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COMMENTARY

Swimming in a tsunami of change

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We read the recent article on "Faith-based medical education" by Whitehead and Kuper (2017) with much interest. We applaud them for publicly questioning the accepted "doctrine" of competence-based medical education (CBME) by asking the community to consider whether "the emperor has no clothes". We agree that it is dangerous for any community to blindly accept significant change mandated "from the top" as "gospel" without good reason, and we agree that it is important for members of our community to be able to ask critical questions of authority without fear. Further, this article made us ponder on several issues pertaining to change management in medical education, for instance:

- How much evidence do we "really" needed before deciding to change? Should change be based on an optimistic faith in the future, or is it possible to "look before we leap"?
- Are we asking the right questions in preparation for a change? Are we ready to deal with unintended outcomes?

In recent years, several western countries have undertaken the decision to change to a system of CBME (Biddiss 1997; Frank and Danoff 2007; Graham et al. 2007; Iobst et al. 2010; Laan et al. 2010; Simpson et al. 2002; Swing 2007). This decision can be seen as part of a larger change-initiative that has been occurring over the past 25 years, where the push to deconstruct and itemise the duties and roles of the physician has led to the creation of a variety of frameworks and conceptual models (Carraccio and Burke 2010; Carraccio et al. 2016; Hodges 2010; Sklar 2015; Ten Cate 2005; Whitehead et al. 2011). This impetus can be traced back to the perceived erosion of public trust that was traditionally placed in doctors (Whitehead et al. 2011). CBME in its "pure" form is indeed an attractive

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educational model. We consider its major strengths to be in the areas of scaffolding (learning material organized in modules that build upon each other), flexibility (modules completed at a learner's own pace) and assessment (especially the idea of assessment being based on the ability to entrust important tasks to learners). The ultimate output, as mentioned by McGaghie et al. (1978) are health professionals that can practice medicine at a defined level of proficiency in the context of local needs. Indeed, some of core principles of CBME such as trainee driven learning incorporated with formative feedback (Pelgrim et al. 2013; Ross et al. 2011; Sargeant et al. 2011; Watling et al. 2012), use of multiple assessors and multiple assessments (Sharma et al. 2012) and aligning the curricula with future practice (van der Leeuw et al. 2012) have been shown to have a positive effect on meeting learner needs and overall patient safety; the two primary factors fueling this initiative. As others have also extolled the strengths and weaknesses of CBME (Frank et al. 2010; Hawkins et al. 2015; Norman et al. 2014; Talbot 2004), it seems to us that the emperor may after all have at least a few clothes.

It seems evident that many decisions that result in significant changes are based not purely on hard evidence, but rather on an optimistic faith in the future. For example, problem-based learning (PBL) was an initiative that was "faith-based" (Servant 2016). Historical analysis revealed that its enactment into the medical curriculum was not based on a "real understanding of education theory" rather it was piecemealed together by the founders based on educational practices in North America and the UK. No randomized trials, no before–after studies or systematic reviews were conducted to prove PBL as a good educational initiative before its implementation. In fact, initial scientific research on PBL only began to use cognitive psychology as an explanation *after* its success as a learning method was noted. Suffice it to say, many of the educational reforms have been based on the belief that the proposed changes would fill the gaps that were observed and published in reports (Biddiss 1997; Enhancing Standards of Excellence in Internal Medicine Training. Federated Council for Internal Medicine 1987; Neufeld et al. 1993; Tomorrow's Doctors: Recommendations on Undergraduate Medical Education 1993). It is not surprising that the current proposed change seeks to transform a system in order to address the perceived needs of both the individual learners and the society (Hodges 2010).

Those with expertise in educational theory are vital in these times of change, and their voices are important in our community's dialogue. Whitehead and Kuper voiced their concerns that the need for evidence is being superseded by the practicalities of implementing the change. Perhaps we are asking ourselves the wrong question by inquiring about how much theoretical evidence one needs prior to implementing a reform. Rather, we ought to be considering what are the best strategies or conceptual frameworks required for implementation (Altrichter 2005; Century and Cassata 2014; Chaudoir et al. 2013; Fullan and Pomfret 1977). Additionally, are we poised to collect robust evidence *during* and *after* the change? How will the many facets of this complex education initiative come together? What will happen if the change does not have its intended outcome? We appeal to the community to redirect its focus to implementation science rather than on the lack of evidence underpinning the change. It is clear that this complex educational intervention will require a research agenda that examines its impact on the learners, faculty, curricula, and the multi-levels systems comprised of trainees, teams, institutions and healthcare systems (Gruppen et al. 2017). To those accused of "mandating the change", we advise that the heavy-handed imposition only creates resentment that will, in the long run, harm the true intent of the reform. As it has been noted, achieving successful curricular change rests upon the guidance of an appropriate leadership (Bland et al. 2000).

Whitehead and Kuper stated that the "CBME train rolls on" over potential objections and questions. Similarly, we wonder if questioning the evidence for CBME at this stage is akin to "swimming in a tsunami". Perhaps this metaphor can help us reframe the dialogue by considering how can our community better prepare itself for the coming tidal wave of change, and how can we ensure that the learners and teachers survive until we reach calmer waters. Undoubtedly, the tsunami alert has been sounded and the waves will soon be making their way ashore. Although we agree with many of the sentiments raised by Whitehead and Kuper, we believe that we are by now well past the point of halting the proposed change. The waters are rising and we shall soon know if we have indeed prepared well enough for this undertaking. Teachers and learners will need to work together to apply the elements of CBME in the workplace of the real world. Time still remains to prepare our community for this task, to develop a shared understanding between learners who must learn how to navigate a new educational system, teachers who must ensure that learners still get what they need, administrators who must make it work behind the scenes, and the accreditors who must ensure that the quality of our programs is not affected. We hope that a dialogue can be established between all of those affected by the process of change in order to help steer us towards a safe outcome. Undoubtedly, an effective dialogue amongst stakeholders is key to a successful implementation of a change initiative (Kaptein and Van Tulder 2003).

This is a critical moment for the Canadian medical education community—we are poised on the cusp of a change that will have a dramatic effect. Indeed, the world is watching how our landscape will be transformed. The next few years will teach us much about our capacity to sustain system-wide change, and will reveal whether CBME has a firm foundation or not. Brave, nonconformist voices must not be ignored, as they are a vital part of the rigorous discourse and dialogue that is central to our community. Such voices may make us feel uncomfortable, but they keep us grounded in reality and help ensure we are prepared for real, lasting change.

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