Appraisal tool

Evaluation Tool for Bibliometric Studies
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About the instrument: The initial structure is derived from an evaluation instrument for quantitative research1 and amended to incorporate criteria identified by Glanzel (1996)2. iThis document is intended for quite different purposes than those presumed by Glanzel, whose concern it is to support standardization in methodology and terminology between bibliometric researchers. This tool is meant to support critical evaluation of bibliometric research for non-experts in this subspecialty area, with the purpose of practical application of the results within the framework of Evidence-based Library and Information Practice. See http://www.box.net/shared/7d7ga8r9z6

1. Basic information
Citation of work being appraised Bowman, L.L., Levine, L.E., Waite, B.M., and Gendron, M. (2010). Can students really multitask? An experimental study of instant messaging while reading? *Computers & Education, 54*, 927-931.
Stated objective(s) of research • to examine the effects of instant messaging while doing school work. The experiment specifically measured total time spent reading a fake textbook passage and tested comprehension in students who received IMs before reading, while, or none at all. • hypothesized that students who were interrupted by IMs would take longer to read the passage (with IMing time removed) and would perform more poorly on a test of their understanding
Key findings • Students took significantly longer to read the passage when they IMed during reading than when they IMed before reading or did not IM at all. • However, there were no significant differences in performance on the test measuring comprehension of the reading as a function of IM condition.
Does the study use mixed methods (more than one kind of method)? If so, what other method(s) are used? You may need to use additional evaluative tools. Experimental design in which one group of students read an online text while receiving and responding to instant messages. Comparison groups either received IMs prior to reading the passage or didn't receive any IMs at all.
2. Literature review

Is the literature review relevant to the population, setting, study objectives, and methodology used for the present research?

The literature appears to be relevant, and the authors do a good job of setting up young people's beliefs that they can multitask, and their failure to do so (through various studies, such as talking on a cell phone while driving, and previous studies demonstrating the difficulty to IM and pay attention to academic duties). They also describe other situations where students might be distracted from doing their school work (e.g. listening to music, texting, or watching TV), but think they are studying appropriately. While there is an online component to some classes being active online, studies have also shown that the students mainly use this time for social communication, rather than educational purposes, thus impairing their academic performance. Much background literature to support multitasking and its hindrance on academic performance is outlined, leading nicely into the reasons for their current study.

- There is no time limit, which makes the study slightly unrealistic, with no consequences in real life to measure from
- Different cognitive tasks are utilized in university students than those suggested in this study
- There is not real world applicability,
- Ethical issue?
- Could a different type of IM allow people to multitask, depending on the task? Less isolation?
- Not necessarily multitasking, but instead task switching

Are included materials up to date and comprehensive?

Yes, many were published less than 5 years before this article, but studies from as long ago as the 1950s are also cited

Do the authors appear to have evaluated the quality of the cited materials?
There was nothing specific to indicate that they had.

If a bibliographic database is used, have the authors considered published or unpublished evaluations of the database as a way to understand problems they may encounter?

There was no mention of bibliographic databases that were used.

Does the literature review clearly support the need for the present research?

Yes – the cited studies raise concerns about multitasking and academic performance. There was a plethora of studies supporting multitasking and academic performance, not only with instant messaging, but also with texting, TV watching and listening to music, which demonstrated that ALL multitasking is a hindrance to academic performance, not only IMing.

3. Data set: Acquisition and analysis

How were the data acquired, and is the process clearly explained? (i.e., from a bibliographic database, handsearching, etc.)

The method section outlines a part of the process.

<u>What are the exclusion and inclusion criteria for the data?</u> There were not specific criteria mentioned, other than that the majority of students were in their first or second year of college, attended school full time (91%), and were of White/European descent (74%). 31% percent lived on campus, while 50% lived with their parents. Academic majors were well spread out from all schools in the university. Students were enrolled in general psychology classes, and received course credit for their participation. <u>Do these criteria seem relevant to the research question(s)?</u> While there were not specific inclusion/exclusion criteria, the only non-relevant question appeared to be their descent

<u>Are retrieval methods described in sufficient detail to replicate the process?</u> The methods section is very short, and missing critical details (e.g., did they use ethics?). The authors did not discuss how they selected their participants, or if the students enrolled in the study are representative of the overall student body, or if they knew they were going to be tested on the material presented.

<u>Are the limitations of the data source(s) considered?</u> No

<u>Are sufficient examples (tables, figures, etc.) provided to help you understand the data handling processes?</u> There are no tables or figures, but the data is reasonably easy to understand The data would have been enhanced with figures or tables, but there may have been a restriction on behalf of the publishing body

<u>If there are discrepancies or contradictions in the data, are they accounted for (i.e., missing or incomplete information)?</u> The authors don't make mention of any discrepancies in the data, or contradictions. They only mention that their hypothesis is only somewhat answered, and they were surprised to find that task performance was the same for all three conditions.

<u>Is the process for organizing the data logical and clearly explained?</u> The results were presented in a clear and logical fashion. They were easy to follow.

If categories or themes are assigned as a way to group information about the data, are they …
A. appropriate and sufficient to respond to the research question(s)? n/a
B. derived from the data itself, or from prior research? n/a
C. validated by some means, such as double-checking by other trained researchers, with discrepancies identified and resolved? n/a
D. If so, are interrater reliability statistics provided? n/a
E. defined and labeled using unambiguous terms? n/a
4. Statistical analysis
Is the method chosen for statistical analysis appropriate for the question and the data? Yes
Is the analysis reproduceable? Yes
Are the parameters for statistical significance established and explained? No
Are outliers (anomalies in the findings) discussed in terms of cause and effect? No, unless you count the unexpected finding that participants who IMed before reading had the shortest reading time. Also, the authors were not expecting to find that the test performance for all three conditions would be the same. They hypothesized that being interrupted while IMing would lower the test performance, when it didn't. They found, instead, that it only took the students longer to complete the task.
5. Findings, contribution, and generalizability
Does the study achieve its original objective(s)? Yes, though part of the hypothesis was not supported (task performance was not impacted by IMs)

If the study builds on prior research, does the present study validate, refute, or add to the earlier findings? It validates some studies, and while it doesn't necessarily refute any studies, it is surprising considering some studies
If there are discrepancies or contradictions in the findings, are they discussed? Yes, the authors discuss how their hypothesis was only partially supported, with the students receiving more IMs taking significantly longer to read the passage, but maintaining the same level of performance as the other two conditions. The authors explain possible reasons for this occurrence, including: the anticipation of receiving an IM was distracting, that there was a psychological refractory period that occurred when students switched between reading and instant messaging, and that students re-read passages after being interrupted, which could have reinforced the students understanding of the content and improved the test performance of that group.
Can the study by generalized beyond the setting or data examined in this study? The authors don't attempt to generalize beyond university students, but it could possibly apply to anyone who is attempting to work while also having IM conversations
What information do you need to obtain locally to assist you in responding to the findings of this study?
Can the findings be used in your setting?
Can the methods used in this study be used in your setting