Reviewer’s report

Title: Influence of the Hospital Workplace on Learning Clinical Skills

Version: 2 Date: 5 November 2013

Reviewer: Judith Bowen

Reviewer’s report:

The authors have done an outstanding job placing their well-defined research question in the context of a tightly written, well-sequenced introduction. This is important work adding evidence to the theory of workplace learning.

Major Compulsory Revisions

This manuscript reports important research that adds significantly to our understanding of learning in the workplace. Overall, this manuscript is well organized, the methods well described, and the results illuminating. The Discussion needs some work, however, in order to create a clearer distillation of the results of this important work. This statement “This synthesis reinforces the social nature of learning physical examination skills; no supervisor no matter how good can create a good learning environment without input from the learner. No student no matter how proactive can force learning to happen without the prerequisite support from the supervisor and the environment” near the end of the discussion, is an excellent summary statement of the findings. I suggest the authors find a way to say this same thing up front in the Discussion section as a “road map” for explaining the results, linking to theory as appropriate.

I also found the Results section difficult to follow. Once the many grammatical issues are addressed, the organizational structure may immerse as the best way to sort the results. Yet, the many headers and sub-headers made it challenging to digest.

I extracted this outline of the Results Section:

1) What is learnt?
   a) Systematics
   b) Agility (no data sample is provided for this description)
   c) Recognition of pathological signs

2) How is it learnt? (the sub-headers here (a, b, c) are presented in the paper in the same way as the major headers of question 1, 2, and 3. This is confusing.
   a) Working alongside others
      i. By observation and developing your own way
      ii. Making findings explicit
   b) Tackling challenging tasks
i. through responsibility
ii. Direct feedback about abnormal findings
iii. Initiative/assertive/proactivity
c) Working with patients
i. Seeing, feeling, hearing

3) What factors influence this learning?
a) associated with the physical exam itself
b) individual learners’ characteristics
c) contextual factors

It may be that the numerous headers and sub-headers disrupt the flow of the Results section. I would consider sticking to major thematic headers and introduce sub-headers in the first sentence of the related paragraphs.

Overall, the writing could be much tighter. Specifically:

1) In the Results section, sub-section titled learning by observation and developing your own way, the extracted sentence noted here is awkward and subject to misinterpretation.

“Students said to develop their own individual way of performing physical examination skills by comparing different examples and contrasting that with their own experience.” "Said" can be interpreted as "the students' said” <this or that> as a literal translation; or the students talked about developing their own…” as reference to the process. Please clarify.

2) In Results under “tackling challenging tasks”, this section needs attention:
 Learning through direct feedback by abnormal findings

During their time in clinic they say to build a personal archive of pathological findings that they extend in two ways. Either by being active in looking for these signs in patients they see and assertively asking for feedback on their findings or by being shown to them by their supervisors. This latter approach might mean both seeing a patient together and performing the physical examination with direct feedback, or being told by the supervisor to go and see a particular patient again on their own.

First, it is not clear why the authors use the term “by” in the header. Do they mean, “by discussing abnormal findings?” Or, do they mean the abnormal findings trigger learning through feedback more directly as one might expect in cognitive processing?

Second, the data example (“And in the letter of introduction from the hospital it said: ‘when you have nothing to do, call the resident at cardiathoracic surgery so you can go and listen to heart murmurs’. So when you called you went along with the resident performing auscultation on all patients who were scheduled for heart valve surgery the next day.”) strikes me as "access to learning" (a concept also described in the work-based learning literature) and "student initiative", but not
exactly "through direct feedback by abnormal findings. Is there a better example from the data that could be used?

Third, the paragraph extracted from the paper and noted above is poorly written. What is meant by “they say to build a personal archive…”? Do you mean, “students build a personal archive…”? Then the authors say “two ways”. The sentence that follows needs a noun and a verb. One could solve this problem using a colon after “two ways”. I have a personal preference for a more active voice. (During their time in clinic, students build a personal…)

3) In Results section under “Learning by taking initiative/being assertive/proactivity”, the paper would be improved if the authors showed an example representative of this category.

4) In the Results section under “What factors influence this”, section titled “individual learners’ characteristics”, the quote from the data set sounds more like an administrative problem than students choosing to stay in the background versus being proactive. Suggest the authors find a better example of this theme.

5) In the Results section under “What factors influence this”, section titled “individual learners’ characteristics”, second paragraph not including data example, the authors refer to “another barrier” and go on to describe students’ proactivity. This does not appear to be a barrier. Perhaps “barrier” just needs to be changed to "facilitator" since the example is actually positive not restrictive as in "barrier".

6) In the Results section under “contextual factors”, second paragraph, it is unclear what is meant by “similarly challenging.” Does it mean that the students were positively challenged or that the outpatient clinic has barriers? Prior references to OP clinic was to limited learning due to patients already "worked up".

7) In the Results section under “contextual factors”, third paragraph not counting data quote, what is meant by low threshold availability?

Suggestions for improving the Discussion section include:

1) In the Discussion section under “inter-student variation of experience”, the authors say, “A characteristic of workplace learning is that the education actually being offered (curriculum in action) does not overlap with the intentions of a formal educational programme.” This is a very strong statement. Is there evidence that it does not overlap at all? Or perhaps does not overlap enough? Or that the formal curriculum does not reflect the curriculum in action? This strong statement suggests no interaction between formal and curriculum in action or experienced curriculum which I do not believe the evidence from workplace learning (Dornan et al) would support.

2) In the Discussion under “proactivity”, second paragraph, the word “whereas” implies a contrasting statement--poor self assessment in contrast with reinforcing inadequacy? Or, positive self-efficacy in contrast with feelings of inadequacy? This is unclear.
3) In the Discussion, under “Participation in learning”, the authors use the term “supervision”. I think they may mean “observation”. Clinical supervisors have many roles and responsibilities. Supervision refers to “oversight” to assure quality patient care, formally—following rules and regulations, and informally in the best interest of patients. Observation of learners performing physician examination skills is a task that supervisors undertake to assure appropriate sequencing of graduated independence, but is different from “supervision”.

Minor Essential Revisions

1) Analysis section: “We identified and discussed divergent examples within each theme. Identified subthemes were during the final stages of analysis considered in relation to relevant literature, for example work based learning.”—I think “were” should be moved from its current position in this sentence and come after analysis.

2) Ethical approval: The phrase “participation was voluntarily” could be deleted as it is redundant with the prior sentence.

3) In the Results section under “What factors influence this?”, in the first quotation from the data set a word seems to be missing from this sentence: “While at the ED, you can find out much more by yourself and you’re the first one to think, what is the could it be and what can we do.” I recognize this is from the transcriptions, but still would suggest slight editing to improve readability and meaning.

4) Under “what factors influence this”, the header: “Related to an individual learners characteristics” should probably be an individual learner’s characteristics or individual learners’ characteristics.

5) In Discussion (Proactivity section), Bandura is misspelled as Bandaru. The sentence “In order for students to be able to be proactive, and seeking out learning opportunities..” “seeking” should be “seek”.

6) In the Results section under “What factors influence this”, section titled “individual learners’ characteristics”, second paragraph not including data example, the clause “In other words; “ should not be followed by a semi-colon. Rather a comma is more appropriate here.

7) In the Results section under “contextual factors”, fourth paragraph not counting the data quote, a word is missing from the sentence “Students said they needed to feel valued and allowed to approach their supervisors”. Suggest adding “be” before “allowed”.

8) In the second paragraph of the discussion, in the sentence “Its key tenet of is that knowledge and thinking...”, suggest deleting “of”.

Discretionary Revisions

The title is intriguing, although the results are not limited to the “hospital” and the focus is “physical examination skills” should the authors wish to be more precise in their title.
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