Reviewer's report

Title: Virtual Patient Simulation: what do students make of it? A focus group study.

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Reviewer: Gunilla Svingby

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Major Compulsory Revisions (which the author must respond to before a decision on publication can be reached)

The research context of the work

Medical education has long been in the frontline of integrating Virtual Patient simulations in the curriculum and many studies report on positive learning effects. In contrast to focus on learning effects of the majority of the studies reported, the focus of the reviewed article is to understand why the VSP tool is effective seen from the perspective of the users that is medical students. The problems reported when VSP is introduced in the ordinary curriculum form an important background to the focus of the users. For example, difficulties are reported to integrate the educational possibilities offered by the VSP into the existing curriculum, and the students do not see the benefits of the tool in relation to the examination or to time, and effort. With more knowledge of how users’ think and react when using the VSP, the options are better for a seamless integration of the tool in the learning context. Accordingly, the article studies the students’ experiences of using the VSP in a realistic setting – as part of the ordinary curriculum. In doing so, the article gives an important contribution to the knowledge of the field. Another quality of the work is that it integrates the VSP in the examination, which is of great importance.

The critical comments in the following are written with a positive perspective on the work as such, demonstrated in the comments above. The aim is to point to weaknesses which when revised, will substantially improve the article.

Research questions

According to the authors, the aim of the paper is to generate “information on how to best implement” (p. 4) (and develop, p 5) a specific VPS. A more general aim: to guide design and integration of VPS in different curricula (p. 4) is also expressed. No explicit research question is formulated, but a number of assumptions are expressed. The VPS system presumably is built on the assumption that feedback will strengthen the credibility of the assessment and students’ learning. Both the feedback forms - a case discussion by a senior clinical and a follow-up by the actual patient - are known to have positive effects on motivation from earlier research, and have been lately discussed in international research on assessment. It would add to the value of the article if the specific characteristics of this VSP were related to other relevant research.
The assumptions of the relation between user expectations and success/failure of the intervention seem relevant but need to be related to the research field at large.

Methods

By methods I refer both to methods for gathering data and methods used for analyzing them. In contrast to the frequent use of quantitative methods, the article uses a qualitative method, “focus group interview”. To choose a qualitative method in the context of research on medical education is a contribution. By choosing such a method, the knowledge of the field may be enriched by examples, and rich narratives, which can deepen our understanding of why the adoption of a simulation works or not. The knowledge gained by questionnaires using traditional multiple-choice question may, thus, be developed and enriched.

The reason for adopting a qualitative method is stated as allowing for a wide range of opinions to surface (p 17), and “the possibility of a richer and more detailed end result…” (p 17) compared to questionnaires and individual interviews. Given the research interests, a central aim for the design would be to include as many different experiences as possible and to give the informants good possibilities for contribution.

Compared to individual interview, the focus group method allows a small group of informants to discuss an issue, to stimulate each other by suggestion and questions, and thus together to explore the issue broader and deeper than the ordinary interview. The focus group interview have, thus, been successfully used with informants who either have difficulty in expressing themselves or are reluctant to do so in an individual interview. Mostly the interview situation is arranged as a discussion around a problem, a case or an issue of interest to the informants. The researcher mostly does not interfere. In order to maximize the dialogue and give enough space for all group members, the optimal number of participants in a focus group interview is often limited to four (+- 1).

The article under review lacks information of how the interviews are accomplished, and answers to questions like: What problem/question (if any) is introduced? Is the researcher active? Given 8 students per group and a discussion time of about an hour, each student had in average about 7 minutes to express her/his opinion and give “a richer and more detailed” contribution. Who talks and who is quiet? Somewhat longer transcripts from the discussion in order to answer such questions should be included. The paper must, further, include a discussion of the relevance of the method chosen in relation to the aim and research question. Are 16 of 216 students enough to satisfy the interest to gather a wide range of opinions? The article ought to discuss the question. The merits of focus group interviews compared to individual interviews should thus be discussed, as well as the value that the focus group interview can add to questionnaires.

Results

The results are presented as five themes with altogether 18 categories. Nothing is said of how the themes and categories are constructed. Most handbooks on qualitative analysis present two basic ways to classify interview data: categories
are constructed from a theoretic point of departure or they are directly formed by
the answers given by the respondents. I assume that the second alternative is
used in the article, but as the article says nothing about how the categories are
formed, and as some categories seem to be formed mainly to illustrate research
assumptions or as answers to questions formulated by the researcher, I grew
unsure about this conclusion. The 7 minutes that each student on the average
had to her/his disposal to discuss, which led to the forming of 18 categories,
probably meant that many of the students only had a chance to talk on a few of
the topics. As more than half of the quotes (18 of 34) are quoted from 4 students,
the question is if the aim of capitalizing on the variation is taken care of. The
number of quotes in relation to the number of students actualizes the question of
choosing focus group interview as a research method. This ought to be
discussed.

Coming back to the reason for adopting a qualitative method - to focus on the
variation of students’ opinions and experiences, the way the result is presented is
confusing. The results are frequently presented not with a focus of the variation
of the opinions expressed on a specific issue, but as the opinion of the majority of
the students: “the participants greatly appreciate”, “most students consider”,
“students think”. Such comments are not in line with the character and goal of
qualitative analysis but lends from quantitative analysis.

The discussion of the results actualizes a number of the problems pointed to
above. The fact that the qualitative approach, according to the authors, resulted
in results similar to the quantitative research presented earlier (p. 17) needs a
comment. In what ways did the work at hand add to the results of the larger,
quantitative study? Did the focus interview clarify or deepen the understanding
that was the result of the larger study? The article mentions some results that
add to what was known before, but so briefly that it is difficult to understand (eg
p17 Learning). For example, what is added by the comment “Medical students
feel they remember more with VPS” (p 17) to the retention enhancement
demonstrated by the larger study? As the data is treated as quantitative rather
than as qualitative, the article largely fails to demonstrate the merits of applying a
qualitative method. It is difficult to see “the wider range of opinions” or the “richer
and more detailed end results” that are promised. Instead, generalizations, to
which the data does not lend itself, are frequent. An example is the conclusion
“We believe our finding could be generalized to VPS of similar design” (page 20),
a conclusion that would have great importance, but which can hardly be drawn
based on what is presented in the article.

The discussion does refer to earlier research of VSP used in medical education,
but it lacks references to the well established and relevant research field of
teaching, learning and assessment. Researchers have since long studied the
merits of, for example, authenticity as a tool for learning and assessment, and
have also qualified the context of authenticity in line with the comments made by
some of the students who are quoted . The same is true for the transparency of
examination goals and for feedback.

The reviewed work is part of a larger study “on virtual patient assessment results”
(p 6). It is difficult to see how the actual work is related to the larger study as this
study is only mentioned but not described. The lack of a clear research question adds to the difficulty. I have, however, understood that both studies focus on performance assessment with inbuilt feedback. As this type of assessment has attracted much research attention also outside medical research, it would be of value to anchor the work in such research. Researchers have, for example demonstrated a strong link between feedback and self-assessment for dental students in an interactive examination using virtual patient simulations. The problem of assessing complex performance in a credible way is another topic of relevance which could have been referred to, especially so, as students express positive feelings about the authenticity of the examination. Reviews have pointed to the importance of “transparency” in strengthening the learning effects of performance assessment. My conclusion is, thus, that the article would benefit from being located in a relevant research context.

Minor revisions
The language needs to be checked. It is sometimes difficult to understand.

About the reviewer
My research background is a PhD in Education. I have worked as full professor at Lund University/Malmö University since 1995 and have previously worked as full professor at universities in Australia and Norway. I have been doing research in the field of assessment and learning for about twenty years and research on assessment using simulated cases for about ten years.

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
'I declare that I have no competing interests'