Integrating SMARTBoard Technology into Higher Education Online Training: A Perspective Between Genders

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Abstract: This study examined whether gender differences exist among college faculty, staff and graduate students (FSG) in terms of participation in and the acquisition of SMARTBoard skills gained from attending SMARTBoard online training sessions. The study centered upon FSG who participated in SMARTBoard training sessions conducted by the University of Southern Mississippi’s (USM) Center for Education and Learning Technology (CELT) during the fall, 2002, and the spring and summer, 2003 semesters. The data showed that women were more likely to attend and participate in training sessions than men however the genders were equally comfortable with the sessions and reported comparable skill acquisitions. Researchers suggest that trainers encourage equal participation and attendance at online training sessions.

Introduction

Gender inequities in competency and use of technology have always existed. The US Office of Educational Research and Improvement reported that although the US has made slow progress toward recognizing women in nontraditional areas such as technology use, strong negative social messages are still projected toward women in these areas (Boland, 1995). Papers presented at the American Association of University Women (AAUW) Pre-Convention Symposium consistently maintained that technology challenges faced by girls at the K-12 level are often extended to the higher education level among women faculty (1995). Men are expected to lead in the use of technology, while women are expected to follow and watch.

Kagima and Hausafus (2000) reported gender differences in faculty computer self-efficacy in that women generally described themselves as less capable than men. This attitude was not limited to the United States. In Henwood’s (2000) investigation of this issue in the United Kingdom (UK), technologically proficient women were considered exceptional faculty members since it was presumed that women were less capable in technology use. Although these gender inequities resulted more from societal expectations and prejudices, the assumption that women and technology do not mix is still present (Forcier & Descy, 2002). This assumption also holds true in higher education as people assume that men are more interested and comfortable in using technology than women.

This gender technology divide also extends to online learning. Hargittai (2002) found wide differences in search strategies, ability to find various types of content, and search times between genders, with female search strategies taking longer and proving more difficult in locating content than their male counterparts. Whitehouse (2002) found that women students see computing as a male domain, and doubt the efficacy of computers in their own lives. Her study noted that females are at a disadvantage in college courses which utilize technology since females, in general, either have fewer computer skills and or tend to have less confidence in themselves as computer users.

The Study
In order to better understand the technology gender divide, the researchers recruited 16 females, 9 males and 1 unidentified FSG participants in regularly scheduled SMARTBoard training sessions. The research questions chosen for this study included:

1. Are there gender differences in **attendance** of SMARTBoard training sessions?
2. Are there gender differences in **participation** in SMARTBoard training sessions?
3. Are there gender differences in the **teaching comfort level** in SMARTBoard training sessions?
4. What do FSG members **learn** from one training session? Do they feel that one session is enough?

To address these research questions, we collected pilot data using a workshop participant survey and an observation checklist. Based on the pilot findings, the instruments were refined where appropriate to ensure content validity and internal reliability. We then collected data using the modified checklist and survey at three SMARTBoard training sessions held during the spring semester and one summer semester session.

**Findings**

The following results are divided into their respective research questions:

**Research Question One:**
A Chi Square goodness of fit test was conducted to determine if there were gender differences in attendance of SMARTBoard training session. The Chi Square was significant, \( \chi^2 (25) = 20.85, p < .001 \). This indicated that there was a statistically significant gender difference and that approximately twice as many female FSG attended the SMARTBoard training sessions as their male counterparts.

**Research Question Two:**
A Chi Square goodness of fit test was conducted to determine if there were gender differences in participation in SMARTBoard training sessions. The Chi Square was significant, \( \chi^2 (313) = 308.02, p < .001 \). This indicated that there was a statistically significant gender difference and that there were nearly seven times more incidences of SMARTBoard participation behaviors by female FSG during the training sessions than by male FSG.

**Research Question Three:**
An Analysis of Variance (ANOVA) was used to determine if there were gender differences in the comfort level of the SMARTBoard training sessions. The ANOVA was not significant, \( F (1, 23) = .96, p = .34 \). This demonstrated that female and male FSG felt equally comfortable in post-training classroom SMARTBoard use.

**Research Question Four:**
Participants were asked what they learned and did one training session cover enough material?

The following comments are from participants who felt that one session was enough to learn SMARTBoard features:

- The notebook and floating tools will be helpful features to record what changes have been made and obtaining easy access to SMARTBoard features (female).
- Good overview of general features such as the Recorder for SMARTBoard and notebook (female).
- After learning the features, I know that I need to practice, practice, and practice to become proficient (female).
- Yes, I thought that operating Excel & Word on the SMARTBoard was most useful to me (male).
- The session covered enough of varied material to be helpful and get started, but it did not bog you down with too much information (male).
- I learn the fact that SMARTBoard is cross-platform and user-friendly (male).

There were only two participants (both male) who felt that an additional session was needed. Their comments included:
• Session provided basic information. I need personal practice and then another session to answer questions and explain uses for more advanced applications.
• Actual presentation reinforces the learning of the SMARTBoard, but there is a time limitation, so it would be difficult to implement.

Discussion

This study had several limitations that should be taken into consideration when generalizing the results to a larger population. First, the sample size of this study was small (26 participants). In a true descriptive study, the sample size should contain 35 minimum. Additionally, the participants were volunteers in a convenience sampling (they happened to attend the sessions) that could cause response bias. Finally, four different researchers performed the observations and this caused an inter-rater reliability problem in the behaviors assessed on the observation checklist. The raters were positioned in different corners of the training room and did not have the same visual perceptions of the participants. Altogether, the limitations need to be considered in the assessment of study’s validity, the findings did reveal some important pilot findings that will be considered in our future studies.

Gender differences in terms of participation in and the acquisition of SMARTBoard technology skills from attending SMARTBoard training sessions varied according to the question investigated. The first two research questions focusing on attendance and participation demonstrated female FSG domination. However, this may not be significant for participation and practice since more female FSGs did attend the training sessions, and therefore, it would be more than likely that participation and practice would be higher among the female participants. Future studies should investigate these differences as well as follow-up on the extent the participants integrate SMARTBoard into online learning.

There were no differences between the genders in terms of comfort level or amount learned in the training sessions. Researchers conclude that positive progression toward integrating SMARTBoard technology into the educational environment will occur. Based on the SMARTBoard’s user-friendly features and advantages as perceived by most of the participants, this emerging technology can have a widening impact upon online educational instruction particularly with the use of Recorder, a feature embedded in the newer SMARTBoard software versions which allows professors to digitally record both audio and video portions of teaching for online use. Bridgit data conferencing software, just recently developed, will allow online instructors to share their desktops with other users, both of whom may create, view and save annotations.

Several recommendations need to be considered in further studies. First, a larger sample should be assessed. Several more training sessions should be conducted to better represent the faculty, staff, and graduate students’ perceptions toward SMARTBoard. Second, a qualitative study that follows the participants outside of the training session to observe how and whether the participants pursue the use of the SMARTBoard should be done. This would extend the existing results beyond the training sessions. Third, investigating particular features or interactive components of the SMARTBoard across the two genders would be worthwhile. For instance, a study could investigate how gendered-interactivity affects the use of the SMARTBoard in the online classroom. Finally, providing participants with a follow-up training session after they actually practice using the SMARTBoard could generate very different results. In short, this initial study has provided an idea of how gender perceptions toward SMARTBoard use and integration differ. The next step is to take these results and obtain additional feedback from a variety of FSG in terms of SMARTBoard use.

References


**Appendix A: Survey for Participants in the SMARTBoard Workshops**

Status: _ Faculty _ Staff _ Graduate

Gender: _ Male _ Female

Experience with SMARTBoard: _ Never used _ Used a little _ Used extensively

Years at USM: ____________________________

Major field: _______________________________

Minor field: _______________________________

**Please rate your perception of the SMARTBoard in the following statements using the following key:**

1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree

_____ 1. After attending this session, I would most likely attend future SMARTBoard technology training sessions.

_____ 2. For learning to become ingrained, attending follow-up technology-training sessions is required.

_____ 3. One technology training session is enough to learn the advantages and disadvantages of the medium.

_____ 4. One technology training session is enough to learn how to apply the technology in actual learning/working situations.

_____ 5. Personally, once someone demonstrates technology to me (e.g., using the SMARTBoard) I know enough to get started.

_____ 6. Once I learn how to use technology, I tend to explore on my own to see what the technology can provide.

_____ 7. I did not feel intimidated during the training session.

_____ 8. Before actually using the SMARTBoard technology, attending this training session has helped with my comfort level.

_____ 9. The training session has helped build my self-confidence in applying SMARTBoard technology.

_____ 10. Personally, learning how to use technology requires that I practice using the technology.

_____ 11. Asking questions during training sessions can help stimulate learning.
12. Hands-on activities should be used with the participants to inspire learning.

13. If a training session involves a topic that I am unfamiliar with, I tend to sit and observe rather than speak out and participate.

Please rate your perception of the SMARTBoard in the following statements using the following key:

1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree

14. Watching someone demonstrate technology features is the best method in learning how to use that technology.

15. A technology-training workshop should require participants to become actively involved with the instructional process.

16. A discussion session after the demonstration helps reinforce the information learned.

17. A technology training session should not exceed one hour in length.

18. SMARTBoard technology has value in a classroom situation.

19. SMARTBoard technology can be an effective instructional tool.

20. SMARTBoard technology can benefit the user in communicating ideas and information.

21. Students who have difficulty following oral lectures can benefit through the SMARTBoard medium.

22. SMARTBoard technology provides instructors and presenters with an alternative way to communicate information to the audience.

23. SMARTBoard technology effectively provides a visual means for delivering information.

24. Learners can actively participate in the learning process through the SMARTBoard technology.

*Name three things that you have learned as a result of this SMARTBoard training session:

1.

2.

3.

* Name two ways in which instructors and presenters can effectively utilize SMARTBoard technology:
1.

2.

* Do you feel that this training session has covered enough material that will help you apply it in your own instructional/workplace situation?

  a. If yes, then please explain what information has been most useful.

  b. If no, please tell us what information we should have covered that would help you.

* Could you suggest ways in which the presentation of the material could be more effective
## Appendix B: Observation Checklist

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<th>Participation</th>
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<tbody>
<tr>
<td>Asks Question</td>
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<tr>
<td>Comment on observation</td>
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<tr>
<td>Actively takes notes</td>
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<td>Volunteers</td>
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<tr>
<td>Talks to each other-F &amp; M</td>
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<td>Talks to each other-F &amp; F</td>
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<td>Talks to each other-M &amp; M</td>
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### Attentiveness

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<tbody>
<tr>
<td>Nods in agreement</td>
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<tr>
<td>Looking at handout</td>
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<tr>
<td>Jokes appropriately</td>
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<tr>
<td>Laughs/Smiles appropriately</td>
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<td>Looking at watch</td>
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<tr>
<td>Shifting in chair</td>
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<tr>
<td>Yawns</td>
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<td>Looks away</td>
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### Miscellaneous

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<tr>
<td>Leaves session early</td>
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<tr>
<td>Leaves room right after session ends</td>
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<tr>
<td>Stays after session</td>
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