Teaching and Learning Keyboarding

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Abstract: The purpose of my study was to compare the effects of covered keyboarding instruction with uncovered keyboarding instruction on students' typing proficiency and typing technique. Two intact classes of twenty-two seventh graders each were involved in this study. Most students were at beginning keyboarding level. These students worked for a six-week period using a software program learning how to keyboard. One class of students used keyboarding covers and the other class did not. During the instruction, students were monitored for correct keyboarding technique. After one week, three weeks and six weeks of instruction, students printed lesson reports so that the instructor could monitor their keyboarding proficiency. At the end of the intervention, a focus group from each class discussed their keyboarding experiences. While use of the keyboarding covers did not increase keyboarding proficiency, their use did increase student confidence and proper student techniques.

Introduction

Computers are an integral part of the world we live in. Students completing school without some type of computer/technology training are at a disadvantage. The primary means for interacting with a computer is the keyboard. Touch-keyboarding skills have become a basic need at all levels of employment (Walthall, 1985). Keyboarding skills are no longer vocational in nature, but necessary to communicate, extract, and disseminate information (Erthal, 2003). Himowitz (2003) states that keyboarding is the most important single "computer" skill a child can learn. Schools can no longer prepare students for the workplace of the future without providing them with skills necessary for using computers competently (Starr, 2001). Computer literacy is important to all students because they live in a society which demands a certain degree of computer knowledge. (Powell as cited in Cantore, 2003, p. 29).

According to Robinson, Erickson, Crawford, Beaumont, & Ownby (1979), typing technique underlies and becomes the essential basis for the development of keyboarding speed and accuracy. Learning to keyboard with the proper technique helps students with their keyboarding skills as long as they use or need them.

Though there is widespread agreement on the value of keyboarding skills, educators disagree on methods of instruction. A primary issue is whether or not students should be able to look at their fingers while learning to type. While reviewing the literature on this topic, just as many agreed that students should be able to look at their fingers as those that stated that they shouldn't be able to look at their fingers (Hopkins, 1998; Boone, as cited by Fleming, 2002; Starr, 2001; Bartel, n.d.).

In this action research study, I examined the effects of covered keyboarding instruction with uncovered keyboarding instruction on students' typing proficiency and typing technique. Students' reported experiences with keyboarding instruction were also documented and compared by instructional method. The following questions were answered through this research study:

1. What is the effect of covered keyboarding instruction on typing proficiency?
2. What is the effect of uncovered keyboarding instruction on typing proficiency?
3. What is the effect of covered keyboarding instruction on typing technique?
4. What is the effect of uncovered keyboarding instruction on typing technique?
5. What is the experience of students as they learn to keyboard?

Method

Setting and Participants

My Action Research Project took place in a middle school in southern Georgia. The school houses all of the seventh and eighth graders in the county. There are about 1300 students in the school with 625 7th graders and 675 8th graders. The population of the school is: 52% Caucasian, 40% African American, 6 % Hispanic, 1% Asian, and 1% multiracial. Fifty-two percent of the students are male and 48% are female.

Instruction

Students participating in the research project are seventh grade beginning keyboarding students. Students are randomly placed in exploratory classes at the beginning of the year by the school computer system. The skill levels of the students vary though most at the beginning typing level.

Two of three classes of 7th grade beginning keyboarding students were chosen by the instructor to participate in the study. The classes were chosen because of their equivalence in numbers and because of the time of day they are taught. Both classes had twenty-two students and both are taught in the middle of the day. One group was then chosen to receive instruction with covered keyboards while the other class received instruction without the covers. Students only received instruction while in keyboarding class. Students used MicroType Pro software to learn basic keyboarding skills. The software begins instruction by teaching the home row keys in lesson one and then progresses through the alphabetic keyboard by teaching two letters per lesson. Each lesson provides review of the previously learned keys, two new keys to learn, practice for the newly learned keys, and a section to combine all keys now learned. The teacher monitored the typing technique of students and noted their use of the keyboarding covers during instruction.

Data Collection

The data collection plan contained several components. One component was computer-generated reports on each individual student. The reports gave basic information on the students' keyboarding proficiency such as speed and number of errors during that lesson. The reports were printed at three different times during the study. The initial report was used to determine beginning keyboarding proficiency for each student. After three weeks of instruction, students printed their lesson five reports to determine the development of their keyboarding proficiency. This same process took place after six weeks of instruction when students printed their lesson ten reports.

Data collection also included direct observation. While students were receiving instruction, the instructor directly observed the keyboarding techniques of both groups of students daily. The school's other keyboarding instructor observed both groups twice during the six-week period. Instructors monitored students' frequency of looking at their hands, the use of the home row keys, the use of the proper fingers, and the ability to refrain from hunting and pecking while keyboarding. Students were awarded points based on these observations so that their results could be easily compared to other students.

At the end of instruction, a focus group of ten students from one class and eight from the other class were asked a variety of questions. There were seven open-ended questions that helped to clarify student attitudes toward keyboarding. The students gathered in a small group setting with the instructor leading the discussion. The school's other keyboarding instructor also monitored the focus group interaction during the discussion.

Procedures

Students were instructed when and what lesson reports to print. I collected and analyzed the data from the lesson reports. I monitored my keyboarding students daily to collect information concerning their

keyboarding technique. The other keyboarding teacher also collected technique data through direct observation twice during the six-week period of the study. I used our collective findings to analyze the keyboarding techniques of the students. I also conducted the focus group discussion while the other keyboarding teacher observed.

Ethical and Legal Research Practices

Each student in both classes was given a consent form to be signed by themselves and their parents in order to participate in the study. All students participated in the instruction. Only randomly selected students participated in the focus groups. The principal gave consent for the school facilities to be used to complete this study.

Analysis and Findings

Observation

Through direct observations, my colleague and I found students who used the keyboarding covers were more likely to use proper techniques while keyboarding. Even though the group that used the keyboarding covers scored higher in all areas observed than the group that did not use the covers, only one of the four items showed a notable difference. The class that used the keyboarding covers scored an average of three points higher on the not looking at fingers objective (item #5) than the class that did not have the covers which was an expected result. All other items compared, fingers on home row keys (item#6), using proper fingers (item # 8), and refraining from hunting and pecking (item # 10), seemed to be approximately the same in both classes. The following chart and graph compare this data:

Instruction Type	Item #5	Item #6	Item #8	Item #10
	Mean/Possible	Mean/Possible	Mean/Possible	Mean/Possible
Covered	9.1/10	9.1/10	9.3/10	9.1/10
Uncovered	6.2/10	8.8/10	9.0/10	8.8/10

Figure a: Mean scores from observation of student techniques.

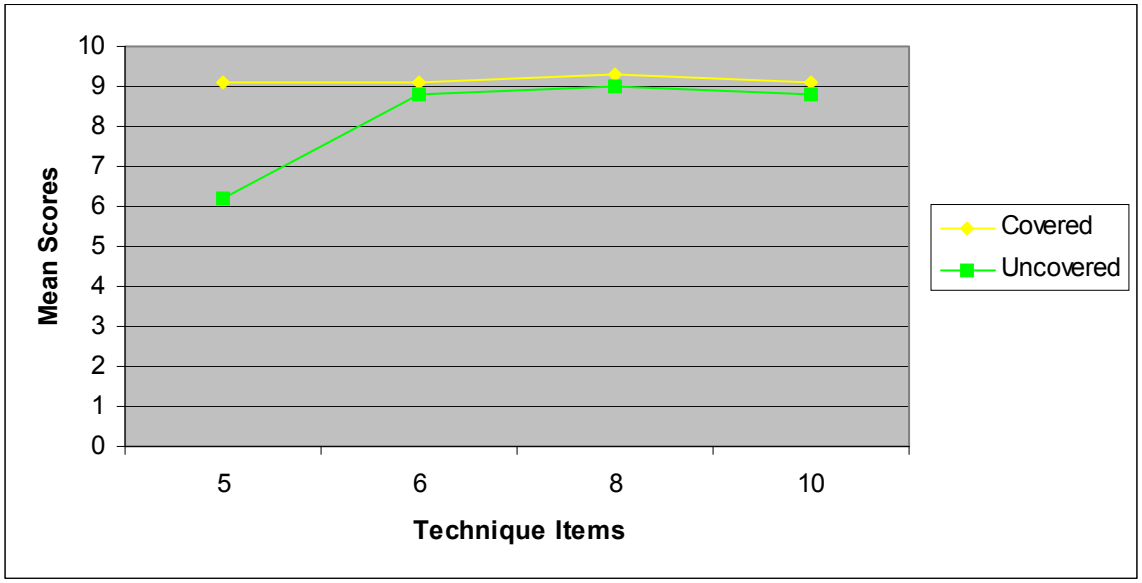

Figure b: Comparison of mean scores of technique items of two groups.

Lesson Reports

Students printed their summary reports for lessons 1, 5, and 10. The lesson one report was printed to determine the students' beginning keyboarding proficiency. Neither class used the keyboarding covers during lesson one. Following three weeks of instruction, students printed their lesson five reports and following six weeks of instruction the students printed their lesson 10 reports. After analyzing the lesson reports, I found the mean keyboarding speed of the students in each group and the mean number of errors of the students in each group.

Group Instruction	Lesson 1	Lesson 1	Lesson 5	Lesson 5	Lesson 10	Lesson 10
	Speed	Errors	Speed	Errors	Speed	Errors
Covered	18.6 wpm*	9.7	22.6 wpm	13.6	22.4 wpm	14.2
Uncovered	20.4 wpm*	12.7	21.9 wpm	10.8	24.2 wpm	9.8

*words per minute **Figure c**: Typing speed and typing errors for both groups.

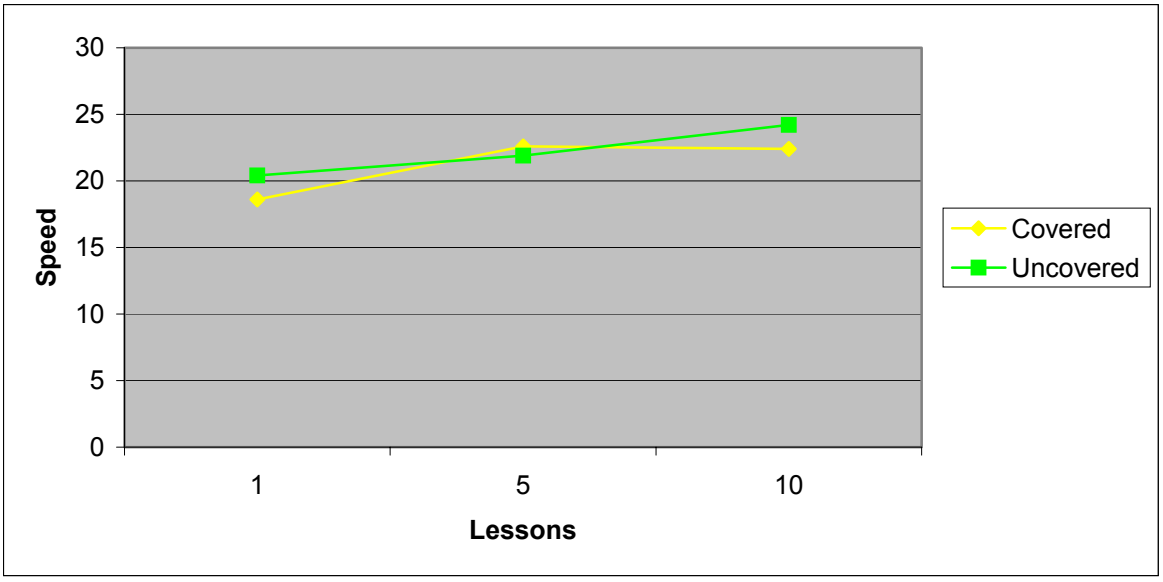

Figure d: Comparison of typing speed between two groups.

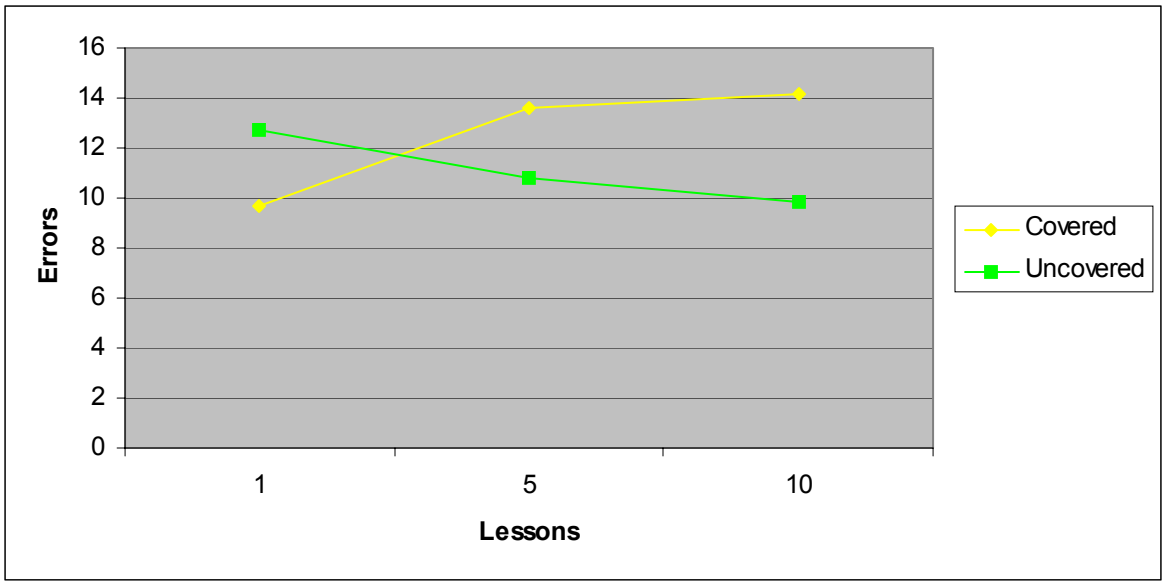

Figure e: Comparison of typing errors between two groups.

The resulting data indicates typing speed was similar in both types of instruction with the speed of the uncovered group being slightly higher. While keyboarding speed improved throughout the instruction in both groups, neither group showed distinctive speed gain over the other group.

The group with uncovered keyboards started off their keyboarding errors at a higher rate, but then consistently made fewer errors than the group participating in covered keyboard instruction. The group that had covered keyboards made fewer errors in the beginning, but made more in the later lessons.

Focus Groups

The students in both focus groups came from a variety of socioeconomic and ethnic backgrounds. Ten students were part of the first focus group, representing participants who used keyboarding covers. After explaining to the students that this discussion in no way impacted their grade, students seemed relaxed and able to answer the questions openly.

When asked who is good at keyboarding and how did you get so good, all of the students who had used the covers agreed they felt confident in their keyboarding abilities. Six of the 10 students noted using the keyboarding covers helped them to be good at typing although one student admitted that he did not like the covers. One student indicated the finger charts provided on copyholders helped him to become a good typist. Two other participants confirmed the use of the software program is what helped them to become good at keyboarding. Another participant knew how to type when she entered the class, so she stated that typing in earlier grades had helped her to become better at typing.

Of the eight students who participated in the focus group that did not use keyboard covers, seven stated they were good at keyboarding. One stated that he was not good at keyboarding. There were several different reasons students felt they were good at keyboarding. These included not looking at the keyboard, practicing, reminders from the teacher, having a computer at home, use of a typing program or typing on AOL.

When asked what is difficult about keyboarding, the majority of the participants in both groups indicated making awkward reaches while keyboarding was the most difficult part of keyboarding. A couple from both groups also commented that using two keys at once, such as using the shift key to capitalize a letter, was difficult for them.

The group that did not use the covers stated that not looking at their fingers was also difficult. One student admits he still looks at his fingers.

The next question I asked the groups is what do they do differently when typing outside of keyboarding class. All admitted to a lack of proper posture when they keyboard outside of class. All agreed that outside of class, they freely look at their fingers when typing and they exhibit poor posture. One student in the uncovered keyboard group admitted to using only one hand frequently and still hunting and pecking while typing. Some also admitted to looking at their hands and sometimes only using one hand to type.

The answers to the next question provided a different response from the two groups. When asked when typing from a copy where do you look most often, the group that used the keyboarding covers all admitted to looking back and forth between the paper and the monitor. None admitted to looking at their fingers. In the group that did not use the covers, seven of the eight participants admitted to looking at their fingers, the monitor, and the copy when typing from another source. One stated that she looks at the copy and the monitor only.

Question five asked if the students had the confidence to type anything they were asked to now that they have finished the course. All students in the covered keyboard focus group stated that they have the confidence to type anything that they are asked to type. Only one of the students admitted not liking typing, but he still thought he could type anything he needed to. Of the eight students that were in the uncovered group, six felt like they are efficient typists and can type anything presented to them. All stated that this is possible because they learned their keys and have confidence in their typing abilities. Two participants said that they can't type very well and they do not have the confidence to type just anything. One of these two doesn't like typing at all and they both admit that they "mess up" too much.

The next question asked if the students thought their typing skills were better since they completed the keyboarding course. All students in both groups agreed that their typing skills are better now that they have taken the course.

The last question was designed to find out what the students liked and disliked about the course. All students in both groups had positive and negative things to say about the software program. There were a variety of different dislikes stated by both groups. Several students in both groups did not like having to sit up in their chair while keyboarding. One of the comments made by a member of the uncovered group was that the teacher monitored them to closely. One student in the uncovered group stated that he thinks everyone should use the covers.

Limitations of the Study

The biggest limitation to this study was the short time in which the study was conducted. I think that if we had more time, we could have included more lesson reports, which could have possibly shown more gain in speed for the participants. Students should be observed over a longer period of time to see if the differing speed or errors between the two types of instruction is related to the short duration of the study.

Conclusions

The data collected indicated all participants in this study made gains in keyboarding speed throughout the length of the study no matter their method of instruction. While participating in the instruction, students were receiving the much needed practice and reinforcement needed to maintain the learned skills. Because learning to keyboard requires active participation on the part of the student, students were able to build their speed as the instruction progressed.

Even though it seems like covered keyboarding instruction should be a better method of instruction, this study does not show that result. The number of errors made was greater in the student group that used the keyboard covers. The students with the uncovered keyboards also had faster speeds. Could this be related to Starr's (2001) suggestion that allowing students to look at the keyboard is good? She reasons looking at the keyboard helps to build the hand-eye coordination of the students. This study makes her suggestions more convincing. If this study followed the trend of most other studies, the students using the covers would be faster typists and be more proficient.

Because of the keyboard covers, group one students were less likely to look at their fingers than group two. The temptation was there, but looking was not as easy for group one. Students who used the keyboarding covers are more likely to be able to type without looking at their fingers even when the covers are not in place. This was confirmed through the focus group questions, students who learned to keyboard with the covers in place expressed more confidence in their keyboarding ability than the students who had learned to keyboard without the covers in place.

I will duplicate this project in the next nine weeks. I will collect more data by using more lesson reports and allowing more time for the participants to build their speed. After lesson 10 instruction, I will

remove the covers and observe the student technique methods again as well as student typing proficiency. The group that used the keyboarding covers did a good job of not attempting to look at their fingers compared to the group without the covers. Of course, it was not as easy for the covered group to look at their fingers. With covers removed, will finger watching increase?

The speed gain was not impressive for either group, averaging approximately four words per minute. I think if the study were stretched out over a longer period of time, speed differences between the two groups would be more substantial. Once the keyboard is learned, I think the group with the keyboard covers will eventually become faster typists. I would like to see if the speed gain or error rate would be more for either group as the instruction continued.

Students without the covers made fewer errors. I think this happened because they were not able to look at their fingers for reassurance. The uncovered keyboard class had the reassurance of looking at their fingers if they forgot the placement of a key, which likely contributed to them making fewer errors.

Is there a time when covered gets better than uncovered, for speed and errors, or are the continuing differences so small that I could recommend uncovered keyboard training for everyone? I don't yet have the answer to that question, but I'm certainly on my way to finding it.

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