

NOTETAKING STYLES AND EFFECTIVENESS FOR A MIDDLE SCHOOL
POPULATION

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Abstract

This research sought to inform the question: which type of notetaking method, Cornell, fill-in-the-blank, or student choice, will lead to better test results for middle school students? Which method will students prefer? A sample of seventh grade students participated for three weeks in this within subjects research study. Each week consisted of students being taught a notetaking method, students using the notetaking method while watching a video, then students being tested on information presented in the video 3 days later. The results of a T-test suggest that there is a significant difference when comparing student choice notes to fill-in-the-blank notes and when comparing Cornell to fill-in-the-blank notes. However, further study on the topic of which notetaking style leads to higher test scores would be beneficial.

Notetaking styles and effectiveness for a middle school population

Notetaking is foundational to the education experience and though a seemingly simple skill it is truly complex. In college, lecture notes are the key to retaining information presented in class and often provide the study guide for the test. In AVID classes the Cornell method is taught to prepare students for taking those essential notes in college. The styles of notetaking are endless: be it instructor created outlines, fill-in-the-blanks, or blank sheets of paper that students are expected to fill on their own. Students in elementary school begin to learn to take notes and the different formats and methods progress with each grade. As the grades progress so does the importance of the notes, but are the different notetaking styles helpful? Is there a style most helpful? Do students find these methods beneficial and actually learn from them? With all the variations in style, opinions of the best way to take notes are also varied.

This research sought to inform the question: which type of notetaking method, Cornell, fill-in-the-blank, or student choice, will lead to better test results for middle school students? Which method will students prefer? The literature on academic notetaking is broad and varied, however trends and gaps can be seen which provide direction for future study. The literature also provides means of defining terms, and this area will be addressed first.

Literature Review

Definition of terms

This study implemented three types of notetaking methods: Cornell, fill-in-the-blank, and student's choice. The following will be an explanation of each method.

The Cornell method is a strategic method in both design and content. The paper for Cornell notes is typically oriented in two columns with the space on the left reserved for recording main ideas, and the remaining two thirds of the space on the right for recording details. (Faber, Morris, & Lieberman, 2000) There is typically space left at the bottom for review and paraphrasing main points. Some variation is seen in the format of the Cornell method. Where variation occurs often has to do with the left column. This column could be filled in later with study questions instead of being used as a space to record main points. (Pauk, 2001, as cited in Quintus, et. al., 2012) However, in most of the literature the Cornell method placed main points on the left and details on the right and this is the format that was used for the present study.

The idea behind fill-in-the-blanks is that they “provide an advance organization, focus attention on the critical ideas, guide notetaking, and provide effective cues for retrieval.” (Kiewra, 1985) Fill-in-the-blank type notes have been a part of many studies on notetaking and are typically, distributed prior to the lecture, present the lecturer’s main ideas in an organized form with spaces for learners to detail or embellish those points throughout the lecture. (Kiewra, 1985) It has been found that fill-in-the-blanks that contain less information and more space will lead to an increase in the amount of notes written down by the subject. (Kiewra, 1985) Therefore, the fill-in-the-blanks that were used in this study focused on main ideas and left space for students to write in their own notes as well.

As far as student choice this method is defined simply as that, the students own choice. This study aimed to be true to the phrase student choice. Students were allowed

to pick any method of notetaking, students were told they could write whatever they saw fit to write with no demands placed upon them by the instructor.

Meaning behind the claim

Notes are a part of essentially every learning experience. Having effective notetaking strategies becomes increasingly important the higher one pursues education. At a foundational level, notes serve as external storage, a file that can be accessed when information is necessary. (Faber, Morris, & Lieberman, 2000) The view of notetaking may be simple but good notetaking is not a simple task. “Despite its benefits, lecture note-taking is a complex and cognitively demanding skill that requires comprehending what the instructor is saying, holding that information in memory, organizing and paraphrasing it, and then writing it down before it is forgotten, all while attending to the ongoing lecture.” (Bui, et. al., 2013) Notetaking for some can be a multitasking nightmare. Even more unfortunate is the fact that “most students are poor note-takers” (Boyle, 2011) and fail to recognize the importance of a notetaking system. (Shambaugh, 1994) Therefore, if notetaking is known to be difficult and it is also known that students struggle in this area, effective strategies for notetaking must be sought after.

Educators have taught and developed many note taking skills and methods, however, students are typically herded into using one method dictated to them by the instructor. The method is likely chosen without the instructor giving much thought to whether the students actually find it helpful. “Each student may learn best from a different note-taking format and teachers should provide instruction on how to take notes in a variety of ways.” (Marzano, Pickering, and Pollock, 2001, as cited in Quintus, et. al.,

2012) This study attempted to explore which methods students actually find beneficial as well as discovering which methods lead to higher quiz scores.

Trends

Four salient trends emerge from the literature on notetaking; these are increases in test scores, a relationship between technique and amount of notes, a relationship between retention and notes, and the use of video lecture. Each trend will be unpacked below.

Over and over in the literature one sees statistically significant main effects in conjunction with note-taking training. (Faber, Morris, & Lieberman, 2000, Lee, Lan, Hamman, & Hendricks, 2008, and Dunkel 1988) Groups who are taught notetaking strategies score higher when tested than groups who are not. For the Cornell method in particular it has been seen, “students of teachers who had implemented the Cornell note-taking method had higher class average scores than those of teachers who had not.” (Donohoo, 2012) Yet in another example, “Findings revealed that students who used note-taking techniques were effective at increasing scores on measures of achievement and the quality and quantity of notes recorded.” (Boyle, Rivera, 2012) Therefore, through the literature one can see notetaking in general can have a strong impact on raising test scores.

The literature has also highlighted that the quantity of notes taken rises when students are taught a notetaking method. (Lee, et. al., 2008 and Boyle, 2011) This trend may point to a relationship between quantity of notes and retention as well. However, it is unknown whether a higher quantity of notes is actually beneficial. It is thought by some “taking more notes may lead to better learning, as more information has been

encoded.” (Bui, et. al., 2013) Encoding referring to the process of information being changed into a format that can be stored and retrieved in memory. (McLeod, 2007)

As for retention the literature has shown high recall when notetaking methods are employed. When students employ an organized notetaking method, meaning students followed a specific method rather than just taking free and un-cued notes, greater recall is observed on delayed tests. (Bui, Myerson, and Hale, 2013 and Boyle, 2011) These findings suggest people may process information more deeply when they organize their notes. (Bui, et. al., 2013) It is important to note the definition of “long term” or delayed recall varies in the research, as this may just be the next day or two days later. The coming study will seek to allow more time between presenting the material and testing.

This next trend pertained to the way in which students were taught the notetaking method or the way the information was presented that students were to take notes on. Often information was presented through video lecture. (Lee, et. al., 2008; Cohn, et. al., 1995; Risch, Kiewra, 1990; Donohoo, 2010; Boyle, 2011) One can assume this was done in order to keep all test trials the same. However, this method may have lower external reliability. Typically skills are taught in the classroom through live teaching, not video, therefore, in this study video instruction was not be used to teach notetaking. The instructor will explain the notetaking method verbally. However, material the student will be quizzed on will be presented through video.

Gaps

Gaps that have been noted are a lack of true student choice notes, a floundering support of the Cornell notetaking method in particular, and the age at which students can take their own effective notes.

True student choice notes, where there are no requirements placed upon the students by the teacher in regards to how notes will be done has not been looked at. Students employ notetaking methods that make the most sense to them. (Ryan, 2001) Theoretically then each student will tend towards a different style of notetaking. This study tried to fill in this gap by giving students opportunity to try two notetaking methods and give feedback on which methods they find beneficial.

In the literature there are articles on both sides of the fence showing either support for or indifference to the Cornell notetaking method. Faber, Morris, and Lieberman 2000 show support, while Quintus, Borr, Duffield, Napoleon, & Welch 2012 results showed no difference in “student choice notes” and Cornell notes. Faber, Morris, and Lieberman studied ninth grade and the students who practiced the Cornell method received nine weeks of instruction and practice and was compared to a group that did not receive the notetaking instruction and practice. (2000) Quintus, Borr, Duffield, Napoleon, and Welch studied a variety of high school age students with one group being taught the Cornell method while the other group was not taught a method. (2012) The fact that the Quintus study contained older students than the Faber study could be an effect but the differing results for such similar methodologies is interesting. This study sought to see how the middle school population would respond to the Cornell method. One study hinted that Cornell notes might be very difficult for English language learners as the study dropped a student because of language difficulty. (Faber, Morris, & Lieberman, 2000)

How well can junior high students pick out the main concepts of a lecture on their own? There is discrepancy in the literature upon which age students are able to grab hold

of notetaking methods and use them to the greatest extent. One study suggested from their results that “students as young as those in third grade classes can be instructed to develop notetaking ability that promotes their learning.” (Lee, et. al., 2008) While others came to the conclusion much older students are not yet to a place of being effective note takers. One study discussed eighth graders may not have good enough study habits to make use of proper notes. (Risch & Kiewra, 1990) Another study suggested ninth graders are only on the “verge of using notes as an encoding process.” (Faber, Morris, & Lieberman, 2000) This leads one to ask whether the methods taught were unfitting for the age group. If third graders can grasp notetaking and do better on delayed tests why can't eighth and ninth grade students?

The purpose of this research is to learn more about notetaking in a junior high classroom and to fill in the gaps of the previous research. Students will be given free choice of notes at one point in the study; student's opinions will be collected on the Cornell method, and the junior high age will provide the data and more will be known about how this group grasps onto notetaking.

Methodology

Participants

A sample of seventh grade students from Kellogg Middle School was recruited for this study. Age range is 12-13; there are 6 males and 8 females.

Materials and Procedure

Four weeks were devoted to this research project. The first three weeks consisted of students being taught a notetaking method, students using the notetaking method while watching a video, then students being tested on information presented in the video 3 days

later. In the last week students were given a survey on which they could record their thoughts and opinions on each of the three notetaking methods used in this research.

Each week students watched a 10-minute segment of *Mankind: The Story of All of Us* and used the respective notetaking method to take notes during the video. In week one a fill-in-the-blank notetaking method was used to take notes. Three days later students were given a five-question quiz on the information presented in the episode. (Appendix D) Testing three days later allowed the information to sit and gave students the opportunity to study their notes. This same procedure was repeated for the next two weeks. During week two students took notes in the Cornell format. (Appendix C) In week three students were allowed to use any notetaking style of their choosing. They were provided with fill-in-the-blanks and Cornell note forms or they could choose to take self-guided notes on a blank piece of paper. Data was collected in week four on whether students' chose free notes, fill-in-the-blanks, or Cornell notes. Student's grades on each test were analyzed and compared to the other weeks to see which notetaking method produced the best scores.

Validity Threats and Methodology Rationale

Potential threats to validity were the rigor of the test, student's participation in each notetaking method, and whether or not the student actually studies for each exam. There is low external validity as this action research and its results apply to this one classroom and the students who participate. There is also a potential threat to validity in that students will take notes while watching a video instead of a live lecture. Last, there is no control group.

This methodology is appropriate for my research question because it evaluates the potential effectiveness of each notetaking style. This method gives students a chance to provide feedback. The method of giving students a quiz will provide data on which notetaking method will lead to higher scores. The method of providing a survey on notetaking methods will collect data to answer the question which method would students prefer.

Results

This was a sample of 14 students. After comparing means it was seen students performed best on the quiz after using the fill-in-the-blank method. ($M=4.14$, $SD=.770$) The Cornell method ($M=3.36$, $SD=1.216$) yielded the second best quiz results with student choice (SC) ($M=2.93$, $SD=1.542$) coming in last. A paired samples t-test found significant differences between SC and FITB $t(13)=-2.579$, $p=.023$ and between Cornell to FITB $t(13)=-2.621$, $p=.021$. While Cornell to SC $t(13)=.877$, $p=.396$ yielded insignificant results.

	t	df	Sig. (2-tailed)
Pair 1 SC-FITB	-2.579	13	.023
Pair 2 Cornell-FITB	-2.621	13	.021
Pair 3 Cornell-SC	.877	13	.396

Of the notetaking surveys, 11 students wrote they prefer fill-in-the-blank notes. Two students preferred Cornell, and one student preferred just pulling out a blank piece

of notebook paper to take notes. Of the survey data 3 students reported “I Hate” Cornell notes, 2 “Dislike”, and 9 “Neutral/ I don’t mind them”. For FITB/Outline 1 “I Hate”, 2 “Neutral/ I don’t mind them”, 9 “I like them”, and 2 “I Love them”.

Discussion

Which type of notetaking method, Cornell, fill-in-the-blank, or student choice, will lead to better test results for middle school students? Which method will students prefer? As seen in the results fill-in-the-blank notetaking let to students scoring higher on a quiz than student choice or Cornell notes as well as being the favored method by this group of students.

The results of the T-test suggest that that there is a significant difference when comparing student choice notes to fill-in-the-blank notes and when comparing Cornell to fill-in-the-blank notes. However there is no statistical significance when comparing Cornell to student choice notes. Though students performed the best on a quiz three days later after using the fill-in-the-blank method would students actually remember that information a week later or a month later? Further research should examine the long-term recall of information after using fill-in-the-blank notes.

Student’s feedback on the survey provided data on student’s opinions of the various notetaking methods. Almost all prefer fill-in-the-blank; one could suppose because this is the easiest notetaking method. Survey feedback also showed less hostile verbiage towards the Cornell method than was expected. When students were told in week two they would use the Cornell method many verbal complaints were expressed. However, 9 out of the 14 participants, a large majority, claimed to feel neutral and not mind the Cornell method in their survey responses.

The gaps explained in the literature review were addressed and the following trends were seen. Students were provided with a true opportunity to use their own notetaking method. At first glance it appears the findings were consistent with Risch and Kiewra 1990 whose research suggested junior high students have difficulty taking quality unguided notes. But one must account for the fact that students were given the opportunity to utilize fill-in-the-blank or Cornell notes and most students chose to use fill-in-the-blank. So if most chose fill-in-the-blank why are the results significantly lower than when the whole class used fill in the blank? This leads to questions such as is there something about students all doing the same thing together that will help them take the assignment more seriously than when they each have their own choice of notes? Or did students take this week less seriously because they were tired of the process or did the fact that they were told they had a choice lead to students taking this week less seriously?

The gap concerning various results on the effectiveness of the Cornell method was given more insight through the results of this research. For this group of students the Cornell method was much more effective than student choice but not as effective as fill-in-the-blank. The difference between the means was .78 points and the standard deviation for the Cornell method was greater as well but the two were close in scores. The findings of this study are then consistent with those of Bui and Myerson 2013 and Boyle 2011 who's research suggested students will perform better on a test after taking notes in a specific method. Extended practice with the Cornell method to the point where students are very comfortable and familiar with it could yield interesting results in future studies and one could suppose the results may excel those of the fill-in-the-blank method especially when it comes to long term recall.

The gap of whether or not junior high students can be effective note takers is still a question after this study. Students did well with fill-in-the-blank, and there seems to be a potential to do better with Cornell, but as previously discussed there were issues when students were given a choice.

The results of this study seemed to contradict those of Marzano, P, and P (2001), which suggested that each student would do better with different styles of notetaking. The majority of my students favored fill-in-the-blank, however one may see more variation depending on sample size.

The research on notetaking is varied. The results of this action research suggest students favor fill-in-the-blank notes and that students perform well on quizzes after using fill-in-the-blank notes. Reasons behind students liking of this method could be explored in further research, such as is it just because it's easy and do they only score well as on the test because they were told exactly what to look for? Also a week later as opposed to two days will students remember anything from the fill-in-the-blanks? Research has shown students who take notes electronically tend to achieve higher so with the advance of iPad and laptop use in the classroom how would this play into the current research? (Quade, 1995) Would the results look different if students were typing notes in fill-in-the-blank or Cornell formats?

While this action research was exclusive to this classroom and these particular students who participated, further research following this studies' format could teach a teacher a great deal about students and changing the research to account for other variables or allowing for an increased sample size could produce generalities giving the field more information on the effectiveness of notetaking for the junior high population.

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Appendix A

Fill-In- The- Blank Format

Engineering an Empire Fill in the Blank:

1. What aspects of architecture in the city of Constantinople strike you as interesting?
2. What is the mood like in the Hagia Sophia church?
3. How high is the dome of Hagia Sophia?
4. What was the Hippodrome?
5. Who are the Blues and the Greens?
6. What do we remember Justinian for?
7. What is the name of Justinian's wife?

Appendix B

Cornell Method

Key Points	Details
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Summary	

Appendix C

Quiz

Note: All quizzes followed the same format

Quiz on Byzantine Empire Video
Use of Fill-in-the-Blank notes

1. Who had Hagia Sophia built?
2. How tall is the dome in Hagia Sophia?
3. What was the Hippodrome?
4. The Blues and the Greens are similar to modern day
_____.
5. What is the name of Justinian's wife?