Author's response to reviews

Title: A randomized controlled study to determine the difference in the quality of scientific writing under standard writing and online writing groups

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Author's response to reviews: see over
Author's response to reviews

Title: A randomized evaluation of the quality of scientific writing using Web-based versus traditional workshops (MS ID : 2009275192113625 )

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Version: 2 Date: 13 November 2008

Author's response to reviews: see over
November 13, 2008.

To,

Ellen Mills

Editorial Administrator BMC Series Journals

BioMed Central

Dear Ellen,

We thank you for doing a thorough review of the manuscript “A randomized evaluation of the quality of scientific writing using Web-based versus traditional workshops” MS ID: 2009275192113625 and providing your esteemed comments. We have tried our best and revised the manuscript as per the reviewers’ comments.

Accompanying this letter, please find a revised version of our manuscript. Detailed responses to the reviewers are included following this page with the relevant modifications implemented in the text of the manuscript.

Best regards,
Reviewer 1

**General comment**: The methods are appropriate, but they would benefit from better description, particularly about the organization of the traditional and web-courses. For example, it is not clear whether the mentors in the two types of teaching were the same. Mentor may be important for the success of the course and participants' satisfaction with it. Furthermore, only at a single place in the manuscript it become clear that the students did not write all parts of the manuscript but either introduction or discussion – as writing these manuscript parts differs, and different skills are needed, this may also influence the results. It is not clear if the groups differed in the parts of the manuscript they wrote.
Response: The methods section is now elaborated with better description to answer the reviewer’s concerns about who were the mentors. The additional appropriate data is also added in the results section to reflect how many of them wrote which section in both the groups.

General comment: Also, SSQS scales are not well described, and the reference for them is a book, which cannot be easily retrieved. It would be necessary to present the scale and its components in an appendix to the manuscript.

Response: The scale is now given in detail. An appendix is also provided to get an easy access to the scale used.

General comment: With necessary clarification of the methodology, the data presented are sound, and their presentation follows the standards for reporting this type of study. As this was not a proper randomized controlled trial, not all items of CONSORT were followed, but this was not necessary. However, there should be numbers of participants indicated for each part of the flow chart.

Response: The number of participants are included in the figure now.

General comment: The title is accurate, but the abstract needs clarification for the use of abbreviations, such as SSQS, which are not explained at all in the text of the abstract.

Response: The acronym SSQS is now defined in the abstract. Due to constraints of word limit for the abstract we have not elaborated the scale in abstract. However, it is explained in the methods section of the manuscript.

General comment: Do the title and abstract accurately convey what has been found?

Response: The conclusion framed earlier was not in line with the title. We have now amended the conclusion to synchronize it with the title.

Abstract Section

Comment: SSQS scales are mentioned, but there is no explanation of the abbreviation.
The term Intercooled Stata is also not explained.

Response: As the word limit of the abstract will not allow us to provide the explanation of the SSQS scale in the abstract, at present, we have just defined the abbreviation. However the term is then well explained in the methods section. Even for Intercooled stata term in the abstract, we have removed the name of that software, and have explained the said software in details in Methods section.

Comment: The abstract states that the study was carried out in 2007, but the text states that the follow up of the participants ended in November 2006.

Response: The discrepancy is now rectified in the revised version of the manuscript.

Comment: Error rates are not defined, as is not the minimum/maximum scores for the SSQS scale so that the mean result presented cannot be appropriately evaluated.

Response: The scores were normalized from 0 to 100 and the standard deviation is presented in the tables. The error rates are now described with minimum/maximum scores in the results section of the manuscript.

Methods Section

Comment: Covariates subsection: one of the confounding factors is listed as “choice of writing section (introduction of discussion) – this is the only time we learn that the students did not write the whole manuscript but only its parts, and different parts, too!). This confounding factor is not analyzed later on. This is an important factor for the study and must be better explained in the methodology, the data on how many students in each group wrote which part of the manuscript, and whether it was a predictor of satisfaction or frequency of communication with the mentor.

Response: The methods section is now well elaborated to address the concerns of the reviewer. The data on how many wrote which section is now included in the results section. There was no difference between the two groups for the % of participants writing the different section of the manuscript. The analysis as to whether the section of the manuscript written was a predictor of satisfaction or frequency of communication with the mentor was not evaluated for this study.
**Comment:** Online, Web-based writing … subsection: It is not clear from the manuscript if the mentors were different for the classical and on-line course. As mentors may be an important factor for satisfaction with the course and frequency of interactions, this should be clearly stated and also included in the analysis.

**Response:** The mentors were the same, just mechanism of communication was different and thus the separate analysis with regards to mentors is not carried out.

**Comment:** SSQS scale subsection: the elements of this scale are not explained in enough detail, and the reference given is a book. I recommend that the scale is published as an appendix to the manuscript.

**Response:** We have now elaborated the SSQS scale in the methods section and have also added the scale as appendix.

**Comment:** Assessment strategies subsection: It is stated that manuscripts were analyzed by the experts in the field, but there is no mention of how many there were and what was the definition of such an expert. Also the criteria are just listed, but not explained – for example. How was “fitness for submission to a journal” assessed? Or relevance to the field, depth of investigation or ethical appropriateness? These are important measures, and should be properly explained and addressed in the study.

**Response:** The assessment strategies subsection is now revised to include the number and types of reviewers and the preliminary session with reviewers. The quality of the manuscript was assessed using SSQS scale. This scale is now elaborated in order to explain the criteria used.

**Results Section**

**Comment:** The scores on SSQS scale are presented but there is no min-max range for the score, so that the result cannot be appreciated. The same is true for satisfaction with the course.

**Response:** The SSQS error rates as well as the satisfaction scores are now described with minimum/maximum scores in the results section of the manuscript.
Comment: Table 2, with only 2 numbers in it is not necessary.

Response: This table is removed now and the data is incorporated in the text.

Discussion Section

Comment: The part describing Wallace and Mutooni’s study (ref. 19) states that they found web-based instruction superior to traditional methods, but the p value given is 0.063 which is not significant.

Response: The statement is now removed from the revised manuscript.

Figure 1

Comment: The individual parts of the flow chart of the participants should present the number of participants for each part.

Response: The figure is now revised appropriately.

Reviewer 2 :

General comment: All components of the manuscript could be improved. The subject and methodology are both of interest. The writing quality seems uneven with typographical and grammatical errors, and the language could be improved. While the authors have gone to great lengths to have an organized methods and results section (especially since this is a study of scientific communication), the abstract and discussion could be better organized and the conclusions could be better stated.

Response: Due attention is paid to the comments of the reviewer and the sections are now appropriately organized to reflect the suggestions of the reviewer.

Abstract Section

Purpose sub section

Comment: The lead sentence “Scientific writing being the primary means of communicating the research findings, effective delivery of these findings is of critical
importance” could be better stated “Scientific writing is the primary means of communicating the research findings, and effective delivery of these findings is of critical importance.” Is it the RCT that is doing the comparing, or is it the authors?

**Response:** The sentence is revised as suggested. Regarding comparison, the authors are comparing the two groups in the presented RCT study. The sentence is appropriately revised in order to align to this understanding.

**Methods sub section**

**Comment:** The outcomes are not clearly stated in understandable language. The domains of the SSQS scales could be mentioned in parentheses here. It is better to avoid abbreviations (SSQS, ICC, SSQSavg) in the abstract as well as the name of statistical software.

**Response:** We completely agree with the reviewer's comment. The outcomes are now been clarified in a more understandable language. Abbreviations and the name of the statistical software have been now taken out of the abstract. The methods section now provides the elaborated description of the scales used to measure the outcomes.

**Results sub section**

**Comment:** Without some idea of the outcomes involved, readers will not know what is meant by an error. Connecting the concept of manuscript quality with the error rate may be difficult for the reader of the abstract. The main results of the trial should be stated before the comment on interobserver reliability.

**Response:** The outcomes are now been clarified with appropriate elaboration on their measurement in order to make the reader understand them. The results section of the revised manuscript now begins with the main results of the study.

**Conclusion sub section**

**Comment:** The abstract conclusion and concluding paragraph of the discussion are different enough that it makes this reader/ reviewer uncomfortable that the conclusions are not well supported by the study. If teaching scientific writing is different enough from other educational fields, then the conclusion should reflect that.

**Response:** The conclusion is now revised and is made consistent at both the places, abstract as well as in the manuscript text.
Introduction Section

Comment: The second sentence of the first paragraph should communicate that poor writing skills can jeopardize knowledge transfer to readers in addition to the other issues jeopardized.

Response: The advised change is implemented in the revised manuscript.

Comment: The difference between distance and the web-based education is not completely clear to this reviewer. As defined by the author, distance education makes use of the Web. However, correspondence courses, whether by e-mail or regular mail, might illustrate the difference between the two clearer. In any case, the terminology is faulty, and reflects the evolution of terminology rather than the author’s ability to explain it.

Response: The text is now appropriately revised considering the comments provided by the author and we have tried to explain both the terminologies in a detailed manner.

Comment: There are many more studies comparing web-based learning and conventional classroom instruction, some of which focus on other outcomes beyond student performance and many of which apply to domains other than graduate level courses in learning disabilities. The sentence should be reworded to acknowledge the existence of these studies. Reviews of the subject would most easily reflect this experience (see below). It should be acknowledged that web-based learning is a foregone conclusion despite the dearth of evidence supporting it, and judging its ubiquity, whether or not there are unintended consequences.

Response: The appropriate text and references are now added to the revised text to take into account the comments of the reviewer.

Comment: An equally strong reason to do this study is to challenge the value of Google docs as a vehicle for web-based learning. While it may be true that no previous study has addressed the teaching of scientific writing with a web-based versus traditional comparison, as the authors have stated, how many more domains of education do we need to in order tobefore claim that web-based instruction has value, regardless of the learning domain.
Response: For the purposes of the present study, we would prefer to stick to the domain which we choose. Thus, we would not really go beyond this to incorporate the points raised by the reviewer.

Comments: What are the drawbacks suggested or documented from previous studies?

Response: Due importance is now given to the drawbacks of the documented in earlier studies to address the reviewer's comment.

Methods Section

Comment: The setting could be better described. This reviewer cannot tell from which institution the students were drawn. Likewise, which institutional review board approved the study? How long was the workshop?

Response: Relevant information is now added in the revised manuscript including the name of the IRB. With regards to the workshop duration, there was one initial instructional session and then the mentor contacted the student twice a week by email, with virtual meetings performed if needed.

Comment: Perhaps the SSQS is a well accepted scale, but for readers who are not familiar with this scale, does it related to manuscript quality communication Vance or satisfaction. Is this scale available online or as an appendix to this manuscript? Is it validated? This reviewer would have preferred putting the details of the SSQS in the outcomes section. The two sections "Outcomes" and "Assessment strategies" are potentially confusing.

Response: The SSQS scale details are now mentioned. Also, the details of the scale used are now listed in the appendix attached with the manuscript. The methods section is now revised appropriately considering suggestions of the reviewer.

Comment: It is not stated how satisfaction was measured. Is previous experience a reference to experience with web-based learning or experience with scientific writing?

Response: The measurement of satisfaction is now included in the manuscript. Appropriate changes are made in the manuscript to make the 'previous experience' clear.
**Comment:** What is a timeline oriented research topic? It is implied that participants did not write a full manuscript, but had the option of writing either the introduction or discussion. How long did students have to write their discussion or introduction?

**Response:** The participants took 3 months to write their manuscript sections, Introduction or Discussion.

**Comment:** This reviewer is not clear on what a communication event is. For researchers considering using this outcome, a better description is needed of how it is measured. Was it e-mail, instant messaging, Google doc editing, etc.?

**Response:** Communication event meant the contact by email or phone, in both of which they could ask for comments on their manuscripts.

**Comment:** The fact that that the traditional workshop group members or afforded the use of instant messaging and telephone is interesting. Does this represent distance or e-learning as well? Does it make the comparison group less than conventional?

**Response:** We didn't give them instructions to use IM or telephone, but they could if they wanted. However, they only used phone. Thus, we don't think that it made the comparison group less than conventional.

**Comment:** Who led the workshops? The writing guidance workshops is described variably as face-to-face, traditional, in-person, classroom. Consistency would help the reader.

**Response:** In the standard writing group the participants were given instructions and then they could contact the mentor. In the online group, they were given instructions on the templates, mechanisms for online communication, and Google docs. The consistency in using the names of the two groups is now maintained in the manuscript by using the uniform naming conventions. These conventions are also defined adequately in the methods section of the manuscript.

**Comment:** What software was recommended for voice over Internet protocol? Was it audio and video? Are their previous studies of Google Docs? Are there examples of the templates that could be shared, perhaps as an appendix?
Response: The software that was used for voice over internet protocol was skype. It was audio only and does not include video. To our knowledge there have been no studies as yet utilizing the Google docs for the purposes of scientific writing. The links for the templates along with the citation is now included in the manuscript.

Comment: Did the authors consider a multivariate analysis?

Response: Since the arms were balanced, a multivariate regression analysis would introduce confounding and therefore was not used.

Comment: Figure 1 introduces new terms that are not explained elsewhere (encounters, synchronous and asynchronous sessions).

Response: The figure is now revised in order to include the naming conventions used and defined in the manuscript.

Results Section

Comment: Were there dropouts after randomization? Why were there time constraints? Did it take longer to do the online course?

Response: The 15 drop outs that occurred were before randomization. We felt that without placing a time constraint many of our subjects would not return their manuscripts. With regards to the data on whether the online course took longer, it would be difficult to provide this data as it was not captured in a reliable manner to compile it for the present manuscript.

Comment: Several times the author claims that there was no difference between the course of study between the two groups, and yet stratification should have ensured that there was no difference.

Response: As far as baseline characteristics are concerned there was no difference in the two groups. However, the scores of satisfaction and error rates were different for two groups.
Comment: Where are the findings on fitness for submission relevance to the field, depth of
the investigation, and ethical appropriateness that were mentioned in the
methods section?

Response: As these variables were not investigated, the relevant text earlier included in
the manuscript is not deleted.

Comment: Table 2 is not worth the space or reader’s attention. Just include in the text.

Response: We agree with the reviewer. This table is now excluded from the revised
manuscript.

Comment: Without knowing how satisfaction or communication events was measured,
and without any context about what these scores mean, the differences may be
statistically significant, but this reviewer has no means of saying whether the
effect size is sizable, and clinical meaningful

Response: The satisfaction or communication events are now elaborated well to make the
reader's understanding clear.

Discussion Section

Comment: In general, the discussion should be better organized. The first line of the
discussion should focus on the main results, not on the analysis of the inter-observer
reliability. The first paragraph repeats what was just said in the results section. There are
multiple one or two sentence paragraphs, which makes for choppy reading. The
concluding paragraph is confusing and not conclusive to this reviewer.

Response: The discussion section is now appropriately revised as per the comments of
the reviewer
Comment: In the paragraph on studies that found no differences between the two web-based and traditional, the “exciting new web-based writing environment” mentioned in the Mehlenbacher-Miller study may raise too many new questions. Should the reader know more about this particular software/strategy? This reviewer assumes that this study showed no differences between web-based strategies and traditional strategies, but the sentence focuses, rather, on intriguing relationships and exciting environments. It is confusing how problems of communication in the Tinnerman study may have led to inconclusive results.

Response: The text is now revised appropriately.

Comment: I am not accustomed to seeing the full name of multiple authors when a..........

Response: The reference citing style is now followed as per the journal requirement.

Comment: The two sentence paragraph on previous experience among users cites a study by Smeaton and Kjell. This brings to light the question of whether previous experience is a reference to previous experience with web-based learning or previous experience with scientific writing. Which is it in the current study?

Response: We agree with the reviewer. There was an error in quoting the reference of Smeaton. Text is now revised appropriately. The previous experience referred in the current study is previous experience in scientific writing.

Comment: The paragraph on mentor-student communication begins with a sentence about the results, then moves quickly to student’s feelings, then again to the benefits of web-based instruction, and then back to student and critiques of the course.

Response: The disjoint text and flow suggested by the reviewer are noted and the appropriate changes are made in the revised manuscript.

Comment: There are many other potential limitations of this study than those mentioned. Why was it not possible for the evaluators to be blinded at the initial stage? Were the evaluators also the mentors? If so, it should be stated.
Response: Other limitations of the study are now acknowledged. Evaluators were not the mentors. Reviewer has a good point about blinding but this was not conducted in our study. we have acknowledged this as one of the limitation of the study in the appropriate section.

Comment: As a point of discussion, the authors might consider discussing the advantages of Google docs versus other software (i.e., Blackboard).

Response: Additional reference about Blackboard use and also focus on google doc advantages are now incorporated in the revised manuscript.

Comment: The references are mostly before 2002, a little remote for this rapidly moving field. As the literature supporting the use of e-learning might be scattered and hard to find, the authors might consider other sources of references on this subject such as white papers from Adobe, Blackboard, etc., companies whose trade is e-learning. Some journal references are italicized, and some are not.

Response: As suggested by the reviewer, additional available literature was searched and is now integrated appropriately in the revised manuscript. Journal references are now made consistent throughout.

Reviewer 3

Methods Section

Comment: Are the METHODS appropriate and well described? Here is where I have several concerns.

Subjects: The authors do not describe the subjects of the study in detail. What was their level of training? Medical students depending on the country can spend 4-8 years. I can say the same of the other students. This seems like a very heterogeneous group of students and the block randomization may not solve the problem. How did they determine “previous experience with research writing”? I am curious about what the relevance of marital status is.
Response: The type of participants enrolled along with their level of training are now described in the manuscript. We acknowledge that heterogeneity is a limitation, but block randomization was the only tool we could use to address this issue since participant recruitment was difficult. The previous experience statement refers to the “previous experience in scientific writing”. Our study was based on novice researchers and these are now defined in the methods section under inclusion criteria. This was determined by asking the participants. We had considered that marital status could be associated with outcome and thus used it as one of the predictors.

Comment: Pilot: If the authors used the information from the pilot to calculate their sample size, we need more detail about how the authors conducted the pilot.

Response: The pilot was simply given to a group of 11 medical students who were writing manuscripts with our group.

Implementation sub section

Comment: I am very confused here. It is unclear to me what the control and intervention groups got. For starters, the text in the body of the article do not match figure 1. In both cases (control and intervention), the authors fail to describe the actual pedagogical intervention and settle by naming a series of independent and unconnected technology approaches which they do not coherently integrate. The authors do not clearly articulate the specific competencies and learning outcomes for the intervention.

Response: The two groups are now defined in the methods section. The consistency in use of the terms is now maintained in order to not to confuse the readers. Figure 1 is now changed to reflect the methodology and thus it now matches with the text in the manuscript. The pedagogical approaches for both the methods used is now enlisted in the methods section.

Comment: The word workshop in the “traditional workshop” group sounds anything but like a workshop. What do they mean by traditional? The authors describe several different strategies (IM, telephone) and actions that seem to be different for each pair of students. How often did the students meet with their mentor? What was the content of the discussions? When was the mentor available? Was there a curriculum? Was this just practice with feedback?
**Response:** The names of the two groups are now well defined in the manuscript and the terminology is kept consistent in order to avoid any confusion. All of the participants received the same instructions. The text is now revised appropriately to avoid the confusion if any. The participants did not meet. They could access the mentors by phone if in the standard group, or by IM, Skype or Google docs, if in the Web-based instruction group. There was no curriculum and was practiced with feedback.

**Comment:** Web-based group: Some of the same issues as in point a. was the web-based intervention “Google docs”? The authors talk about VoIP (technology) but it is unclear how they used it. The authors discuss the purpose of using templates but do not describe them. The authors need to describe in more detail the synchronous and asynchronous technologies.

**Response:** The technologies, templates used are now defined, detailed in the revised manuscript.

**Assessment strategies sub section**

**Comment:** The authors’ description of the qualitative methodology seems incomplete. How many students participated in the focus groups? How long did they last? Who conducted the focus groups? Was the constant comparative method used to extract the themes? How many researchers extracted the themes? Did they reach consensus? The sentence “group discussions were transcribed using Conventional Qualitative Analysis Techniques” is incorrect and insufficient. Did they mean “analyzed” instead of “transcribed”?

**Response:** The qualitative study done during the study is compiled and published elsewhere. The citation for the qualitative study is now included in the revised version to make this clear.

**Comment:** Experts in the field analyze the manuscripts. Did they undergo any training in the use of the checklist?

**Response:** Yes, we had a preliminary session and went through 10 cases prior to actually coding. Coding for the real subjects involved checks among two reviewers, disagreements being resolved by consensus.
Comments: Media-comparative study: Even if the authors clarify the methods, I have a much deeper concern about the generalizability of this study. The best the authors can conclude is that their so-called web-based intervention was better than their traditional intervention and I emphasize “their.” Each intervention seems to be a combination of many approaches. Which approach is responsible for the results we will never know. There are just too many variables and confounders to account for that we will not be able to discern the contribution of the “web-based” approach. Please review: Cook, D.A., The research we still are not doing: an agenda for the study of computer-based learning. Acad Med, 2005. 80(6): p. 541-8.

Response: The revised manuscript now describes the two groups in detail and this should clarify the concerns of the reviewer about the generalizability of the study findings. This should help the reader to understand better as to what each of the methods represent and mean in the present study.

Reviewer 4

Methods Section

Comment: The methods used for to recruit and stratify the sample are clear, calculating that 22 subjects were needed in each sample. However there appears to be an apparent inconsistency as to why 48 were recruited in the section on sample size (when 4 were estimated to be lost through attrition), and in the Participant Flow section when 63 were recruited leading to the 48 subjects (with attrition of 15).

Response: In all 63 participants signed the informed consent, out of which 15 dropped out even before randomization. Thus, the total number of participants who were randomized and completed the study were 48. This is now clarified in the revised manuscript.

Comment: It would be interesting to know where the site/s of the traditional teaching took place, and more details on the web-based access. Was there international recruitment, for instance? Furthermore, the actual topics reviewed would be valuable to know.

Response: The traditional teaching was simply an assignment with the mentors being available by consultation by phone. material for web based access were the templates, google docs, and the contact with the mentor by phone. The study did recruit
international participants. However stratification on the basis of this was not part of the objective of the study and thus not carried out. These participants were enrolled because they did express interest for participating in the study. The topics selected by the students and mentors were according to their own interest from the list provided.

**Comment:** Descriptions of the two types of workshop was helpful, but e-learning communication was used in the traditional group for off campus students. The extent and effect of this needs to be stated in the results and discussion respectively. Figure 1 of the methodology does not appear to be referred to in the text and is not explicit enough in naming the web-based and traditional sections.

**Response:** There was no categorization in terms of use of e-learning for off campus. There were two groups and the participants were randomized into these two groups irrespective of whether they were on campus or off campus. Figure is modified.

**Comment:** The data obtained appears to be sound, but the qualitative analysis data from the focus groups has barely a mention compared to the detailed statistical analyses otherwise discussed. For the analysis testing the agreement between three inter-observers, an explanation as to why Cohen's kappa was chosen rather than an analysis such as Fleiss’s kappa (used for more than two observers) would be valuable.

**Response:** The qualitative study carried out during the present study is published elsewhere where the detailed results are presented. Reviewer is correct in that we have misused the name although using the correct test. correction is now made to the revised manuscript.

**Comment:** The reporting of the data is clear, but all acronyms should be defined when they first appear

**Response:** The necessary changes have been made in the revised manuscript

**Comment:** There could be some re-organization of material across sections, the methods include some material that may best be concluded in the discussion, “The use of this technology clearly enhanced students' familiarity with an increasingly popular method of collaboration, as well as improving the investigators’ efficiency”. The discussion includes a summary of the findings initially and then reviews ‘no significant difference’ and
‘differences’ between web-based and traditional teaching from the literature. The literature review aspects would be better placed in the introduction where it is stated that multiple studies have compared web-based and traditional teaching methodologies but no references to these were made.

**Response:** We have now included the additional required references.

**Comment:** Although the conclusion at the end is stated, a definitive conclusion section should ideally be named.

**Response:** A section entitled "conclusion" is now added in the revised manuscript.

**Comment:** The writing is generally good English in terms of grammar and spelling, but there is some mixing of first and third persons.

**Response:** We have tried to rectify this to our best.