

STUDENT PERCEPTIONS OF NOTE-TAKING IN A NINTH GRADE SOCIAL STUDIES
CLASS

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CHAPTER 1

INTRODUCTION

Background

Despite growing trends pedagogy is moving away from teacher-centered instruction, note-taking remains a common activity and important part of high school Social Studies classes. Furthermore, numerous studies have found note-taking to have a significant effect on student performance. Two trends which have helped note-taking remain a mainstay in high school classes are the growing emphasis on state-issued standardized tests and the increasing number of students expected to attend institutions of higher learning (Boyle & Weishaar, 2001). Standardized testing often requires teachers to cover a specified amount of historical content within a specific amount of time. Direct instruction and teacher-led discussions and lectures lend themselves particularly well to the constraints imposed by the impact of standardized tests, especially at schools following the typical 7x 45 minutes class time daily schedule. As students progress to higher level Social Studies courses such as Honors or A.P. courses, teachers are apt to prepare them for the method of instruction most predominant in colleges and at universities, namely the lecture style format where students are expected to take extensive notes during lectures and presentations. Such trends continue to make the study of note-taking an important part of educational research.

Despite the prevalence of note-taking, much debate continues about how to best incorporate and use notes within a classroom setting. Although it is common for students to be introduced to note-taking at the middle-school level, it is uncertain whether students value or understand the importance of note-taking, or have even acquired the skills required to enjoy the

full benefits of note-taking. Research suggests there is a wide variability on how university students perceive the practice of note-taking (Van Meter, Yokoi, & Pressley, 1994). However, little is known about the early stages of students' note-taking development. This Master's Research Project examines the early stages of note-taking behavior by surveying the perceptions of high school freshmen Social Studies students with regard to their own note-taking behaviors and practices. Since perceptions often play a crucial role in behavior and performance, it is important that teachers understand their students' perceptions so they can better accommodate for individual differences, preferences, and learning styles that relate to the prevalent practice of note-taking. A better understanding of these differences may be useful to maximizing the learning benefits of note-taking that extensive research has already identified. This study considers the possibility that students develop specific conceptions of note-taking at some point during their academic development. It examines students' early conceptions of note-taking based on the hypothesis that these early conceptions and perceptions may play a significant role in both the students' future note-taking perceptions and note-taking behaviors. Furthermore, this study places a particular emphasis on what students identify as the purpose and goals of their note-taking and how they use note-taking in their overall learning of Social Studies content.

Understanding students' perceptions can play a critical role in gaining insight into the pervasive practice of note-taking and its influence on student achievement as well as shed light on the individual differences. While note-taking on textual materials is an important aspect of the high school experience, this particular study explores students' perceptions of in-class-note-taking during teacher directed instruction or lectures. In all the classes observed, this method of instruction was most consistently practiced and included both verbal instruction as well as PowerPoint slides.

Research Questions

This study was guided by three main research questions:

- What do students regard as the goal(s) of taking notes?” This question tried to identify student conceptions of note-taking as a necessary adjunct to understanding the role of note-taking in their learning. This question addressed a major theme of existing research on note-taking, i.e. the “process vs. product debate”, a theme that will be further discussed in the literature review.
- What are the attitudes of students towards taking notes on in-class lectures?” This question sought to identify individual differences related to note-taking perceptions and explore differences in individual students’ note-taking preferences. One specific aspect of this general question included student preferences with regards to note-taking formats and styles, such as personal vs. ‘guided notes’.
- How do students use their notes to facilitate their learning? This question sought to identify how students do or do not use note-taking as a learning tool, and whether they perceive note-taking to be a critical or necessary part of their learning process. This question sought to shed light on the differences between students’ perceptions of the benefits of note-taking in comparison to reasons often cited by teachers who may or may not require students to take notes. In addition to addressing these three guiding research questions, this study also attempts to reveal student perceptions related to the use of both “guided notes (GN) and “Instructor-provided notes” (IPN).

Procedure

In order to address the research questions, two surveys tools were constructed and distributed to 100 9th grade World History students in a high school in the Midwest. The research participants were enrolled in one of six classes, all taught by the same teacher. Before they were surveyed, the research participants were exposed to the use of “guided notes” (an alternative system of note-taking) for four consecutive weeks. Student perceptions to this four-week exposure informed a substantial section of the survey items.

Limitations

This Master’s Research Project was conducted in a rather homogenous classroom within one school in the Midwest. All the responses obtained in the study’s surveys were obtained from students who share similar educational backgrounds and were currently members of the same first year class. Thus, many of these students’ current perceptions on note-taking were shaped within a similar context and by similar experiences. The results may also have been significantly influenced by mediating variables, such as the students’ attitude toward their particular Social Studies teacher.

The largest constraint to this study was the limited time available. The participants in this study had limited exposure to “guided notes”. Four weeks of exposure to guided notes may not be long enough to significantly alter note-taking preferences and perceptions. Furthermore, the surveys used in the study could not be extensive due to both limited class time and the limited attention spans of the participants. The accuracy of the surveys was reliant upon student willingness to participate. Students of this age do not all share the same affinity for completing surveys and as such the effort and seriousness put into these surveys most likely varied.

Due to the small sample size used in this study, the findings have a limited generalizability. The intent of this study was to identify and explore possible avenues for future research. Future research with a format and methodology similar this study may better suit “action research.” This type of research is better at identifying particular factors than more universal factors.

Overview

This Master’s Research Project is organized into four chapters. Chapter Two consists of a literature review which pertains to several important themes and theories relevant to the stated research questions. This literature review also summarizes an extensive body of research within the field of note-taking studies. Chapter Three, the methodology chapter, will explain in detail how this study was conducted and how the findings were analyzed. Chapter Four includes a discussion of the findings within the context of both the original research questions and themes that emerged in the research the literature review. Chapter Five, the concluding chapter, will present a summary and consider implications of the findings for the field of Social Studies education.

CHAPTER 2

LITERATURE REVIEW

This literature review first discusses two theoretical bases for note-taking [NT] pedagogy: “external storage” and “encoding.” The review then contextualizes these theories by discussing the cognitive and learning-style factors that shape and influence the practice of note-taking. The literature review then concludes by discussing the note-taking methodological practices relevant to this Master’s Research Project: the use of instructor-provided notes and “guided notes”.

The study of note-taking within the field of educational research began in the 1920s with the research of C.C. Crawford who concluded that note-taking was more beneficial to learning compared to not note-taking. In addition, his studies revealed that the process of reviewing one’s notes was a key part in determining the overall effectiveness of note-taking on test performance (Crawford, 1925). Numerous subsequent studies have demonstrated that NT has an effect on the academic success of high school students (Stahl, 1991). Since Crawford’s work in the 1920s there has been a significant body of research on the topic. The majority of this research is conducted within the field of educational and cognitive psychology. The major research on note-taking can be classified into two broad categories. The first category of research consists of studies that have focused on the cognitive variables involved in NT such as attention, memory, comprehension and how these variables affect the facilitation of learning. The second category of research includes studies which have focused on particular note-taking methodologies and their impact on learning and performance.

External Storage Theory

The most commonly accepted definition of note-taking is “comprehending either a written document or lecture by systematically writing it down” (Piolatt, Olive, & Kellogg, 2005, p. 293). The theoretical basis for NT is founded upon two primary functions of NT, both of which have been documented and confirmed within the literature. The first and most highly supported function of note-taking is defined as “external storage”. The external storage theory refers to the practice of NT as a means of recording important information from a lecture in order to be reviewed and studied a future point in time. Therefore, NT is viewed as means of storing information externally rather than internally (via memory). According to this theory of NT, the primary value of notes is derived from their use as study and review tools. Since it is nearly impossible to memorize the entire content of a lecture, notes serve as important tools that aid in recall and comprehension because they can be reviewed at subsequent times and most importantly before evaluations. The element of repeated exposure is considered to be an important basis of the external storage theory. The leading theorist and researcher of the external storage theory is Kenneth Kiewra. Throughout the 1970s and 80s, Kiewra conducted an extensive series of over 30 individual studies which documented the importance of notes as tools to record lecture information (Kiewra, 1987). Since then, additional studies conducted by subsequent researchers have confirmed Kiewra’s results (Katayama & Robison, 2000).

The external storage theory of NT is often studied and measured by comparing students who take notes on lectures and review their notes to a control group of students who listen and takes notes on a lecture but do not review their notes prior to a test/quiz. Such studies have consistently demonstrated that the experimental group (those that review notes) outperforms the control group on ‘delayed tests’ (tests occurring at least one week after lecture). In addition,

Kiewra and others have found that students who take notes and do not review their notes perform no better than students who simply listen to a lecture and do not take any notes (Kiewra, 1985).

Encoding Theory

The second theory of NT is referred to as the “encoding” theory. This theory views the taking of notes as a meaningful learning process. Thus, the field of NT studies has traditionally been shaped around the question of “product vs. process,” where “product” refers to the value of notes as storage information and “process” refers to the value of NT as a generative learning activity (Peper & Mayer, 1978). The encoding theory views the process of NT as a means of learning new material because it requires students to actively process new information and relate and assimilate what they see and hear into prior existing conceptions. The encoding element of NT touched upon in Crawford’s early work was expanded upon in the 1970s by the work of Peper and Mayer (1978). The encoding theory of NT is akin to many constructivist theories of learning which argue that learners must actively generate new meaning by making associations and integrating new ideas and concepts with prior existing knowledge (Pepper & Mayer, 1978). NT should not be perceived as mere stenography, but rather a learning task in and of itself. According to encoding theorists, the objective of NT should not be to simply get information down on paper, it should be a means to think about and process new information (Garcia-Milla, & Anderson, 2007).

Furthermore, proponents of the encoding theory of NT view proper note-taking as an important way to cognitively stimulate a deeper-level of informational processing than that which occurs in students who do not take notes but passively listen to lectures (Carrier, 1983). The encoding elements of NT are also thought to be essential towards the development of students’ metacognitive skills. In their work on note-taking and metacognition, Garcia-Milla & Anderson

(2007) refer to metacognition as “...*one’s knowledge of one’s own cognitive processes*” (p. 212). As students take notes they become more aware of self-managing and more aware of their own thought processes regarding the introduction of new content material. Studies have found that the more generative the NT activity, the more learning is apt to occur (Armbruster & Anderson, 1986). Therefore, the encoding aspect is considered to be an important learning activity because NT involves the translation of “to-be-learned material into a more subjectively meaningful form” (Van Matre & Carter, 1983, p. 187).

Problems with Encoding

Despite the extensive amount of attention given to the ‘encoding theory’ within the literature, there are few empirical studies which demonstrate this encoding behavior in action. That is, although the encoding process of NT can be tremendously effective for learners, they seldom experience these possible benefits. In a meta-analytic study by Kobayashi (2005), which synthesized 57 independent studies on encoding, he found NT to have a positive but modest effect on students. Most studies have recognized the external storage theory of NT as its primary utility. These studies have found that the practical value of notes is typically derived solely from the students’ ability to have access to review materials (Kiewra, 1987; Van Matre, 1983; Tatsukawa, 2003). In these studies, the review of notes was found to be the single most important variable when studying the effect of note-taking behaviors on student comprehension, recall, and test performance. Students who study notes, whether it be their own, a peer’s, or instructor-provided notes (IPN) tend to outperform those who do not review notes, independent of the quality of notes studied (Kiewra & DuBois, 1991).

Cognitive Factors

When applying NT theory to practice, it is important to consider the many cognitive variables that affect the process of NT. Research suggests that most problems associated with NT are likely due to the heavy cognitive load that effective NT requires (Aiken, Thomas, & Shennum, 1975). This problem is exacerbated by many students' lack of NT skills and misperceptions relating to the objectives of note-taking. In order to reap the benefits of the encoding function of note-taking, learners are required to perform a complex set of cognitive tasks that can be extremely taxing, especially on the learner's working memory (WM). Aiken et al. (1975) found that note-takers must simultaneously listen to, hold and manipulate relevant information in their WM before writing it down. Therefore, note-taking can only benefit students who have the ability to make the transition of information from their working memories into their long-term memory.

Instructor-Provided Notes

The difficulties of NT as well as the ample research documenting the lack of quality note-taking amongst students has led to the practice of instructor-provided notes (IPN). The rationale behind this practice is to guarantee that students have quality information to review. Studies have shown that students who study IPN often out-perform students who review personal notes (Kiewra, 1985). The use of IPN need not imply that students should not take their own notes. Rather, IPN can serve as an insurance mechanism and as a model of how students should take notes. IPN can also facilitate better comprehension by students during lectures because they will not be distracted by the task of having to record information and are free to pay more attention to what the teacher is saying or displaying. Students can also use these notes to help them follow along with the teacher's instruction/lecture.

When deciding whether to use IPN teachers and students need to take into account several factors such as the individual student's cognitive dispositions and learning style. It is also important to consider the style and format of formal evaluation tools. Some studies have indicated that the reviewing of IPN may increase recall on basic facts but does not develop critical thought and deeper levels of understanding such that personal notes can (Barnett, 2003). Furthermore, studies have also found that students who both take notes and study their notes outperform students who do not take personal notes and use IPN or notes taken by peers (Kiewra, & Hartley, 1985). It is difficult to draw conclusive evidence about whether IPN are more effective than personal notes because of the subtlety of the encoding process. Some students may encode information better with their own notes than with instructor notes depending on how they use those notes to study. If students simply re-read IPN rather than actively reorganize and manipulate them they may fail to make important personal connections and thus only develop superficial understandings of new material (Cornelius & DeSchryver, 2008).

Attention and Engagement

Other criticisms of IPN have stemmed from attentiveness concerns. Student attention/engagement and motivation is another key set of variables that must factor into the instructor's NT policies and pedagogy. Instructors often cite higher student engagement and attention when describing the benefits of having students take notes. Studies on the perceptions of students' NT have confirmed the belief of many instructors that note-taking facilitates a certain level of engagement and attention to content material. These studies also indicate that many students decide to take notes on lectures because the note-taking process guarantees they will pay more attention to the content (DiVesta, & Gray, 1972). In the survey based research of Van Meter, Yokoi, and Pressley (1994), which studied the perceptions of students and their own

theories on NT, the authors found that students prefer to take notes on lectures because it helps them stay focused and active during instruction. The students reported that NT gives them the incentive and motivation necessary to pay attention during instruction, particularly when they are interested in the content material. In his study on the teaching practice of note-taking, Dunkel (1988) concluded that, "Taking lecture notes is widely accepted as a useful strategy for augmenting student attention and retention of academic discourse" (p. 259). The role of note taking in student attention was also confirmed by Williams and Eggert (2004) who concluded that "students are more receptive to what they hear or see if they take down notes" (p. 239). William and Eggert (2002) also cited evidence that suggested that the process of memorization may be activated by the act of taking notes.

The attentiveness factor is especially relevant for students with learning disabilities. Certain studies have found this attention/engagement effect to be particularly relevant to students with learning disabilities. Weishaar and Boyle (1999) report that students with learning disabilities are more likely to be "passive" learners and that taking notes can effectively increase the in-class engagement of these students as well as aid them in content comprehension. The research on whether providing students with IPN decreases student engagement and participation remains rather limited. Despite studies which have found students NT skills as lacking, students often report note-taking to be a valuable part of their learning process. NT provides students with ample opportunity to develop important skills such as listening skills, informational selectivity, and metacognitive skills such as learning awareness. These opportunities may be missed out on if the students rely on studying instructor-provided notes rather than being attentive and focused on the teacher's lesson (Garcia-Milla & Anderson, 2002).

Guided Notes

Another methodology increasing in popularity entails the use of guided notes (GN) which have been found to improve quiz performance in high school students (Sweeney, Ehrhardt, Gardner, Jones, Greenfield, & Fribley, 1999).

GN sometimes referred to as skeletal notes or partial notes are incomplete notes used to facilitate and direct students' NT. GN assist students by directing them to important material and providing them with a basic framework that students can use to organize new material (Baretta & Skaruppa, 1995). GN reduce many potential ambiguities concerning the recording of important information because they provide indicators of where and what to record. GN can be formatted in many different ways depending on how the teacher chooses to organize his/her content material and lecture.

GN may also allow teachers to integrate previous lessons related to the new content material. GN may facilitate critical thought by having critical questions inserted into its format or by using blank diagrams or charts to be filled in by the students. When used effectively, GN may have the potential to serve both the external storage and encoding functions of NT.

The use of guided notes ensures students will acquire an effective study tool while simultaneously allowing them to actively participate and focus on teachers' lectures. Cornelius and DeSchryver (2008) found that GN was more effective than complete IPN in increasing student performance. Aside from improving content knowledge, GN is often used as a model for how to take notes and record relevant information. The GN note-taking methodology can be used to wean students away from their reliance on IPN and towards the habit of constructing their own personal notes (Neef, McCord, & Ferreri, 2006). Studies show that the proper usage of

GD can improve learners' ability to accurately record important information and critical points within a lecture (Mastropieri, Scruggs, Spencer, & Fontana, 2003).

The use of GN is particularly popular amongst students with learning disabilities. According to Mastropieri et al. (2003), students with learning disabilities struggle with content areas such as Social Studies where the pace of content material, due to high stakes-testing, can be quite rapid. Students with learning disabilities often lack the organization and study skills to keep up and may be overwhelmed by such learning environments. Students with learning disabilities have been found to have weaker note-taking skills than their peers but have shown improved performance with the use of guided notes (Suritsky, & Hughes, 1994). Similarly Lazarus found that the achievement of high school students with learning disabilities was higher when guided notes were used (Lazarus, 1993). The preference students have for GN is reflected in their performance as well. In a meta-analysis of research on Social Studies students in grades 4-12, Konrad, Joseph, & Eveleigh, E. (2009) found that the majority of studies reported an increase in test performance and note accuracy. This same study also found that classes which scheduled in review sessions of GN reported the highest increase in student performance. GN not only facilitates better NT skills but also encourages more active classroom participation that may not result from other more passive NT strategies such as IPN.

Some proponents of GN cite the information processing and encoding as its strength. Ruhl, Hughes, and Gajar (1990), theorize that the active participation involved in using GN results in greater information processing and most importantly encourages students to ask more questions concerning confusing information. These authors found that since GN helps students better organize critical information they are more confident in the accuracy of their notes and thus willing to participate in classroom discussions. Similar theories speculate that the strength of

GN is derived from the ability to improve deficiencies resulting from having to accurately record information. Such deficiencies may result in the note-taker having limited opportunities to reflect on material and "...engage in covert verbal behavior concerning the information presented during the lecture" (Baretta, &, Skaruppa, 2005, p. 145).

Other less noted benefits of GN concern the time efficiency of guided notes. GN requires much less transcription time than standard notes because students are already provided with a significant amount of text on paper. Thus, in many cases, guided notes can be a good way of preserving valuable class time which would normally be wasted on the time it takes students to record lengthy note passages. This extra time could be put towards content-related discussion and or important questions posed onto students.

Summary

Considering the numerous findings discussed in the above literature review, it is apparent that many factors and variables must be considered when observing student behaviors and perceptions related to their classroom note-taking. Perhaps, one of the biggest certainties within body of research on note-taking is the prevalence of note-taking that occurs within secondary school as well as the consistent findings which demonstrate a close link between note-taking and performance. As the research indicates, the relationship between performance and note-taking is a complex one. However, research on the subject consistently demonstrates that proper note-taking can improve comprehension of material by increasing student attentiveness and most importantly providing the learner with the chance to review what he/she has heard and seen within the classroom. Although the role of external storage and encoding is still debated, note-taking has been found to facilitate recall of factual material that is typically taught in high school Social Studies (Kiewra, 1989).

Theoretically, as students refine their note-taking skills and abilities, their note-taking should begin to become a learning process, in addition to being a product. That is, students' note-taking begins to become an important cognitive exercise in which they actively engage the material by manipulating and filtering critical information, and, most importantly, constructing meaningful connections through the construction of their own notes.

Given the age of the group surveyed in this study, it is more likely that the functional utility of notes in this case is for external storage. Chapter Three will present the perceptions of the goals of NT of the students who participated in this study. It will also discuss how their NT behaviors factor into their study routines and learning. Particular attention will be given to student preferences concerning personal notes, and the use of guided notes.

CHAPTER 3

METHODOLOGY

The intent of this study was to ascertain the perceptions of first year high school students regarding their note-taking [NT] behaviors. In order to better understand the contextual factors which may have shaped the participants in the study, it was necessary conduct observations during their usual classroom NT exercises.

The study was conducted in ninth grade world history classes at a high school in the Midwest over a ten month period. All classes shared the same teacher, thus the style of lecture and format of NT was similar in each of the classes. Four of the classes were “College Preparation” courses and two of the courses were “Basic” courses. On average, each of these classes participated in some form of NT three days a week. The typical NT period lasted from 15-20 minutes during which the students would listen and take notes during the teacher’s lecture on a historical theme or topic. The teacher’s lectures were almost always accompanied by Power Point slides projected via an LCD device onto a screen. At certain points throughout the lecture, the teacher would pause and allow the students to copy down, usually verbatim, the notes that were projected onto the screen. The information typically contained in these notes often formed the basis of weekly quizzes and bi-weekly tests.

Approximately two weeks into the study, the author of this Master’s Research Project assumed responsibilities for class instruction and evaluation. I introduced a slightly different method of classroom instruction that entailed the use of both Instructor-Provided Notes [IPN], and Guided Notes [GN]. The IPN consisted of unit outlines that included unit sub-topics, unit concepts, and key words to be understood by the end of the unit. This unit outline informed the

students of what was to be covered in the following unit, and provided them with a useful study guide (See Appendix A). In addition, the students were given GN to be filled out during instruction/lecture time (See Appendix B). The GN included guided questions to be answered as well as "cloze" work sheets. "Cloze" worksheets are worksheets that contain text with certain sections omitted and left blank. These omissions are typically important ideas or key words and are designed in such a way as to allow students to fill in the omissions once they have received the corresponding correct answers. The cloze sheets used in this study typically contained around ten omissions or blank lines indicating how many words the students were supposed to fill- in. All of the ten blanks entailed key vocabulary words, definitions, or ideas. All of the correct answers to the fill-in-the-blanks could be found within notes projected on the screen. Upon completion of the lectures, I went over the notes in order to make sure that all students had successfully filled in the correct answers to the GN. The answers to the fill-in-the-blanks notes were usually covered within a discussion type format and could be used, in addition to the IPN, as review material for tests and quizzes.

After approximately two months of using the "guided notes" method of NT, the student's regular classroom teacher resumed instruction using his original method of NT.

Approximately one month later, I returned to the school to distribute two different types of surveys to 100 out of the teacher's 117 students. Since not all of the teacher's 117 students were present on the day of the survey and I decided to use 100 surveys in order to simplify the conversion of the number of student responses to percentage of all responses. The two surveys were conducted on separate occasions approximately with the second survey conducted approximately one month following the first survey.

Two surveys were chosen for this study for several reasons. The primary reason for administering two different surveys on two separate occasions was to maximize the quantity of data obtained while ensuring accuracy within the given time constraints. If one lengthy survey was administered to the students, it is likely some would have lost attention and focused on finishing the survey rather than taking the time to consider the given questions. Furthermore, since the surveys were distributed during class time, the surveys were designed to be time efficient. Aside from time and attention concerns, the choice to administer two surveys also provided me with the chance to pre-screen student perceptions so as to help me ask better questions in the second survey. That is, the first closed-ended questionnaire served to cover a broad range of questions, while the second open-ended survey was designed to obtain a shorter range of data but responses that were qualitatively more detailed. In addition, the timing of the two surveys was important. The first survey was conducted directly after the students had been introduced to the guided-notes method of note-taking while the second survey was conducted only after students returned to their original style of NT. Thus, the timing of the surveys served as a time of control and allowed me to observe student perceptions over time and address internal consistency concerns. The second survey served as a follow-up study that allowed me to observe the effects of introducing a guided-note method of note-taking.

Survey One

The first questionnaire (see Appendix I) was a paper-and-pencil questionnaire in which respondents were able to ask questions concerning the clarity of the survey questions. This survey consisted of eight questions pertaining to student perceptions of their NT behavior. The format of the survey questionnaire was close-ended and utilized an ordinal-polytomous scale where respondents were instructed to choose from four different possible responses on a scale

that indicated their frequency of behavior from least to most frequent. Students were asked to rank their frequencies on a scale of 1 to 4, where 1 represented a frequency of “never”, 2 a frequency of “rarely”, 3 a frequency of “sometimes”, and 4 a frequency of “always.”

Analysis

The first survey was analyzed according to methods prescribed in analyzing “Likert scales”. Similar to Likert-scale data which is also summated, the data obtained from this closed-ended questionnaire was classified as ordinal, rather than ‘interval’. Thus, it can be said that one score is higher than the other but it is not possible to say how much higher (Clayson, & Dermody, 1994). When analyzing the data that is ordinal in character, it is recommended that the best and most accurate way to analyze the data is to provide the modes (most frequent response of each question) as well as the distribution of responses (percentage of respondents that responded a certain way). Thus, the Survey One of this study was analyzed according to the mode response to each answer as well with a percent break-down of each response.

Survey Two

The second survey conducted (see Appendix II) in this study consisted of a written open ended-questionnaire. Best and Kahn (2003) describe open-ended questionnaires as, “...questionnaires which call for a free response in the respondent’s own words” (p. 302). This open-ended survey was designed to complement the first study by providing more detail and allowing students to explain perceptions in their own words. The second survey also was designed with the intent to discover whether students’ perceptions on guided-notes changed in the time span since they returned to their original style of note-taking methodology. This questionnaire was designed in such a way as to allow the students to provide feedback on their

preferences for NT styles and methods. The second questionnaire consisted of seven open-ended questions, for which the students received directions to respond in complete sentences. This questionnaire served to allow students to reveal their frame of reference and possibly the reasons for the given response and or preferences.

Analysis

Staying consistent with the first survey, the second survey also included a percent-break down of how students responded. However, since the second survey was an in open-ended form, it was necessary to first encode students' responses into categories of similar responses. The method of coding used to analyze the data from this survey is included in the Findings chapter of this paper. The chosen methodology for analyzing the open-ended responses emphasized approaches similar to those recommended by Best and Kahn. These included categorizing most frequent responses and placing least frequently listed responses into an "other" category. Consistent with the coding process described by Best and Kahn, Survey Two required reading through all the students' responses and looking for trends within the responses. Aside from encoding and converting students' responses into numerical data, effort was put into revealing the data through the students' own words. In addition, to numerical data, various quotes are taken from the completed surveys are listed in the Findings chapter. Since it was not feasible to list all, representative quotes were chosen according to frequency and descriptiveness. The quotes listed were those which best captured a particular trend of sentiments expressed by the student respondents.

Summary

In order to address this study's research questions specified in Chapter One, the research methodology included two survey tools. These two surveys tools shared similar questions but were formatted distinctively. The first survey followed a close-ended format with a scale that could be easily summated. The second survey was designed to complement the first survey by using an open-ended format that could both supplement the first survey by obtaining more detailed responses and could be used to compare student perceptions over a critical time period. The findings of these two surveys are organized into tables and will be presented in Chapter Four.

CHAPTER 4

FINDINGS

Student perception of note-taking

According to the findings of this study, 58% of students reported some type of positive perception towards note-taking (see Appendix B, Item 1). This finding is also similar to previous studies on student perceptions of note-taking (Van Metre, et al., 1994). Although the reasons for this positive disposition towards note-taking are unclear, this study as well as previous studies within the literature suggests that students may respond positively to note-taking for motivational and participation purposes (Kiewra & Benton, 1988). Twenty percent of students reported that note-taking allows them to pay more attention during lectures. This positive disposition towards note-taking is also supported by the fact that a majority of students participate in note-taking on a consistent basis: 60% reported taking notes “sometimes” taking notes while 36% reported “always”, and 4% “rarely”. None of the student respondents on Survey One (see Appendix A) indicated they never took notes. (see Appendix A, Item 2). Although it is uncertain why such a high percentage of the responses indicated a positive disposition, findings further discussed in this section, suggest attention and engagement factors may play a role. The relationship between note-taking and student attention found in this study are consistent with previous studies that have also found note-taking to have a positive effect on student attention and engagement (Lazarus, 1993). However, as discussed below, the positive dispositions towards note-taking may be influenced by how easy students perceive the task to be relative to other classroom activities.

Difficulty

Ninety-two percent of the students in this study reported that they found note-taking to be an easy skill either “sometimes” or “always” while only 8% found note-taking to be “rarely” or “never” easy (see Appendix A, Item 1). One of the difficulties students encountered while note-taking was to simultaneously pay attention and record information. Thirty-six percent of the students reported to “sometimes” struggle when engaged in this dual task (see Appendix A, Item 5). Past studies have identified working-memory overload as the major culprit of students who struggle taking notes while paying attention to lectures (Piolatt et. al., 2005). Compared to previous studies, the amount of students struggling with this particular task is relatively low. This is likely due to the particular practice of the classroom instructor who often gave his students several minutes to record notes before continuing with his lecture.

The majority of students (62%) indicated that they rarely experienced difficulty deciding what to include in their notes. However, nearly a third of students reported their biggest challenge in class was understanding lectures, note-taking, or paying attention to the teacher during instruction (see Appendix B, Item 6). The fact that many students reported note-taking to be an easy skill while simultaneously indicating they struggle to pay attention to lectures, likely indicates they view recording notes as a process independent of content and lecture-based understanding. That is, although students may view note-taking as an easy process, they do not necessarily view note-taking as a complex task that involves processing the lecture content. This is further demonstrated by the fact that 74% of students in this study considered themselves to be “good note-takers” (see Appendix A, Item 9). These students' self-reports contradict findings

which demonstrate otherwise (Kiewra, 1989). It is likely that students judge their own note-taking abilities by criteria such as neatness and readability rather than by organization and cohesiveness.

Teacher and classroom note-taking policies are also likely to affect students' perception of the ease or difficulty of note-taking. Eighty-two of the students in this study reported that they took verbatim notes (see Appendix B, Item 4); while 80% reported their teacher told them when to take notes (see Appendix B, Item 7). Thus, the high confidence towards note-taking indicated in the students' responses may be related to the low complexity inherent in verbatim note-taking. When studying student perceptions of their own note-taking skills, it is important to consider the classroom context and how notes are treated and applied within the academic setting. In the particular classroom in this study notes were viewed as essential for recording information for future use. Thus the students' perceptions of their note-taking skills were likely based solely on this premise.

Purpose of note-taking

The majority of students in this study viewed the purpose of note-taking primarily as a process of external storage. Only 8% of students reported they never use their notes to study for quizzes or tests (see Appendix A, Item 3) and 54% of the students reported that the goal of note-taking was to produce study tools they used notes as study tools (see Appendix B, Item Survey 2). The survey did not identify the study practices of those students who reported that they "never" or "rarely" used notes to study. However, several of the students who reported they "never" used notes to study, reported that they preferred to read their textbook to study rather than using their notes. The fact that students consistently reported using notes as study tools

supports the “external storage theory” found throughout the literature on note-taking. Sixty-two percent of the students reported using their notes to study for quizzes or tests “sometimes” or “always” (see Appendix A, Item 3) while 72% indicated they found notes to be a useful study tool at least “sometimes” or “always” (see Appendix A, Item 4). These results support the theory that students in the early stages of note-taking already understand the importance of notes as study tools and thus support the findings of Kiewra (1988) that the primary tool of note-taking is for external storage and reviewing.

As for the encoding theory of note-taking, the findings in this study are ambiguous. Although 24% of the participating students identified learning applications of note-taking that extended beyond mere external storage, such as information processing, (see Appendix B, Item 2), the responses alone were insufficient with regard to whether students actually encode their notes. Statements such as, “My goal is to help me remember information,” indicate that some? Students recognized the benefits of the note-taking process but were not explicitly aware of how the process might aid their learning. Several students responded with statements such as, “writing things down helps me understand better,” or “taking notes helps me memorize material.” Statements such as these indicate that some students believe note-taking improves their factual recall. However, since 82% (see Appendix B, Item 4) of the students reported taking notes in a verbatim fashion, the ‘generative’ benefits of note-taking among this student population are not likely to be realized. That is, the students in this study did not use note-taking as a way to process and generate new meanings and understanding and help them make personal connections.

Reviewing notes

Since the majority of students view the goal of note-taking as the construction of study tools, their note-taking behaviors correspond to these perceptions. That is, students are more concerned with getting “vital” information down on paper that they can use for future review than processing information. One student compared reviewing her notes to studying spark notes, saying, “It’s like spark notes, the whole section is summed up for the test that is coming.” Seventy-two percent of the surveyed students reported that they used their notes to help them understand their Social Studies lesson (see Appendix B, Item 3). It is difficult to judge whether this retroactive use of notes to connect to new material involves “encoding”.

Twenty-five percent of the total sample of students using their notes to study indicated that they manipulated their notes to help them in the study process (see Appendix B, Item 3). One student stated, “I read them [notes] and highlight what I don’t know”. Two other students reported that they make flashcards out of their notes. Thirty-eight percent of the 25% of those who reported that they did not use notes to review expressed a preference for reading the textbook to study for tests instead.

Note-taking methodology

The results from the survey question related to students’ note-taking methodologies also support the theory that high school students opt for note-taking accuracy and completeness rather than information processing. This type of attitude is reflected not only in this study’s students’ note-taking procedures but also in those of this particular teacher. In all six of the classes, the teacher often provided students with complete notes that were projected on the LCD projector. Eighty percent of the students indicated that their Social Studies teacher at least sometimes tells

them when to take notes (see Appendix A, Item 10). Thus, it is not surprising that 80% of the students “sometimes” or “always” chose only to copy down exactly what was projected on the screen (see Appendix A, Item 8), a behavior that is common throughout most grade levels (Frank, 1988). Those students who did report to paraphrase did so only in those cases when important information was not posted but presented only verbally. This type of practice was revealed by one student who stated, “When a teacher gives a lecture, I paraphrase what he says but when there are notes I write them down word for word.” The lack of paraphrasing and non-verbatim note-taking at this early high school level was likely due to a lack of paraphrasing skills and practice. One student stated, “I write them [notes] down exactly how they are posted because I am not good at paraphrasing.” It is also likely that students at this age in their academic development do not understand the learning benefits of the process of note-taking. They likely view note-taking as creating a product. This type of sentiment was well expressed by one student who stated, “I write down exactly the same thing as the teacher because I know it’s right.” In addition to lacking paraphrasing skills, students may also not have the cognitive capacity to process and record information simultaneously. Consistent with previous studies on information processing and note-taking which reveal that note-takers often experience cognitive overload (Faber, & Lieberman, 2000), 54% of the student respondents in this study indicated that they found it difficult to pay attention to instruction/lectures while taking notes (see Appendix A, Item 5). Interestingly, 62% of the respondents reported to “never” or “rarely” struggle in deciding what to include in their notes (see Appendix A, Item 6). However, since the majority of students only took notes on information that is posted, they probably viewed their note-taking as a rather straightforward process, which supports the findings by Stahl (1991) that high school students often do not understand the value of note-taking as learning tool.

Guided notes

Consistent with previous studies among university students, a large majority (88%) of the students in this study reported either “sometimes” or “always” preferring guided notes to unguided notes (see Appendix A, Item 6). However, when asked in the open-ended survey whether they preferred to copy notes down verbatim or have to fill in guided notes on their own, only 40% still preferred the practice of guided notes (see Appendix B, Item 5). The reasons for preferring verbatim notes to guided notes appeared to be related to confidence and familiarity because many students stated they felt uncomfortable not knowing whether their guided notes were correct. Some students cited their confidence in knowing they recorded the correct information when explaining why they preferred verbatim notes to guided notes. Other reasons included the fact that verbatim notes require less effort than following along and filling in blank spaces.

Interestingly, the stated reasons for preferring guided notes to verbatim notes and vice versa shared many similarities. Students in both groups cited attention and focus as reasons for preferring one method of note-taking to the other. Although the students were only exposed to the cloze (fill-in-the-blank) method of note-taking many students expressed a strong preference for this method, citing that this particular method ensured that they paid attention to lectures. These findings are consistent with other studies that report student motivation, engagement, and attentiveness as the strengths of guided notes (DiVesta & Grey, 1972). Other reasons for preferring guided notes included the superiority of guided notes when used for studying and review purposes. Many students also preferred guided notes because it freed them from having to focus a lot of their attention and efforts on the process of writing. Student comments on guided

notes not included in the two survey items but expressed during actual class time revealed that the students in this study preferred to have notes already copied down for them. This was especially true for those students who do not write at a fast pace and are often forced to ask the teacher to allow them more writing time before proceeding to the next lecture segment. It was also noted that the use of guided notes required less lecture time than other note-taking methods which required the students to spend more time recording information. It is also probably helpful to immediately go over the answers to the fill-in-the-blank segments after the lecture as this will reduce the anxiety of some students who may be unsure whether or not they completed their notes accurately.

Paradoxically, the students in this study who preferred non-guided note-taking also cited attention as a key factor for their preference. Several of the students who reported to prefer non-guided notes reported that since guided notes contain large sections of pre-recorded information, they have less motivation to pay attention to lectures and focus only on the missing data rather than on the entire lecture as a whole. Other reasons for preferring non-guided notes were that some students were confused and hesitant while completing their guided notes. These students preferred to have the certainty that their notes were accurate. These reports could be related to the fact that they did not have enough time to get fully acquainted with the process of using guided notes. If the use of guided notes were to be fully and permanently implemented it is likely that their familiarity and confidence using this particular note-taking methodology would increase.

Summary

Previous studies on note-taking have found that the primary use of note-taking consists of external storage (Kiewra & Frank, 1988). The findings of this study on the perceptions of ninth grade students towards note-taking complement the findings of past studies. The majority of students attending the 6 classes that participated in this survey study indicated that they perceive the practice of note-taking to be a task closely resembling the “external-storage theory” of note-taking. Since students approach the task of note-taking from the perception of notes as primarily external storage, students place more concern on factors such as note accuracy and completeness than on the information processing aspect of note-taking. Furthermore, the findings of this study suggest that students perceive “guided notes” to be a helpful and effective note-taking practice due to their perception that guided notes can increase attention and engagement during lectures. The following chapter discusses the practical implications of the findings and how the practice of note-taking can be improved.

CHAPTER 5

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

Summary

Consistent with the studies discussed in the literature review, the majority of students in this study, who were in the first year of high school Social Studies classroom, viewed note-taking as a product rather than a process. Their main concern when taking notes was to get all the correct information on paper so that they would have an accurate study guide for future quizzes and tests. Those students who tended to value note-taking were likely well aware of its importance with regard to studying and reviewing for quizzes and notes. The majority of students within this classroom chose their classroom notes as their preferred study tool. This common practice reflected the students' expectations that their quizzes and tests would be based largely on the information found in their classroom notes. Thus teachers can reinforce the importance of notes by structuring their assessments in ways that correspond to the students' notes.

As hypothesized, most students in these ninth grade classrooms relied on the teacher to instruct them when and on what to take notes. Eighty-two percent of the students only recorded what the teacher posted on the LDC projector and did so verbatim. This particular type of note-taking methodology likely impacted the students' perceptions of the utility and function of note-taking.

A key finding of this study was the relationship between note-taking and focus and attentiveness. Students reported that note-taking helped them focus more on the teacher and the

content material discussed which in itself can be enough to justify the practice of note-taking. However, it should be noted that not all students responded similarly to the practice of note-taking. Some reported they struggled to pay attention to lectures while taking notes. The attention factor played a large role in shaping the students' perception of the use of guided notes which was a relatively uncommon practice in their Social Studies classroom.

Students expressed that guided notes kept them more focused on lectures because they had to actively seek and identify key terms. Guided notes gave them more incentive to listen to the teacher and read more of the PowerPoint slides. Students also favored guided notes because it meant they did not have to write down as many words. Although these reports may seem to justify laziness, they are not without insight because they reflect a sense of tedium experienced by some groups of students during the note-taking process. Those students who perceived lengthy note-taking as tedious might have their attention better served if they were able to better focus on lectures. Therefore guided notes may have the potential to keep certain students more cognitively active than other note-taking methodologies, particularly if these methods are perceived to be tedious.

Conclusions

As the research indicates, the relationship between performance and note-taking is a complex one but the findings in this study consistently demonstrated that proper note-taking can improve comprehension of material by increasing student attentiveness and most importantly providing the learner with the chance to review what he/she has heard and seen in the classroom. Although student performance was beyond the scope of this study, respondents in this study did indicate that notes both helped their attentiveness and allowed them to review information

discussed in lectures. Thus this study further suggests that the external storage theory of note-taking is the more applicable theory of note-taking when applied to the perceptions of first-year high school students. The majority of students in this classroom viewed note-taking as a process of storing information for review.

Although ninth graders are unlikely to “encode” all the content material from lectures, note-taking still should play an important role in the ninth grade Social Studies classroom. Rather than completely abandon note-taking, teachers should place more emphasis on note-taking as an important study tool and method to organize important information. Teachers should assist their students in their transition towards note-taking as an encoding activity by giving them cues and helping them personalize their notes so as to allow them to make meaningful connections. Note-taking may help increase student attention spans and focus as well as provide them with ample exposure to the content material in ways that teacher constructed hand-outs cannot. The pedagogy of note-taking should be centered on metacognition rather than transcription. Teachers should give their students ample time to think about what they have heard, make connections, and record these connections in their notes, before moving on with their lectures. This practice can reduce the cognitive strain and working-memory overload experienced by some students and allow them to think about what they are hearing.

Judging from the responses in this study, the use of guided-notes may offer an alternative to both traditional note-taking styles and instructor-provided study guides. The strength of guided notes, as indicated in both the literature review and by the student responses in this study, is the level of student engagement. Guided notes allow students to stay engaged and active during lectures without having to divert too much time and or attention towards the copying down information. Teachers can also increase or decrease the complexity level of guided notes

responses to better match the students' cognitive processing levels. Students using guides notes are less likely to experience cognitive overload (Piolatt, et al., 2005) and thus are able to think more about what they are learning rather than focus their efforts on copying down information. Yet some students in this study were hesitant about the use of guided notes because they were uncertain about whether they filled them out correctly. Teachers can address these hesitancies by going over and discussing the correct responses.

Implications

The pedagogical principles of note-taking are not set in stone. What is certain about the practice of note-taking is its pervasiveness and relevance in the American educational system. There exists no magic formula for how to best develop the note-taking skills of high school students. This is likely due to the individual differences among learners. Although the relationship between note-taking and performance is rather complex, teachers can best improve the effectiveness of their students' note-taking habits by first becoming aware of the many factors involved in note-taking. If teachers require their students to take notes, they should explain the rationale behind it and help them develop a system of note-taking that is customized to their particular learning styles and preferences. Teachers should also work with their students to make note-taking a metacognitive process. That is, teachers should make note-taking more of a self-learning activity through which students develop an awareness of the ways in which and mechanisms by which they best learn the content material. Most importantly, teachers should convey the idea that note-taking, just like any other study skill, is a lifelong skill with applications that extend far beyond any upcoming test or quiz.

The decision whether to use traditional notes, guided notes, or provide students with complete notes should be based on where they are in their overall note-taking development. In this study, students responded positively to guided notes for reasons related to attention, focus, and the organization of ideas. Guided notes can be an effective way to transition students away from being passive recorders of information towards actively processing and manipulating information. It should be the goal of teachers to help their students evolve into using higher order thinking skills. Active, engaging note-taking has the potential to serve this purpose. However, teachers need to carefully weigh the pros and cons of various note-taking methodologies. Teachers may also want to consider the two main functions of note-taking, i.e. information storage and encoding (information processing), when deciding upon the objectives of their note-taking practices. If a teacher's sole purpose for having students take notes is to record important information, he or she should examine other alternatives such as guided notes and instructor-provided notes.

Further research on the early development of high school students' note-taking and note-taking habits may help teachers better understand how to best utilize the practice of note-taking in their classrooms. The majority of studies on note-taking have tended to focus on college-age students due to the extensive practice of lecturing within the college classroom setting. If it is the duty of secondary schools to properly prepare their students for tertiary education, it is important that they understand the importance of note-taking skills as well as the accompanying listening and study skills. Additional studies that focus specifically on the development of note-taking skills in high school may contribute to the effectiveness of note-taking at all subsequent educational levels.

Note-taking has traditionally played a particularly important role with the study of Social Studies where students are often evaluated on their ability to understand such issues as cause and effect, key terms, and vocabulary. The large amount of factual information often results in Social Studies teachers opting to allow their students to take notes. In most high school Social Studies classes, teachers expect their students to record important information and main ideas through the use of note-taking. However, Social Studies teachers can improve the effectiveness of note-taking by considering the many factors related to note-taking performance as identified within the note-taking literature and this Master's Research Project. Teachers should be cognizant of how their note-taking methods affect students' attentiveness, focus, working-memory, information- processing, and study skills. Social Studies teachers should allow students ample time to record notes and use cues that signal what to include in their notes. Social Studies teachers should also distribute examples of effective note-taking and teach their students how to best utilize their notes to help study and review.

Within the field of Social Studies guided notes can play an especially important role in encouraging students to identify key ideas, themes, and factual information and make important connections while also encouraging reflection. Guided notes can facilitate learning in Social Studies by both increasing the opportunity for information processing and by ensuring that critical information is properly and efficiently stored for future review. Most importantly guided notes provide students with the best opportunity to stimulate thought and reflection on Social Studies content by engaging them and prompting them to critically think Social Studies content.

APPENDIX A

TABLE 1.

Question	Most Frequent Response (Mode)	STD.	Never (1)	Rarely (2)	Sometimes (3)	Always (4)
1. Do you find note-taking to be an easy skill?	Sometimes	.775	N %	N %	N %	N %
			4	4	56	36
2. How often do you take-notes in class?	Sometimes	.646	N %	N %	N %	N %
			0	18	60	22
3. Do you review your notes before studying for a quiz?	Sometimes	.898	N %	N %	N %	N %
			8	30	46	16
4. Do you find note-taking to be a helpful study tool?	Sometimes	.891	N %	N %	N %	N %
			6	22	38	34
5. Do you find it difficult to take notes while paying attention?	Sometimes	1.07	N %	N %	N %	N %
			26	20	36	18
6. Do you struggle deciding what to include in your notes?	Rarely	1.03	N %	N %	N %	N %
			28	34	28	10

Question	Most Frequent Response	Std.	Never (1)	Rarely (2)	Sometimes (3)	Always (4)
7. Does your teacher tell you when to take notes?	Sometimes		N %	N %	N %	N %
			6	14	48	32
Question	Most Frequent Response	Std.	Never (1)	Rarely (2)	Sometimes (3)	Always (4)
8. Do you copy down exactly what the teacher tells you to?	Sometimes	.879	N %	N %	N %	N %
			6	18	42	34
9. Do you consider yourself to be a good note-taker?	Sometimes	.823	N %	N %	N %	N %
			8	18	54	20
10. Does your teacher ever provide you with guided notes?	Some times	.845	N %	N %	N %	N %
			6	12	48	34
11. If available, do you prefer guided notes to un-guided notes?	Sometimes	.786	N %	N %	N %	N %
			6	6	52	36
12. Do you ever take notes on reading material?	Rarely	.974	N %	N %	N %	N %
			16	52	16	16

APPENDIX B

TABLE 1.

Q* 1	Do you like note-taking in your Social Studies Class?	A. Positive Perception	B. Negative Perception	C. Neutral
		58%	24%	18%
Q* 2	What is your goal when you take notes in your social studies class?	A. Study Tool	B. Information Processing	C. Both
		54%	24%	14%
Q 3	How does note-taking help you understand your social studies teacher's lessons?	A. Students using notes to study	B. Students not using notes to study	C. Students who manipulate notes to study
		72%	28%	18%
Q 4	Are your notes paraphrased or do you write down exactly what the teacher says?	A. Use paraphrasing in notes	B. Use verbatim notes	C. Do not take notes
		12%	82%	6%
Q* 5	Do you prefer to have some of your notes set up for you or would you prefer to write down all the notes on the board/projector ?	A. Prefer guided notes	B. Prefer personal or verbatim notes	C. No preference/ do not take notes
		40%	48%	12%
Q6	What is your biggest challenge in your social studies class?	A. Understanding lectures, note-taking, or paying attention to teacher in class	B. Test Taking	C. Homework
		36%	44%	8%

*Classification System to Open-Ended Questionnaire

Question 1

A: Students classified in category “A” answered yes

B: Students classified in category “B” answered “No”

C: Students classified in category “C” responded ambiguously or answered “Sometimes

Question 2

A: Student classified in category “A” expressed statements such as: “Reviewing before tests/quizzes”, “to summarize information for tests”, “to skim over before tests”, and “to re-read before test”.

B: Students classified in category “B” responded to or with statements such as: “To help learn the material more”, “to help me memorize”, writing things down helps me understand them better”, “to absorb the material”, “to better understand the material”.

C: Students classified under category “C” responded with statements that include both elements of “A” and “B”.

D: Students classified under category “D” responded with statement such as “I don’t Know”, “I don’t take notes”, or stated that they do not have a goal.

Question 3

A. Reasons include, easier to study/ re-read, pay more, more focused attention, easier to understand

B. Reasons include, easier to remember after writing down, gives me a reason to take notes and read what is projected on the board, don’t pay attention if they are parts are already written down

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