INSTITUTE OF EDUCATION

MA MODULE: INVESTIGATING RESEARCH

ASSESSMENT – CRITICAL REVIEW #1:

RESEARCH ARTICLE:
"Teachers' pedagogical beliefs and their planning and conduct of computer-mediated classroom lessons"
(by Cher Ping Lim and Ching Sing Chai)

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In this paper, Lim and Chai (2008) are exploring how readily teachers use computer tools to aid learning in their classrooms. They are interested in how the teachers' pedagogical beliefs, computer competencies, and socio-cultural contexts have affected, firstly, their readiness in using computer tools in their classrooms, and secondly, their planning and execution of lessons which have incorporated the use of computer tools. To this end, they have designed a two-method research approach, utilising both semi-structured observations and unstructured interviews to elicit rich data from their respondents, namely six teachers from two different primary schools in Singapore. Analysis was carried out using codes adapted from various studies, and was an on-going effort within and between both research methods, and all six respondents. This critical review will question first the rationale of embarking on this study, followed by an inquiry into the research question, research design, and analysis of findings through an understanding of two proposed variables in the study, that of the 'socio-cultural context' and of 'pedagogical beliefs'.

Firstly, the rationale of this study, while seemingly justified, demands more critical questioning. The main proposition of this paper is that teachers often do not exploit the learning opportunities provided through the use of computers and computer tools in lessons. However, the authors appear to be approaching this study with certain hidden assumptions. This study was based on a previous study by the first researcher (Lim et al, 2003), which explored the level of information technology (IT) integration in Singaporean schools. However, there were no further known studies between the earlier (Lim et al., 2003) and current (Lim & Chai, 2009) studies, and the researchers have proceeded with the current one on the assumption that the use of IT in classrooms is *necessary* and *useful* for all teachers. This might not be

true for all teachers and subjects. This study would have been more focused and meaningful if the researchers have first conducted an exploratory study, utilising focus-group discussions, to uncover reasons for the lack of incorporation of computer tools during lessons, rather than the current justification of this study based on literature review and assumptions. Additionally, if there were to be an omission of a large number of other probable causes in this study, the study might largely not be useful or could give rise to possibly false cause-and-effect relationships.

Next, despite the small sample size of this study, the sampling strategies of this study are not particularly problematic. This is because this research was neither meant to be quantitative in nature, nor seeking to generalise to a population, thus not requiring a large sample size. Further, the sample size would suffice for its intents, as it was not meant to be interpreted in full experiment mode, but as a hybrid of experimental and interpretive modes. Given the qualitative nature of this study, the richness of the data is not necessarily compromised by its sample size (Dowling & Brown, 2010).

As for the research design for this study, it appears largely suited to its purposes, and is able to define and measure most of the variables laid out by the three research questions using both observations and interviews. The research questions have set up a cause-and-effect model between three independent variables (teachers' pedagogical beliefs, competencies, socio-cultural contexts), and two dependent variables (teachers taking up affordances of computer tools in the classroom, lesson planning). Four of the variables, all except the socio-cultural context, were adequately measured by observations, with the observation findings

for the independent variables triangulated by the interview responses. Given the non-tangible nature of the variables, the authors have established indicators that are relevant and valid, and for the case of pedagogical beliefs, even creative, as the teachers were asked to respond to paragraph-length vignettes by scoring against a Likert scale, which was utilised accurately in this study to measure attitudes (Cohen at al, 2011).

However, the measurement of one of the independent variables, that of 'socio-cultural context', is potentially problematic and may have ramifications for the research question. While it is clear how studying teachers' pedagogical beliefs and computer competencies are relevant to the research, the authors have not sufficiently made a case for studying the socio-cultural context, and could have given more considered thought to it. The treatment of the term 'socio-cultural context' was surprisingly scant, and it is often alluded to but never clearly defined. This is confounding given the significance of this term to the research. It has been described, at one point, as a concept that is "rich" (p. 810), giving rise to the reasonable expectation for a concept of such depths to be developed upon, and provided a working definition, especially since it frames the comprehension of significant sections of this article. Understandably, 'socio-cultural context' may be hard to define, and consequently hard to measure and explore, but it is precisely because of this difficulty that the need for a working definition grows even more crucial in this paper. Also, a clearer definition might better illuminate the findings and implications, especially since the findings reveal the restrictive 'socio-cultural contexts' teachers face as a key reason for their inertia to take up computer affordances (p. 822).

Lastly, moving on to the findings, the authors' analysis of the variable 'pedagogical beliefs' indicates how certain aspects of the research design could have unduly influenced the results. 'Pedagogical beliefs' is a concept constituted by the authors in their literature review to be carried over between contexts, but was interpreted to be otherwise in their findings. It was defined by the authors as either traditional or constructivist, with the former being the teacher as a knowledge provider favouring a transmission of knowledge, and the latter being the teacher as a knowledge facilitator favouring discussion and project work. Five out of the six teachers were grouped as having conflicting stances, where they possessed constructivist beliefs, but were traditional in their lesson execution. While this finding would possibly be valid to a certain extent, it is necessary to also be aware of how some aspects of the research may also have tended to differentiate the two contexts. These aspects included the contrived nature of both the observations and the interview, contributed by the additional equipment and presence of observers with an authority stemming from their affiliation to the only teachers' training institution in the country during the observations, and the teachers' need to defend themselves (Cohen et al, 2011; Gadd, 2004) when asked to account for inadequacies in their lesson, that is, 'the gap between their perception and their taking up of the affordances of computers for teaching and learning' (p. 816) during the interviews.

In conclusion, while this paper is disciplined in its argument and research design, the study might have benefitted either from having an earlier preliminary study, which would explore the different reasons for a lack of use of computers in the classroom, or a review of the underlying assumptions behind the rationale for this

study. Furthermore, there could also be a clearer definition of the ‘socio-cultural context’ of teachers to ensure that the study sets out to adequately measure the variables posited. Finally, steps could also have been made to ensure a setting as natural and unthreatening as possible during the course of the observations and interviews, to ensure that the findings reflect the most genuine depiction of the situation being studied.

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