Assignment 1 – Journal/Activity

Elizabeth Margaret Shivers

jshivers3@gatech.edu

Abstract—Every year medical providers are required to participate in Continuing Medical Education (CME) and Educational Technology is providing an avenue for delivering CME content like never before. At the same time, the need for increased medical provider knowledge regarding both medical and cultural aspects of care for patients who are Transgender or other Queer identities has largely not been addressed, partially due to rapid changes in regards to both medicine and culture. The focus of research in these assignments as such is attempting to establish need for and to seek avenues of utilizing Educational Technology to address a rapidly changing landscape of care for these patients as well as address key cultural knowledge that is often omitted from purely technical areas of education.

1 JOURNAL

I have opted to use this initial journal to not just document my research, but also put together initial thoughts and concerns as I proceed forward.

1.1 Personal Background

Given the nature of this project, I feel that personal background is warranted. I myself am a transgender woman, and active within both the transgender and larger LGBTQ communities. Having worked with healthcare IT, continuing my education with an explicit focus on healthcare technology, and having multiple family members in the healthcare field providing additional insight I have found myself at an intersection of identity, medicine, and technology which believe I well suited to approaching a project such as this.

1.2 Initial Thoughts/Comments on Track and Need

As of this journal submission, I have not yet settled on whether content development or the research track is more appropriate. While content development would be preferable, it would largely hinge on what is already available and

accessible in terms of peer reviewed research, something often sorely lacking in regards to transgender care. As an added complication, all content would have to be developed under the explicit disclaimer that everything is in active flux. In other words, while research may propose things for the future but largely be left as a snapshot in time, content would actively require consistent revisions to remain relevant, particularly from cultural perspectives.

I have an additional nagging concern regarding content, in how to properly address the pseudo-generational gap present within the transgender community, and areas of potential discrimination. For context, there is a very contentious philosophical divide between members of the transgender community which can (very, very) broadly be summarized to fit into one of two groups: "classic transsexuals" and "modern trans and nonbinary people". Even in describing the groups, the divide begins to show itself: "Transsexual" as a noun is common parlance, while "Transgender" as a noun is considered extremely offensive. In other words, you wouldn't want to say, "modern transgenders". The divide is much more expansive and nuanced than I can begin to go into here, though I may opt to discuss it further as an aspect of research or in future journal commentary. Simply put though, this is a problem that often arises at times transgender care is addressed in many professional or academic settings, as there are typically attempts to have transgender guest speakers of renown. Overwhelmingly due to the correlation between age and perceived experience, these tend to be older MD or PhD holding individuals, who often fall in the "classic transsexual" camp. This means that information is often imparted that is at odds, at least culturally or contextually if not medically, with the broad majority of younger transgender people. In some cases, it could be considered outright discriminatory, and even often fails to account for nonbinary identities entirely. I should mention this is not a clear generational divide, and there are certainly older transgender people who not only embrace but often acted as the driving forces for modern queer, trans, or nonbinary philosophies. Simultaneously, some younger transgender people have found themselves following the more classic views. And as nothing is black and white, most may fall somewhere between the two positions with a mix of stances.

1.3 The nature of this Research

Research focus will be split between a few distinct topics, covering potential areas of content (such as medical studies and cultural dissertations), existing options

(current CMEs providing similar content), and support research such as the effectiveness of technology-based CME courses at delivering information or teaching methods suitable to delivering the content. This list is not an exhaustive list of areas of research, and relevant papers outside those areas will certainly be included.

1.4 Research Execution

Starting with technical and easily quantified considerations was deemed the most logical approach, and so initial research was performed into papers regarding internet-based CME effectiveness and desirability for medical providers. This was essentially seeking an answer to the question of "Is this a viable medium to convey the desired content?" This was a particular concern of mine, as early concepts I had for developing a CME of this nature were based around a traditional in-person seminar.

1.4.1 *CME Effectiveness*

In 2014, an Australian study performed a systematic review that provided much of the desired information [1]. The authors showed that there was "a significant improvement in [the] outcomes: satisfaction, knowledge or practice change with "little evidence for the impact [...] on patient outcomes." [1]. As the focus of this project would hinge on the first two criteria more so than patient outcomes (given it is largely an issue of addressing cultural issues rather than medical science), this was a welcome find indicating that an online CME may be an ideal medium for the content being considered for development. A second systematic review went more in-depth analyzing studies and other reviews alike, demonstrating broad support for the effectiveness of online CMEs [2]. A Canadian journal published an article about using an online CME course to distribute up to date information to rural and remote providers, showing an improved application of newer best practices for the treatment of arthritis [3]. A similar study was conducted in Peru surrounding using online CME for management of STD/STIs in low income and underdeveloped areas, resulting in which the researchers concluded online CME "could be an important way to deliver CME in a developing country setting" [4]. A goal I had in mind for this project is in dissemination of information to such settings, as rural areas in developed nations or undeveloped nations in general tend to be those with the least available information on the

topic of trans/nonbinary/queer care as those populations tend to congregate in urban areas when possible.

1.4.2 CME Development

A potential model for course development was a particularly exciting find was one article detailing the creation and evaluation of a CME course, for which 11 of 12 physicians participating in the study reported positive opinions of the course and how it would inform for the practice [5]. A 2003 study, while dated, provided what I believe are still likely to be valuable lessons when it comes to designing a CME [6], as the study determined time to be a major deterring factor in positive views and learning perspectives of CME for credits, which was often at the expensive of need based learning. This may inform several aspects of content development.

1.4.3 Pedagogy

In an attempt to address pedagogy, I was unable to find explicit discussion of commonly employed teaching styles in CMEs, but I did however locate three articles coming from the other direction which addressed the learning styles of physicians [8][9][10]. The three studies were carried out over the course of decades and did not directly address online CME courses, nor did they have common results. Nonetheless, they should provide a good basis from which to synthesize commonalities in the discussed preferred learning methods, which will hopefully aid in identifying the optimum pedagogical approach.

As I struck out on CME pedagogy, I delved into general eLearning approaches. The first such paper [11] discussed pedagogy in eLearning in regards to language, though it seemed to fail to reach a worthwhile conclusion on pedagogical approaches, and indeed did little beyond state what they were.

1.4.4 CPD vs CME

This did however aid me in recognizing a potential area of stronger equivalence to CME in broader Continuing Professional Development (CPD). This immediately led to an article on CPD best practices whose content explicitly discussed things relevant to this potential project [12]. In a bit of a shock, I found my understanding of the distinction between CPD and CME challenged by the line: "CME has traditionally been concerned with disseminating information, but CPD has

4

shifted the emphasis to demonstrating change in behavior in clinical practice" [12, p. 4]. I had considered CME universally a form of CPD explicit to the medical field while CPD was used more generally between all professions, not recognizing that in medical contexts CPD is also used to describe an additional tier of CME encompassing broader topics than medical care itself. This does seem to be somewhat regional in nature and potentially a primarily academic distinction, but nonetheless opens avenues for locating more global research into these topics as well as enriching my own knowledge on the field.

1.4.5 *Development Models*

At this point I opted to begin research towards content development methodologies. The first paper I identified was Finogeev, et. al's 2018 piece on a development life cycle for education [13]. Much of it may be both either too broad as well as somehow too specific for my purposes, but I hope to explore this piece more as I move into future phases of my project. A second article [14] seemed initially promising as a means to evaluate the success of CPD courses and propose forms of development based on that, but unfortunately it was largely team focused and did not feel applicable to this project.

1.4.6 *CME Accreditation*

An interesting article in the journal Clinical and Translational Oncology provided a short primer into the need for CME credits and also some general things to keep in mind regarding them [7]. The article also provided some interesting statistics on the source of CMEs available in Spain, but I believe they may be largely accurate for much of the world.

The last paper I look at this week was an editorial in the European Journal of CME [15]. It was an interesting history lesson and primer in international accrediting, as well as discussing the commercial influence on CME and failure of crediting agencies to respond fully to the issue. I don't foresee much project value, but it nonetheless lends to a deeper understanding I am searching for on the topic of CME.

1.4.7 *Future Literature to Explore*

I will close out this week's journal by mentioning that I found a few references to a book I have now ordered: 'Continuing Medical Education: A Primer' (ISBN13:

978-0275940102). It was referred to several times as the "CME bible", and despite being published in 1992 people consider it still an important guide to CME.

2 ACTIVITY

2.1 Paper 1

Bonevski, B., Magin, P., Horton, G., Bryant, J., Randell, M., & Kimlin, M. (2015). An internet-based approach to improve general practitioners' knowledge and practices: The development and pilot testing of the "ABCs of vitamin D" program. *International Journal of Medical Informatics*, *84*(6), 413–422. doi: 10.1016/j.ijmedinf.2015.01.006. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S138650561500009X?via%3Dihub

2.1.1 *Need*

The paper addresses the need to establish "theory and evidence-based" [3] online CMEs as a standard for development. (It should be noted that in the context of medicine, evidence based as per the terminology used here is still a largely revolutionary concept.)

2.1.2 *Method*

The authors developed a trial course following nine core principles: "needs assessment; evidence-based content development; multimodal program and modularisation; clinical cases; tailoring and interactivity; audit and feedback; credibility of the web site host; patient education materials; ease of use and navigation" [3]. 12 medical practitioners who participated in the course were then interviewed for their feedback.

2.1.3 *Audience*

The audience of this paper is largely medical academics or others with an interest in development of CME courses, though may also be extrapolated to medical education in general.

2.1.4 *Results*

11 out of the 12 participants reported that "the program was clear and easy to understand, logical, easy to navigate, and took a reasonable amount of time (estimated between 1 and 3 h) to complete" as well as that they would use the course

for CME credits and that it was "very or somewhat likely" to result in changes in patient care [3].

2.1.5 *Critique*

With a growing focus on evidence-based medicine, it stands to reason that we require evidence-based medical education to support it. By leveraging modern technology as well as older practices simply not adopted previously by the medical community, I believe the authors showed a clear path to developing a modern CME course. Their approach to design seemed to match closely to need finding activities in typical development life cycles, such as those established throughout the CS6750 course, and as such lends well as support for the desired approach for content development within the context of this project.

2.2 **Paper 2**

Lewis, A. P. (n.d.). General practitioners and their learning styles. *The Journal of the Royal College of General Practitioners 1989*, *39*(322), 187–189. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1711996/pdf/jroyalcgprac00005-0010.pdf

2.2.1 *Need*

Establishing learning styles of students in any category is important to designing effective course materials. No research prior to this was identified addressing the need from a perspective specific to general practitioners.

2.2.2 *Method*

A questionnaire containing 80 questions, 20 per "Honey & Mumford" learning styles, was handed out to GP trainees, GP practitioner trainers, and hospital clinical tutors (n = 63, 78, 50 respectively) as well as a comparison group of 47 randomly selected "non-trainer principals". Questions were scored and tallied, with statistical modeling tests (F Test) to control for potential result issues.

2.2.3 *Audience*

The audience of this paper are educators designing medical curriculums for general practitioners. No technical knowledge of medical practice is required.

2.2.4 *Results*

Trainers and tutors largely showed dominance in the reflector and theorist styles, while trainees and the comparison group fell into the reflector and pragmatist styles.

2.2.5 *Critique*

The study's methods seemed very appropriate, though I have some misgivings about the selection of learning styles and the potential applications of the model. The age of the study raises additional questions in how applicable it may be today and to an online learning platform.

2.3 **Paper 3**

Lineker, S., Fleet, L., Bell, M., Sweezie, R., Curran, V., Brock, G., & Badley, E. (2019). Getting a Grip on Arthritis Online: Responses of rural/remote primary care providers to a web-based continuing medical education programme. *Canadian Journal of Rural Medicine*, *24*(2), 52. doi: 10.4103/cjrm.cjrm_10_18. Retrieved from http://www.cjrm.ca/temp/CanJRuralMed24252-3188174_005308.pdf

2.3.1 *Need*

Rural/remote areas often lack resources to stay current on emerging issues relating to medical practice. This paper sought to address whether the need for up-to-date medical information in rural and remote areas could be solved through online CME courses.

2.3.2 *Method*

The researchers developed an online course on Osteoarthritis and Rheumatoid Arthritis after a proper needs assessment and with the help of experts. They released a pilot program in remote areas of Canada. They measured participant knowledge of best practices in arthritis care prior to the course, immediately after completion, and at a three month follow-up, assigning scores based on the number of best practices implemented at the time.

2.3.3 *Audience*

The audience of the paper is educators and medical professionals, as well as related additional stakeholders such as potential investors and medical systems in

general, looking for the justification for online CME courses focused on solving issues related to rural and remote areas.

2.3.4 *Results*

Participants showed increase usage of best practices post completion over the previous baseline. There were not enough respondents for the 3-month follow-up.

2.3.5 *Critique*

I believe the method for measuring the results feels as though it was overly simplistic and may not accurately reflect a relative improvement in care. I also question the use of arthritis as the subject for the trial, which was more opportunistic for the number of potential cases than indicative of the effects that this form of education may have in areas that have greater shifts in their arena of care. Nonetheless, it provided results that are clear in how online CME courses may benefit rural/remote areas.

2.4 Paper 4

Canchihuaman, F.A, P.J Garcia, and K.K Holmes. "Designing of a Multicomponent Internet-Based CME Course in the Management of Sexually Transmitted Diseases for Physicians and Midwives in Peru." International Journal of Infectious Diseases 12.S1 (2008): E184. Web. Retrieved from https://www.sciencedirect.com/science/article/pii/S1201971208005912.

2.4.1 *Need*

The original need for the study was based around evaluation of improvements newly adopted educational tools and theories. According to the paper, "Traditional continuing medical education (CME) training strategies rarely change the performance or are sustainable over time" [4].

Published in 2008 and performed in 2005, the original need for the study may have been since addressed. As such, I would like to also mention a secondary need not explicitly identified until the conclusion in that, similarly to the need in Paper #3, developing countries or areas often lack access to means to stay up to date with emerging medical technology, practices, and other elements of care.

2.4.2 *Method*

The researchers performed a three hour workshop for improving internet skills in order to support use of their course, followed by participants taking a 22 hours over three weeks course they had designed using "learning theory approach" and "case-based learning", which also "was tailored to local STD problems" [4].

2.4.3 *Audience*

As with other papers, the primary audience is an array of CME stakeholders, predominantly educators or others looking for justification or additional areas of continuing research.

2.4.4 *Results*

93.9% of the participants (n = 387) "rated the course as "very useful" for their job needs and/or their professional effectiveness" [4]. The researchers concluded a high rate of satisfaction, and that the approach was flexible enough to address other topics, as well as addressed the need to deliver CME to developing areas.

2.4.5 *Critique*

While a bit simpler in its approach to evaluation, I consider the results in this study to be more reliable on the surface than paper #3 by Linekar, et al., due the larger sample and criteria specificity. While it is possible that the issues supporting need for this particular area may no longer apply due to continued Peruvian development in the past decade, the concept of providing CME to developing countries is likely still relevant for areas that qualify as developing today.

2.5 Paper 5

Deborah Mcphail, Marina Rountree-James, and Ian Whetter. "Addressing Gaps in Physician Knowledge regarding Transgender Health and Healthcare through Medical Education." Canadian Medical Education Journal 7.2 (2016): 70-78. Web. Retrieved from https://journalhosting.ucalgary.ca/index.php/cmej/article/view/36785/pdf.

2.5.1 *Need*

Despite being considered a "priority group" [16], there is still an issue for transgender people to receive proper healthcare. This paper seeks to provide a

foundation to address this issue by establishing an understanding of the mechanisms leading to the lack of care, filling in gaps which currently exist in the literature.

2.5.2 *Method*

A qualitative study was performed involving 30 transgender identified people and 11 physicians in Winnipeg, including "semi-structured individual interviews and focus groups" [16]. The results were then ran through analysis software iteratively.

2.5.3 *Audience*

The primary audiences of this paper are intended to be researchers and educators, as well as potentially groups such as social activists who seek to understand the mechanisms of transphobia and discrimination.

2.5.4 *Results*

The study showed "overwhelmingly… [there] was a lack of physician knowledge", as per both subject groups [16]. Transphobia was identified as a secondary issue. The researchers concluded that there is "a pressing need for better medical education that exposes students to basic skills in trans health so that they can become competent in providing care to trans people" [16].

2.5.5 *Critique*

This study provided an excellent means to academically fill in gaps in the literature as they said. The results would come as no surprise to anyone in the transgender community, yet there is of course a large difference between accepted anecdotal knowledge and information established by empirical research.

I believe it is an excellent foundational study, and serves to establish need for the conceived project herein.

3 REFERENCES

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