
Enrolled nurse	3	9
Registered nurse	1	2
Years working as an ECP		
< 2	0	4
>/= 2	4	7

Table 2: Site Characteristics

	MRRH	NH
Hospital funding	Public	Private
Capacity (beds) Hospital ED	 330 12	 170 6
Estimation of population served	2 million	300,000
ECPs employed	4	11
Hours of GEC coverage in the ED	0800-1900	24 hours
ED Patients per month	1000	400

PROGRAM DESCRIPTION

A short course in leadership and teaching was requested by the employer NGO, GEC, and developed by the local GEC support staff, which includes the local program director, a volunteer EM physician, and myself, in my role as the Global Health Fellow. The course content was developed with support and expert opinion from the GEC board of directors and the ECPTs at MRRH. The primary aim of the course was to improve the quality of the already-established GEC program by providing ECPTs with additional knowledge and skills to support them as teachers and leaders. The GEC curriculum directors, local program directors, and volunteer medical leadership team developed a list of course topics and a schedule of a mix of lectures, role playing, and hands-on workshops were created (appendix A). Additionally, as an introduction to teamwork and communication, a personality self-assessment was completed on the first day of the course. The results of this assessment were then discussed in a group setting as an exercise in understanding personalities and communication styles. At MRRH the course duration was approximately six hours of content per day for one week, while at NH the course took place in 4-hour sessions twice a week over the course of three weeks.

COURSE EVALUATION

The course evaluation is grounded in Kirkpatrick's framework for measuring success of educational interventions (figure 2).

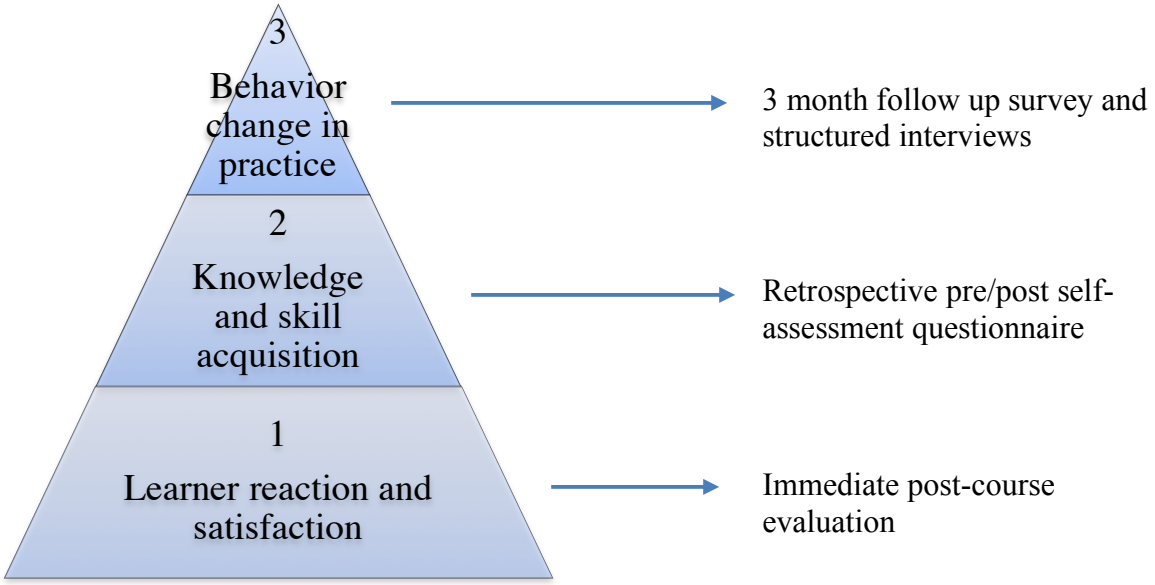

Figure 2: Evaluation methods linked to Kirkpatrick's framework

The course was first evaluated using an immediate, retrospective, pre/post self-assessment and course survey (appendix B). This was developed with the guidance of the Ugandan program director in order to ensure understanding of word choices and phrasing. To assess learner outcomes at the first level of Kirkpatrick's taxonomy – learner reactions and satisfaction – the ECPs were asked to choose which sessions were most and least helpful, and rate on a scale of 1-10 the overall content, amount learned, and use of time. Participants were then asked to retrospectively rate their comfort before and after the course with the core course competencies on a Likert-type scale from 1-5 with 1 being not at all comfortable with a concept and 5 meaning extremely comfortable. This reflects the second level of Kirkpatrick's model: learner acquisition of knowledge, skills, and attitudes. In order to detect a practically meaningful difference in mean

scores, a sample size of at least 20 would be needed (Cohen, J, 1992). However, since there are only 15 qualified ECPs available, results are presented as differences in the mean scores without a statistical analysis. While this assessment is valuable in determining immediate knowledge gains and overall course acceptability, it doesn't describe the long-term gains in skills and competencies, or if the course will result in behavior changes in practice.

To answer this question, a follow up survey and structured interviews were conducted three months after the course (appendix C). All participants were provided the list of core competencies covered in the course and asked to name the concepts they have used in the previous three months. In order to mitigate social desirability bias, participants were asked to provide descriptive details and examples to illustrate their responses. The survey was developed with input from my faculty advisors and the GEC program directors, and distributed to the participants. I then conducted structured interviews with the participants to review their answers and obtain any elaboration or clarification needed. I conducted 10 of the 15 interviews myself, and another GEC volunteer working at NH completed the remaining 5. Participant verbal responses were transcribed verbatim during the interview, and any alterations in word choice made by the interviewer were reviewed by the participant for accuracy in meaning and intent. The transcripts were then analyzed for recurrent themes, key words, and phrases taught during the course. Most commonly mentioned concepts were counted and graphed for comparison.

4. RESULTS

The initial course evaluation was completed by all 15 participants, 4 of whom work at MRRH and 11 at NH. The ECPTs were asked to provide feedback about the course in general. They were also asked to rate several statements regarding the course as a whole on a scale of 1-10, where 1 is "none or not good" and 10 is "a lot or great" (figure 3). Overall the course was

extremely well received; one ECPT exclaimed, *"all [sessions] were most valuable"* and another said, *"everyone can become a leader and needs all skills as listed."*

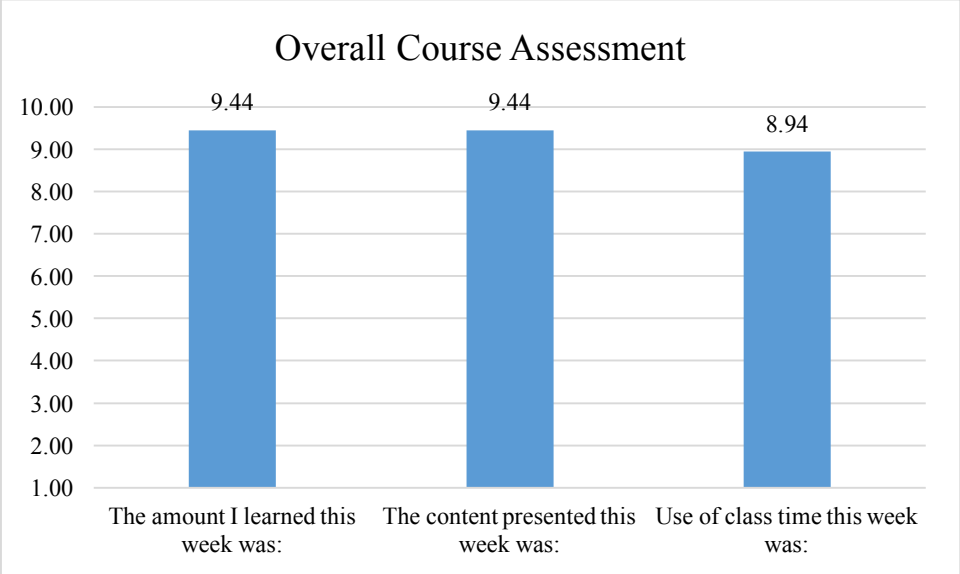

Figure 3: Overall assessment of the course

All participants reported improved comfort with all competencies taught during the course. Figure 3 shows the retrospective pre- and post- self-assessment scores and average difference in each score in all 24 competencies. The competencies with the most significant gains were "ask for feedback and listen to all members of the team," with an average increase in score of 1.68 points, and "ability to make an effective and logical PowerPoint presentation," with an average increase in score of 1.55. Other important gains were made in "ability to give feedback and constructive criticism" (average increase of 1.43), and "ability to assign roles and delegate tasks" (average increase of 1.31). Both asking for and giving feedback were also rated lowest overall in comfort level prior to the course.

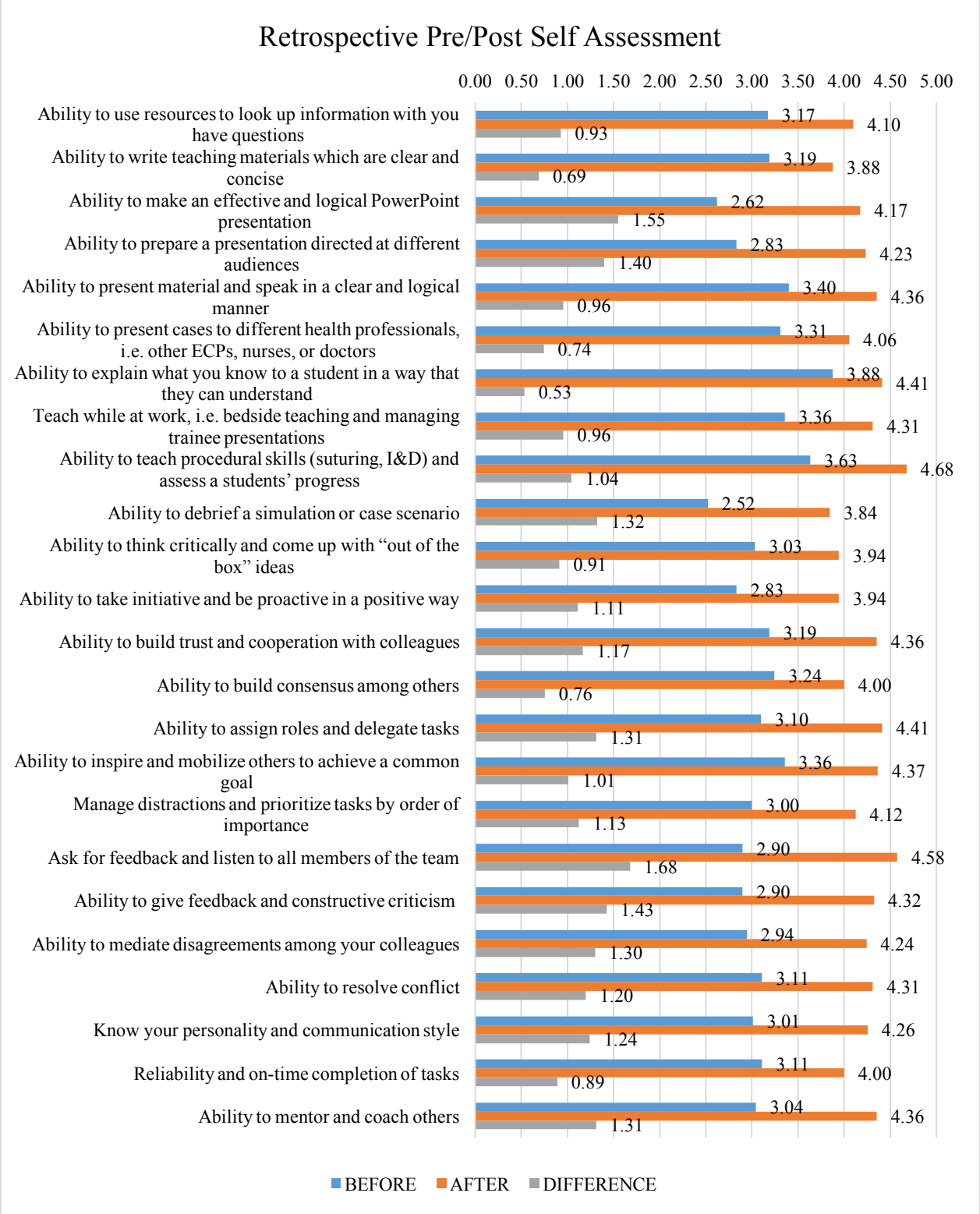

Figure 4: Retrospective pre/post self-assessment results

Participant responses about which sessions were most and least helpful are summarized in figures 5 and 6. The ECPTs reported the PowerPoint session and the overview of communication, leadership, and teamwork were the most valuable (n=10, 67% and n=6, 40% respectively). One ECPT explained, *"PowerPoint because they included practicing hands-on, use of new computer apps, and encouraging me to get self-confidence by presenting to my seniors."* Another who felt the leadership overview was most helpful explained, *"Being a good leader plus good communication helps to build teamwork."* The next highest rated section was the personality self-assessment with 27% of ECPs responding that it was one of the most valuable sessions. Of the 15 clinicians participating, 11 (73%) self-identified with a personality type named "dove," characterized as "peaceful and friendly." An ECPT who felt this was most useful explained that it *"helped me understand different types of personalities and how to deal with them and tips on how to teach adults."* As for the least valuable material, the participants were almost completely divided with the session on teaching a skill getting the most votes (n=3, 20%), and one ECPT explaining, *"Skills presentation had been tackled before."*

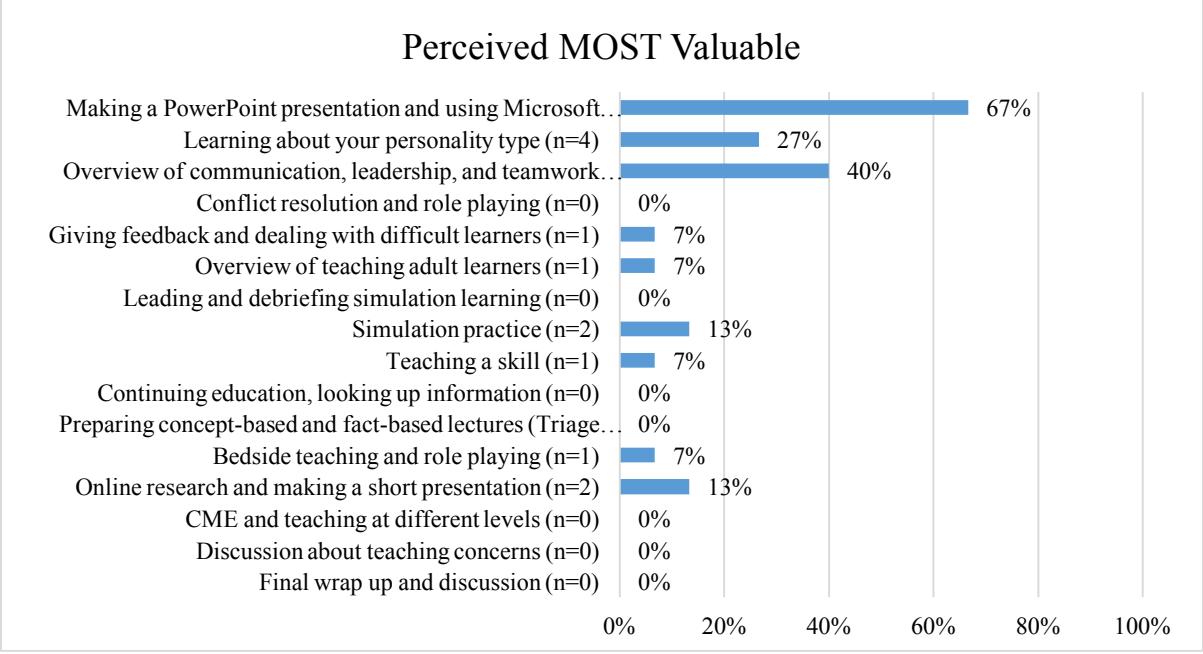

Figure 5: Perceived most valuable sessions

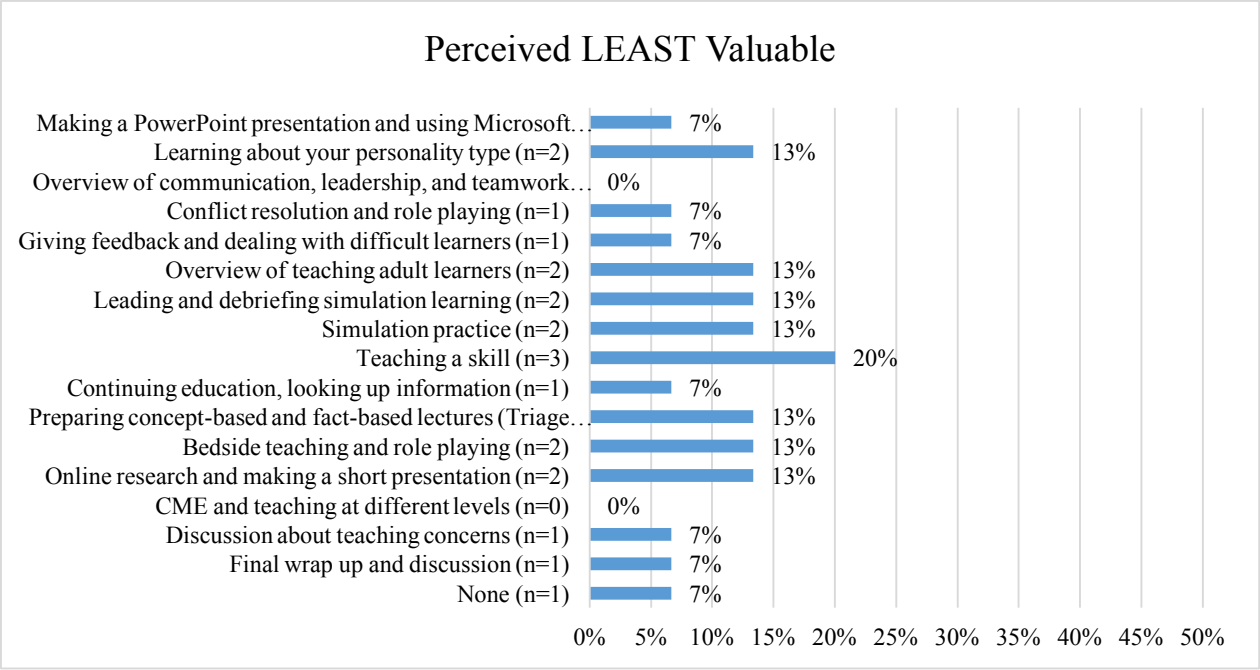

Figure 6: Perceived least valuable sessions

Lastly, the participants were asked if there was anything that was not well understood. Seven (46%) said no, and the others expressed a desire learn more about several of the more abstract EM concepts. Several explained specifically which subjects they wanted more content on: "conflict resolution – need more info," "about the management of distractions and prioritize tasks by order of importance," and "Leadership, communication, feedback."

The three-month post-course survey was completed by 100% of the participants, and asked about which content from the course they use most in practice and to provide examples. The three-month follow up results depicted in figure 7 focus on the most frequently mentioned major themes instead of specific skills used like making a PowerPoint presentation. These major themes include giving and receiving feedback, delegating, direct communication, confidence, leadership, and teamwork and suggest personal growth and/or a better understanding of EM culture.

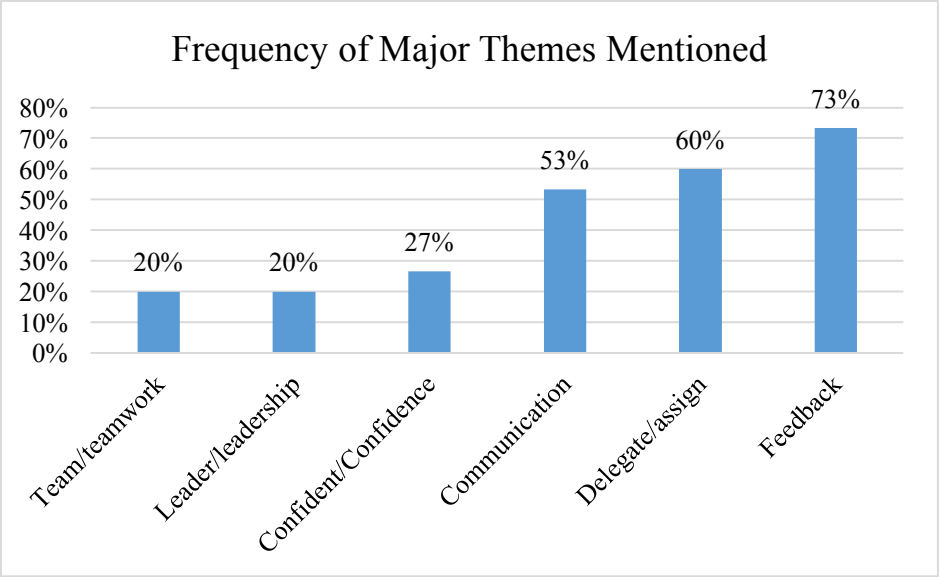

Figure 7: Frequency of most commonly mentioned concepts

When asked to name examples of changes they have made to their lecture and/or bedside teaching styles, 8 of the 15 participants (53%) named techniques regarding feedback and/or communication as concepts they not only learned, but have utilized. The participants gave substantial examples for when and how they have put these important EM skills into practice including:

- *"[While] giving feedback – talking to juniors – recognize that there are positives, but also include negative aspects."*
- *"I have developed confidence in my communication skills and good explanations."*
- *"[I] have improved in communication with other colleagues, ECPs and nursing students."*
- *"Asking for more feedback," when asked to name ways they have improved their lectures and presentations.*

Lastly, when asked to name concepts that have been most helpful and/or changes they have made in practice since the course, 11 of the 15 participants (73%) named concepts related to leading a team and delegating. Examples and explanations include:

- *"[Improvement in] ability to delegate roles and tasks especially in simulations and in times when the ED is busy with sick patients."*
- *"[Improvement in] leadership skills – appreciating others abilities, being more understanding and patient."*
- *"Leadership and teaching skills have helped me be confident"*
- *"[Improved in] ability to assign roles and delegate tasks"*

5. DISCUSSION

To the best of my knowledge this is the first course targeting faculty development for NPCs in EM in a LMIC setting. These results describe success at the first three levels of Kirkpatrick's framework: learner satisfaction, knowledge and skills gained, and self-reported behavior changes in practice, suggesting that this course is an effective CE intervention for teaching leadership and teaching skills to NPCs working in EM in Uganda. The high overall course assessment scores provide evidence for learner satisfaction, pointing to high cultural acceptability and relevance; the reported positive differences in comfort level for all categories in the pre/post assessment provide evidence for knowledge and skills gained; and reported retention and use of concepts learned provides evidence for behavior changes in practice. As the GEC program in Uganda grows, the current ECPTs, ECPs, and future ECP students will benefit from the skills and knowledge learned during this course, as well as from the reported leadership growth the ECPTs made during the three months following.

Over half of the participants described putting into practice what they had learned in the

course about leadership, communication, delegation, and teamwork. In a hierarchical, physician-dominated hospital culture, it was surprising to hear NPCs were feeling more confident in taking on leadership roles and delegating (Admin, 2010 and Rarick, B, 2013). It could be argued that those who gravitate to EM in Uganda are similar to EM providers in Western countries where trends in personality types have been documented in the literature. Traits that are most prevalent in the Western EM providers studied include enthusiastic, straight-forward, analytical, insensitive, and apt to loathe rules and guidelines (Risucci, D., 1999). In contrast, while there are no similar reports on clinicians in Uganda, the majority of participants in this evaluation self-identified as a "Dove." Those who identify with this type are usually relaxed, slow-paced, and tend to avoid confrontation, change, and assertiveness (D.O.P.E. Personality Types Test). The results of this self-assessment provides context for this cohort of clinicians and refutes the argument that they may have been predisposed to be direct and assertive prior to the course. Given this context, the three-month follow up results showing ECPTs adopting many of these behaviors is all that more profound. It demonstrates the potential for this course to influence individuals' growth as leaders in the department and shift the traditional physician-led culture.

Further conclusions on the influence of culture and personalities on leadership education and development or department culture changes can not be drawn as this course evaluation was not structured to measure these outcomes. Kirkpatrick's framework, while well-utilized in the Western literature, does not account for these outcomes. Future similar course development and evaluation could benefit from a revised framework to better assess how these differences impact learning, subsequent translation of that learning into practice, and department culture. A revised framework is proposed for those conducting CE interventions in other countries that acknowledges the influence culture will likely have on these outcomes (figure 8).

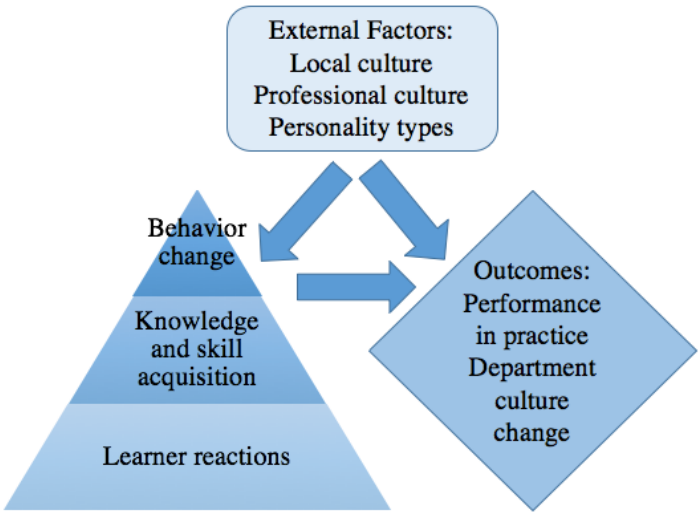

Figure 8: Revised framework

Using this framework, future CE interventions should establish pre-course cultural norms and personality types. These results can guide evaluation methods, specifically long-term follow up to assess if and how this type of CE intervention can result in department culture shifts and individual personality changes.

6. LIMITATIONS

It is difficult to generalize our results and the success of this course beyond this setting due to the limited number of participants and lack of a comparison group. Additionally, the influence of social desirability bias on participants' responses can not be excluded given the personal relationship between the participants and myself, which limits the conclusions that can be drawn from our results. In future evaluation processes, it would be preferred to obtain evaluation data via an outside person or electronic form, however, given the setting, scale, and funding of this program and evaluation, that was not possible. Nonetheless, as the first description and evaluation of a leadership and teacher training course for EM NPCs in SSA, this paper lays important groundwork for future course development, implementation, and evaluation.

7. CONCLUSION

This course in leadership and teacher training was a successful CE intervention in this setting as measured by Kirkpatrick's framework. Incorporating this content into new EM program curricula can greatly benefit the teachers, students, and future students who will go on to provide emergency care to their communities. However, the complexities of culture and personality play a significant role in clinical practice, especially in the field of emergency medicine. Based on our results, NPCs in EM in Uganda are open to learning and adopting strong leadership and teaching skills which have not been traditionally encouraged in the past. In continuing to build EM as a new specialty in this setting, future courses and research should build on our findings and evaluate how personality and culture influence teacher and leadership development from knowledge acquisition to behavior changes in practice and department culture.

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APPENDIX A – CURRICULUM SCHEDULE

Day 1	Microsoft Office	Basic do's and don'ts (overcrowding, spellings, fonts, layouts, citing references, etc) Making PowerPoints (using notes, animations, presenter view, tables, pictures), Microsoft word and excel Making PowerPoints together go over key areas to improve Activity: Each participant will present a basic PowerPoint that includes a case, transition, animation, table and picture and we will discuss ways to improve and what was done correctly
Day 2	Leadership, Teamwork, Communication Learning your personality Feedback and conflict resolution	Leadership (qualities of a good teacher/educator/leader, communication styles) D.O.P.E. personality test and discussion of how that affects teaching style and team interaction Giving feedback, disciplinary communication, tools for managing conflict Activity: drills, role play, etc
Day 3	Teaching adult learners Simulation teaching and debriefing Teaching skills	Lecture on the ways people learn, specifics on how to teach adult learners, skills to manage difficult learners Activity: role playing Discuss simulation in general and lecture about debriefing, debriefing trauma video, and role playing with ECPs and discussion Activity: Each participant takes a turn facilitating and debriefing a simulation Activity: teach a skill (can be non-clinical),
Day 4	Continuing education Lecturing Clinical teaching	Continuous Education (e-learning, looking up from text books) Activity: Practice looking up specific information from both internet and text books; assign relevant topic to look up and make a short PPT to present Use triage as example, analyze a fact based triage lecture versus concept based Precepting in the ED (remember communication, prompting questions) Activity: Role playing bedside teaching.
Day 5	Presentation and teaching skills Wrap up	teaching different cadres, patient education, discharge instructions, etc Activity: practice discharge instructions and CME, i.e teaching a concept to 3 different cadres in one room Activity: Repeat day 1 PowerPoint presentation with revisions, give each other feedback Group discussion, reflections on course, questions, summarize content learned, main points

APPENDIX B – PRE/POST-COURSE SELF-ASSESSMENT

Boot Camp Self Assessment: Please rate your comfort/knowledge level with each of the following skills on a scale of 1-5:
Page 1: Reflect on what you think your knowledge level was PRIOR to boot camp starting.
Page 2: Reflect on how you feel now about your knowledge/comfort level with these skills since boot camp.
5-Expert level, 4- confident/above average, 3-somewhat comfortable/average, 2-not very comfortable, 1-not at all comfortable

SKILL OR CHARACTERISTIC – **BEFORE Boot camp**	5 Expert	4 Confident/ Above average	3 Somewhat/ average	2 Not very	1 Not at all
Teaching, Presenting, and Using Resources					
Ability to use resources to look up information with you have questions					
Ability to write teaching materials which are clear and concise					
Ability to make an effective and logical PowerPoint presentation					
Ability to prepare a presentation directed at different audiences					
Ability to present material and speak in a clear and logical manner					
Ability to present cases to different health professionals, i.e. other ECPs, nurses, or doctors					
Ability to explain what you know to a student in a way that they can understand					
Teach while at work, i.e. bedside teaching and managing trainee presentations					
Ability to teach procedural skills (suturing, I&D) and assess a students' progress					
Ability to debrief a simulation or case scenario					
Leadership, Communication, Feedback					
Ability to think critically and come up with "out of the box" ideas					
Ability to take initiative and be proactive in a positive way					
Ability to build trust and cooperation with colleagues					
Ability to build consensus among others					
Ability to assign roles and delegate tasks					
Ability to inspire and mobilize others to achieve a common goal					
Manage distractions and prioritize tasks by order of importance					
Ask for feedback and listen to all members of the team					
Ability to give feedback and constructive criticism					
Ability to mediate disagreements among your colleagues					
Ability to resolve conflict					
Know your personality and communication style					
Reliability and on-time completion of tasks					
Ability to mentor and coach others					

SKILL OR CHARACTERISTIC – **AFTER Boot camp**	5 Expert	4 Confident/ Above average	3 Somewhat/ average	2 Not very	1 Not at all
Teaching, Presenting, and Using Resources					
Ability to use resources to look up information with you have questions					
Ability to write teaching materials which are clear and concise					
Ability to make an effective and logical PowerPoint presentation					
Ability to prepare a presentation directed at different audiences					
Ability to present material and speak in a clear and logical manner					
Ability to present cases to different health professionals, i.e. other ECPs, nurses, or doctors					
Ability to explain what you know to a student in a way that they can understand					
Teach while at work, i.e. bedside teaching and managing trainee presentations					
Ability to teach procedural skills (suturing, I&D) and assess a students' progress					
Ability to debrief a simulation or case scenario					
Leadership, Communication, Feedback					
Ability to think critically and come up with "out of the box" ideas					
Ability to take initiative and be proactive in a positive way					
Ability to build trust and cooperation with colleagues					
Ability to build consensus among others					
Ability to assign roles and delegate tasks					
Ability to inspire and mobilize others to achieve a common goal					
Manage distractions and prioritize tasks by order of importance					
Ask for feedback and listen to all members of the team					
Ability to give feedback and constructive criticism					
Ability to mediate disagreements among your colleagues					
Ability to resolve conflict					
Know your personality and communication style					
Reliability and on-time completion of tasks					
Ability to mentor and coach others					

Post Boot Camp Evaluation:

1. What were the two MOST valuable sessions of the week? (check 2):

Making a PowerPoint presentation and using Microsoft office	
Learning about your personality type	
Overview of communication, leadership, and teamwork	
Conflict resolution and role playing	
Giving feedback and dealing with difficult learners	
Overview of teaching adult learners	
Leading and debriefing simulation learning	
Simulation practice	
Teaching a skill	
Continuing education, looking up information	
Preparing concept-based and fact-based lectures (Triage example)	
Bedside teaching and role playing	
Online research and making a short presentation	
CME and teaching at different levels	
Discussion about teaching concerns	
Final wrap up and discussion	

Briefly explain why:

2. What were the two LEAST valuable sessions of the week? (check 2):

Making a PowerPoint presentation and using Microsoft Office	
Learning about your personality type	
Overview of communication, leadership, and teamwork	
Conflict resolution and role playing	
Giving feedback and dealing with difficult learners	
Overview of teaching adult learners	
Leading and debriefing simulation learning	
Simulation practice	
Teaching a skill	
Continuing education, looking up information	
Preparing concept-based and fact-based lectures (Triage example)	
Bedside teaching and role playing	
Online research and making a short presentation	
CME and teaching at different levels	
Discussion about teaching concerns	
Final wrap up and discussion	

Briefly explain why:

3. On a scale of 1-10, 1=NONE/NOT GOOD and 10=A LOT/GREAT. Circle a number:

	Not good → Great
a. The amount I learned this week was:	1 2 3 4 5 6 7 8 9 10
b. The content presented this week was:	1 2 3 4 5 6 7 8 9 10
c. Use of class time this week was:	1 2 3 4 5 6 7 8 9 10

4. What are two new ideas/skills you learned this week?

5. How do you plan to apply these ideas/skills in the future?

6. Was there anything you did not understand this week? What could be changed to improve your understanding?

7. What recommendations do you have for improving these sessions?

8. Is there a topic which was not covered that you would have liked to learn?

APPENDIX C – THREE MONTH POST COURSE SURVEY

Of the skills and competencies taught during the course, name three that have been the most useful to you since, and give examples of when you have used them.

1. Name three examples of changes or improvements you have made to your lectures, simulation facilitation, or case presentations since the course.
2. Name three examples of changes or improvements you have made to your bedside teaching or skills teaching since the course.
3. Name three examples of times when you gave a student feedback since the course.
4. Has there been a negative interaction or conflict with a student or colleague since the course? If so, how did you manage it?
5. Name an example of a time you have been a leader since the course.
6. Consider the following scenario: a student has failed the last 3 quizzes, but not seeking addition help. How would you handle this problem?