

A. Theoretical Perspective Summary

1. **Conceptual Framework:** The framework is based on social constructive representations of learning. The purpose is to determine whether instructional interactions are different when learning takes place in a computer-based versus a paper-based task.
2. **Importance:** Study is important—it addresses an important social issue that has wide-spread implications, given the pervasive trend toward computerizing instructional activities.
3. **Theory & Research:** Solid. Draws on a variety of research. Presents that research in a stream of thinking that is logically consistent (e.g., there is concern that computer use in educational settings may exacerbate existing gender inequities; females already have lower self-efficacy and more negative computer attitudes than males; social interactions in learning environments produce inconsistent results with respect to the benefit to females, but males tend to dominate interactions in mixed-gender learning pair). Does not define all terms well (e.g., equitable interactions).
4. **Research Questions:** Compares patterns of interactions on a computer versus paper learning task. Hypothesizes that interactions will be more equitably distributed when the task is paper-based.

Theoretical Perspective Grading Guidelines

- 4—Accurately depicts/summarizes the theoretical framework presented by the author. Correctly identifies the research hypothesis. Acknowledges the linkage between the theory and research hypothesis. May identify minor weaknesses in the author's argument, but is not overly critical of those minor points. Or, may fail to identify any weaknesses at all. Supports criticisms or compliments with statements or observations about the theoretical framework.
- 3—Has minor misinterpretations of the theoretical framework presented by the author. Correctly identifies the research hypothesis. Acknowledges the linkage between the theory and research hypothesis. Is overly critical of author's argument but supports or fails to identify any weaknesses at all. May support criticisms or compliments with statements or observations about the theoretical framework.
- 2—Has misinterpretations or minor omissions of the theoretical framework presented by the author. Correctly identifies the research hypothesis. May fail to acknowledge the linkage between the theory and research hypothesis. Is overly critical of author's argument or fails to identify any weaknesses at all without supporting those claims with statements or observations about the theoretical framework.
- 1—Has major misinterpretations or significant omissions of the theoretical framework presented by the author. Fails to identify the research hypothesis. Fails to acknowledge the linkage between the theory and research hypothesis. Is overly critical of author's argument or fails to identify any weaknesses at all without supporting those claims with statements or observations about the theoretical framework.

B. Research Design & Analysis Summary

1. **Design & Research Questions:** A three-way, repeated measures design comparing gender, type of pair (mixed versus same-gender), and type of learning task (computer versus paper) as the independent variables.
2. **Sampling:** 48 children, 13-14 years old. Very little description of the sample. Very difficult to identify the population to which the results would generalize. Sample size is very small and seems like a convenience sample. Much contextual information is missing.
3. **Procedures & Materials:** Students were placed into learning teams (mixed versus same-gender)

and presented with one of two poems with text randomized. Students were to discuss the intended sequence of the poem lines. Task was presented on paper or on computer. Very little information given about the computer environment and required computer skills. Students experienced both conditions (paper versus computer), and topic was counterbalanced in sequence and medium of presentation. After a two-week delay, the task was repeated. Learning sessions were audio taped and later coded.

4. Quality of Measures: The researcher measured three things: type of verbal interaction, time controlling the computer mouse, and number of times lines were moved during the task. Type of verbal interaction was categorized as proposing, supporting, disagreeing, seeking information, and repetition and measures were created by counting the number of interactions in each category. Each type was treated as a separate dependent variable. Time controlling the computer mouse was measured as the number of seconds. Number of times lines were moved during the task was counted. Quality of measure indicators are only given for the Type of Verbal Interaction dependent variable (e.g., interrater agreements, but only indicates that they agreed on all but 3 without identifying the percentage). In addition, each “measure” constitutes a single-item measure. Overall, the level of description and suspected quality of the measures is very poor.

5. Data Analyses: Type of interaction was analyzed via a 3-way ANOVA for each type of verbal interaction. The degree to which the assumptions of the ANOVA are met are not addressed, and there is reason to believe that they are violated (e.g., non-normality is a common problem with counted data). Also, statistical significance tests are reported without effect size indicators—the observed effects do not look large based on the reported means. No attempt is made to control for verbosity of different groups. These same criticisms could be made of the remaining two dependent variable analyses. Does evaluate potential confounds (e.g., order effects).

Theoretical Perspective Grading Guidelines

- 4—Presents accurate and thorough criticisms of shortcomings, particularly of sample, measures, & analyses. Suggests ways that these features of the study could be improved. Discusses implications of the shortcomings for the interpretation of the results.
- 3—Identifies a few valid criticisms relating to the shortcomings of the study, but may omit a few important ones or may misinterpret some of those that exist. May discuss some implications of the shortcomings for interpretation of the results.
- 2—Omits or exhibits misconceptions relating to the shortcomings of the study. Generally does not discuss the implications of the shortcomings
- 1—Fails to identify valid shortcomings and/or exhibits serious misconceptions about those shortcomings.

Interpretation and Implications of Results Summary

6. Limitations: The fact that all groups experienced increased verbal interactions suggests that a novelty effect may take place in this study—a possibility not acknowledged by the authors. In fact, the authors do not acknowledge any limitations of their study.
7. Conclusions: Interestingly, the verbal interactions are different (as predicted) as a function of computer task, but they indicate that males are the ones influenced by learning context rather than females. There was no effect for the number of times lines were moved. Males tended to dominate mouse use in mixed pairs. The authors mistakenly conclude that males dominate verbal interactions. In fact, every group experiences increased verbal interactions in the computer condition—males simply tend to exhibit the greatest increase, particularly in mixed-gender groups. The authors correctly conclude that males dominate mouse use in mixed groups. The authors also tend to overstate the connection between the results and their theory.
8. Relate to Theory: Connections to prior research are identified. However, the authors have a leap of logic in interpreting the results. They conclude that, because males exhibit greater verbal interactions in mixed groups that that is because males are perceived as being more expert.

Perceived expertise was not measured in this study. Also, they conclude that females take a supportive role while males take the lead—again, leadership position was not measured as a dependent variable. As a result, the author tends to overextend their interpretation of the results in support of the theory. The authors also do not acknowledge or explore potential alternative explanations for their results. For example, it could also be reasonable to suspect (and the data would support the notion) that males dominate the learning interactions and mouse use in the computer environment not because of their greater expertise but because they are more excitable by the novel learning environment than females.

9. Significance/Implications/Future Research: The authors do not discuss this. The study is significant because it demonstrates what has been suspected based on prior research concerning computer-based learning—that males tend to dominate the learning environment. However, it is also significant, unbeknownst to the author, because it shows the power of the novel learning environment for engaging learners in the learning activity, particularly for male learners. Future studies should focus on examining perceived expertise of males & females for computer learning tasks and perceived roles of males & females in the learning task.

Theoretical Perspective Grading Guidelines

- 4—Realizes that limitations and significance are not discussed and that relation to theory is discussed by the author. Identifies significant and justifiable concerns relating to the limitations of the study and overextended conclusions. Presents a well-argued statement concerning the significance, implications, and future directions for the research.
- 3—Realizes that limitations and significance are not discussed and that relation to theory is discussed by the author. Identifies justifiable concerns relating to the limitations of the study and conclusions but may not fully represent the seriousness of those concerns. Presents a statement concerning the significance, implications, and future directions for the research.
- 2—Realizes that limitations and significance are not discussed and that relation to theory is discussed by the author. May identify concerns relating to the limitations of the study and conclusions but may be overly critical or identify somewhat trivial issues. May discuss the significance, implications, and future directions for the research.
- 1— Realizes that limitations and significance are not discussed and that relation to theory is discussed by the author. Fails to identify concerns relating to limitations and conclusions or may be overly critical of trivial issues. Fails to present a convincing argument concerning the significance, implications, and future directions for the research.