

**DOES PAPER PRESENTATION AFFECT GRADING:
EXAMINING THE POSSIBLE, EDUCATIONAL
REPERCUSSIONS OF THE QUALITY OF STUDENT
PENMANSHIP**

Honors Thesis

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Abstract

Based upon personal experience, upon being returned a graded, handwritten assignment, teachers will often extend compliments to those students who wrote in neat, legible handwriting, refraining from alluding to the quality of the content during this exchange. With these concepts in mind, the author elected to determine whether or not the presentation of handwritten assignments has any effect on a teacher's ability to grade objectively, if, perhaps, teachers are allowing their students' penmanship to sway their interpretation of a paper's content. In order to discover the validity of these concerns, a thorough literary analysis was conducted with the following questions in mind: Does the quality of one's penmanship influence grading? What are the evolving conceptions regarding the importance of handwriting and how have they affected the quality of students' penmanship? How can teachers implement a consistent and effective handwriting education? Should students be encouraged to submit their work in a typed format in the attempts to avoid this possible bias? The results of the study were that, when presented with assignments written in varying degrees of neatness, teachers are allowing factors other than the content of the writing to affect their ability to grade impartially. While this paper supports the need for a consistent and effective handwriting education in order to improve overall handwriting legibility, it also suggests that those schools with the means should encourage all students to submit their work in a typed manner, thus presenting the information uniformly so as to potentially eliminate this bias.

Keywords: handwriting, penmanship, quality, legibility, neatness, grading, bias, students, teacher

Introduction

The overall purpose of this study is to delve into prior research to see if the legibility and neatness of students' handwriting affects or sways a teacher's grading of their work. The rationale and importance behind this inquiry is to see if teachers are grading and judging the quality of students' work on irrelevant information that is not directly related to the assignment's content, either subconsciously or purposefully allowing the paper's presentation to diminish the presented information and effort. The collective results of this study will provide conclusions regarding the following questions: Does the quality of one's penmanship influence grading? What are the evolving conceptions regarding the importance of handwriting and how have they affected the quality of students' penmanship? How can teachers implement a consistent and effective handwriting education? Should students be encouraged to embrace technology and submit their work in a typed and uniform manner in the attempts to avoid this possible bias?

Methodology and Goals

This discussion over the potential correlation between handwriting neatness and the manner in which work is graded has been studied intermittently for the last ninety years. Within this span of time, the research regarding this topic reveals various authors who have each considered multiple variables pertaining to this inquiry. The methodology associated with this particular study will concentrate on answering the primary, guided question by compiling these multiple accounts and records. Through the medium of a thorough literary analysis, this investigation will involve accumulating data, insights, and

opinions regarding this topic, explored through multiple facets and by analyzing prior experiments and trials that have been conducted. For the purposes of this research, the articles referenced within this paper were chosen due to their relevance to the primary, guided question and due to the fact that, amidst the sporadic reports generated on the topic, they were those which were deemed the most applicable. Additionally, in the course of attaining these sources, studies that had been conducted outside of the United States were eliminated so as to focus upon the most relevant research for teaching handwriting in this country, refraining from utilizing, as well, those studies that chose to specifically focus upon the handwriting of English language learners (ELLs) and special needs students. In researching prior studies and investigations into this topic, the purpose of this report is to discover and develop a consensus and conclusion on the matter, to generate a proven and tested theory in regards to whether or not a teacher's grading process is influenced by the penmanship and handwriting of his or her students, basing future recommendations for teaching the art of penmanship on this accumulated information.

Studies into the Effects of Penmanship on Grading

Within the following eight articles, each of the authors shed light upon the question as to whether or not the quality of student penmanship influences a teacher's grading of handwritten work. However, the manner in which each of these authors elected to address this inquiry alters from source to source, examining this primary question through the following concepts: the order in which papers are graded, the role of

the teacher's expectations of his or her students, the grader's own bias regarding the quality of handwriting, and the impact of utilizing different writing implements.

Penmanship and Grading Order

In 1929, Everett M. Shepherd published the article "The Effect of the Quality of Penmanship on Grades" within *The Journal of Education Research*. In the article, Shepherd (1929) discussed an experiment that he conducted in order to "to determine as nearly as possible the effect of penmanship on grading," stating that many perceive that the grade awarded to students on handwritten papers may not be entirely representative or reflective of their true ability (p. 102). Within this research, the author composed a mock English composition that was written in both good and poor handwriting, first offering copies of the paper that was printed in good penmanship to a group of 225 teachers, with the assignment being subsequently graded and collected. After a period of three school weeks had elapsed, the paper that had been copied using poor penmanship was passed out for grading to the same subjects. Six months after these initial two phases were completed, Shepherd repeated the same endeavor (with the same materials) to another group of 225 graders, though this time he elected to reverse the method in which the papers were distributed, with the poorly handwritten paper being passed out for grading first, followed by the neatly composed paper. According to the author, "as the average teacher ordinarily reads papers of varying degrees of penmanship, without any regard to order, this reverse idea in collecting was introduced to show if there was any carry-over from good penmanship papers to poor ones, or vice-versa" (Shepherd, 1929, p. 103). After reviewing and assembling all of the relevant data, Shepherd concluded that, when

comparing those papers which were copied in good handwriting to those copied in poor handwriting, the good papers (when read first during the primary session) were graded 5.991 points higher than the appropriate grade of 71.9, while the poor papers were graded 3.834 points below that, revealing a total variation of 9.83 points from the appropriate grade. In comparison, during the second trial, when the papers were graded in the opposite order, there was a total difference of 10.022 points from the appropriate grade of 71.9, with those papers copied in poor handwriting being graded 6.027 points above the appropriate grade and those copied in good handwriting being graded 16.049 points above it. Based on the results of this experiment, Shepherd concluded that teachers, when grading handwritten papers, are not only basing their marks on the assignment and handwriting currently in front of them but that they are also influenced by the paper that they graded directly before, that their opinion about the preceding student's penmanship affects their judgment of the piece they are presently examining.

Grading order and the utilization of a grading rubric. Within "The Impact of Some Obvious Variables on Essay Test Scores," an article that was originally published in a 1968 edition of *Journal of Educational Measurement*, the author, Clinton I. Chase, delves into the topic of whether "any condition of an essay test paper that attracts the reader's attention away from the content of the essay would appear to have a potential effect on scores given to that test" (p. 315). Chase (1968) elected to focus his research primarily on the bias associated with the quality of one's handwriting and spelling accuracy, questioning whether or not the use of a scoring key in the evaluation process of written assignments could potentially eliminate these distractions. To begin his research, the author began by composing fabricated responses to two essay prompts, widely

varying the quality of handwriting and spelling within each though keeping the content the same, additionally providing some of the subjects with a scoring key in which each characteristic of the response, specifically in terms of content, was described and accompanied by its corresponding point value. The results of this study were that variances in handwriting quality did, in fact, have an effect on the manner in which the subjects evaluated the offered work, with papers written in good handwriting receiving a mean total score of 13.14 while papers written in poor handwriting received a mean total score of 11.64 when judged by those subjects who were not provided with a scoring key. For those subjects who were asked to utilize this added implement, Chase (1968) concluded that they were slightly more liberal than their fellow subjects, awarding mean total scores of 12.86 to essays written in good handwriting and 11.92 to those written in poor handwriting.

Within his research, Chase (1968) also touched upon the earlier study of Shepherd's (1929) that claimed that not only does the legibility of one's own handwriting affect the manner in which his or her paper is graded but so, too, does the order in which the papers are being graded, thus adding an additional variable to the inquiry in question. The author discussed the fact that, when the subjects were first presented with a response written in poor handwriting, they scored this item similarly to those who read and scored papers written in good handwriting first. However, when the subjects were presented with the second response for grading, "the negative halo of poor, and the positive halo of good script, begins to be evident"; readers awarded higher grades to those papers that were written in good handwriting and read secondly then when papers of the same handwriting quality were read first (Chase, 1968, p. 318). Conversely, papers that were written in poor

handwriting and read secondly were awarded lower grades than those papers which were of the same handwriting quality and read first. This information, combined with Shepherd's conclusions, demonstrates that not only does the neatness of students' handwriting affect a teacher's unbiased grading of their work but so, too, does the order in which these handwritten documents are graded, with the handwriting quality of the preceding student influencing the teacher's consideration of the current paper.

Penmanship and Expectation

Eleven years after publishing "The Impact of Some Obvious Variables on Essay Test Scores," Chase continued his research concerning handwriting in "The Impact of Achievement Expectations and Handwriting Quality on Scoring Essay Tests," an article found within the *Journal of Educational Measurement* in 1979. While Chase (1979) alludes to the results of prior studies that indicate that a teacher's grading of his or her students' work is influenced by the quality of those students' handwriting, "the purpose of this study was to vary both handwriting quality and achievement expectation (1) to see if expectations are related to scores given essay tests, and (2) to determine how handwriting quality interacts with levels of expectancy" (p. 40). In order to search for answers, the author generated mock essay responses in which the content was the same though the quality of the handwriting varied and, to establish expectancy, the readers were provided with a cover sheet that included a list of the supposed undergraduate courses that the "student" had taken in his or her college career, as well as the grades that he or she had received. The papers were distributed to and read by 62 graduate students studying education who were asked to grade the given essay after reviewing the

“student’s” prior academic achievements. The data attained from this study suggested that the “impact of expectancy appears to be of considerable influence which appreciably altered the ‘typical’ relationship between handwriting quality and essay test scores,” that when the student’s handwriting was less legible the readers became more dependent upon their expectancy of the student, with the high expectancy group being assigned higher scores as opposed to the scores assigned to the lower expectancy group (Chase, 1979, p. 41). When considering past studies, Chase (1979) observed that the bias associated with the quality of penmanship may only be more complicated and intensified by the expectations that the reader has for the student(s) in question, that this partiality may surpass the impact that handwriting quality has upon grading.

In the *Journal of Educational Measurement*’s 1983 article “Effects of Achievement Expectations and Handwriting Quality on Scoring Essays” by David C. Hughes, Brian Keeling, and Bryan F. Tuck, the authors begin by relating the fact that the relationship between the quality of students’ handwriting and the scores assigned to their written work is a subject that has been studied since the 1920s. In particular, Hughes, Keeling, and Tuck focus upon Chase’s 1979 investigation that joined the concepts and effects of the reader’s expectation of the student and the quality of that student’s handwriting on grading, in which the results suggested that when a student’s handwriting is less legible readers become more dependent upon their expectancy of the student. The processes involved in their own research began with 25 teachers scoring essays written by 38 high school students, with various, selected essays (based on content and ability) chosen to be reproduced in both good and poor penmanship. In order to establish expectations for the scorers regarding student achievement, one of the authors fabricated

“intelligence and achievement test answer patterns,” copying this information onto the answer sheets of the reproduced essays (Hughes, Keeling, & Tuck, 1983, p. 65). The experiment itself asked 224 undergraduates to score the essay provided to them yet, while the results of this experiment were similar to what previous studies on the subject of the affects of handwriting quality have discovered, the authors claim that there was no evidence to support Chase’s (1979) suggestion that a correlation exists between handwriting quality and expectancy. The authors offer a number of possible reasons as to why they were unable to validate this proposal, referencing the different experimental procedures that were used such as the age group of the students chosen to write the sample essays, the experience of the subjects, and the methods that were used to establish the scorers’ expectations of the students. Regardless of these differences, the authors believe that further research could better decipher the correlation between handwriting quality and expectancy, discovering the conditions under which this interaction consistently occurs.

Penmanship and Graders’ Bias

In 1972, the *American Educational Research Journal* published “Essay Grades: An Interaction between Graders' Handwriting Clarity and the Neatness of Examination Papers” by authors Schuyler W. Huck and William G. Bounds. Referencing the previous work of researchers such as Jon C. Marshall and Jerry M. Powers (1969), this article demonstrates Huck and Bounds’ (1972) attempt to further examine the theory that “good grades are assigned to essay papers for reasons other than the quality of the ideas set forth by the writer” (p. 279). This research shifts its attention towards the possible,

biased interpretations of the grader in relation to the neatness of student penmanship, specifically to determine whether or not there is any interaction between the quality of the grader's own handwriting and the manner in which he or she grades student papers. For their study, the authors collected four student responses to a short answer question and, after editing and combining this work into two essays of varying ability, the work was then typed, followed by the essay of higher quality being copied in "average handwriting neatness" and the second, inferior essay being copied in both "very neat handwriting" and "very messy handwriting" (Huck & Bounds, 1972, p. 280). The thirty-four subjects involved in the research each received two one-page essays and, after formally grading these pieces, the authors found that those graders with neat handwriting themselves assigned higher grades to the more neatly written essay while those graders with messy handwriting did not significantly differentiate between the two essays offered to them. Huck and Bounds' conclusions regarding these results were that they were able to prove that a correlation does exist between the handwriting quality of the grader and the legibility of the papers that he or she grades, with this experiment showing that graders who have neat handwriting are biased towards and assign lower grades to those essays which are written in poor penmanship while graders who have messy handwriting are not as influenced by the neatness of their students' essays.

Bias within the elementary school. In "Influences of Handwriting Quality on Teacher Evaluation of Written Work," published in 1976 in *American Educational Research Journal*, the author, Lynda R. Markham, references the theories presented by Chase (1968) yet argues that, while "there is little support for the supposition that good handwriting *always* indicates a good paper, these research reports suggest that

handwriting of good quality may lead to higher grades while handwriting of poor quality may lead to lower grades” (p. 278). In her research, Markham elected to focus her study on elementary school teachers to see if the truths presented by fellow authors were still applicable in a different educational setting. For the purposes of her research, 45 elementary school teachers and 36 university students enrolled in student teaching were utilized as subjects, being offered one of nine contextually different papers that had been drafted in nine different handwriting styles of three varying degrees of neatness. While the results of this research indicated that neither various teacher characteristics (such “as age, experience, level taught, and degrees”) nor their prospective grades taught had any significant influence upon the scores that they awarded, Markham (1976) did conclude that the variation in assigned scores was significant, that those papers written in neater handwriting were consistently awarded higher scores than those papers written in poorer handwriting, regardless of the quality of the presented content (p. 277). As a whole, Markham’s investigation provides evidence that, similar to the research that has been conducted regarding secondary school teachers, elementary school teachers are influenced by and evaluate students’ work based upon factors that are not directly related to content.

Penmanship and Different Writing Implements

The primary goal of the authors of the 1969 article “Writing Neatness, Composition Errors, and Essay Grades,” Jon C. Marshall and Jerry M. Powers, was to investigate the concept that “marks assigned to essays reflect factors extraneous to the purpose of the exam,” to look at various paper characteristics, specifically handwriting

quality and composition errors, and to see if these facts, which are apparent to teachers, affect the grading process of an essay (p. 97). For the purposes of this research, originally published in *American Educational Research Journal*, twelve forms of an essay, identical in content but differing in handwriting neatness and composition errors, were composed and afterwards assessed by 420 prospective teachers, with the authors creating four different writing categories concerning legibility: a clean, typewritten copy and three varying degrees of handwriting neatness (neatly handwritten, fairly neatly handwritten, and poorly handwritten). When addressing the results concerning these varying written forms, the authors indicate that the only statistically significant difference within this study was between the mean score assigned to the neatly handwritten essay (5.66) and the mean score assigned to the fairly neatly handwritten essay (5.02), with the other variables purposefully included within this study yielding very little insight. The results indicate that prospective educators are, in fact, influenced by the quality of students' handwriting "even when they are given explicit directions to grade on content alone in accordance with an outline of desired content" (Marshall & Powers, 1969, p. 100). A point of interest that Marshall and Powers note concerning this research was the subsequent effects of these varying written forms, that the highest mean score was assigned to the neatly handwritten essay with the successive order of mean scores, from highest to lowest, being the poorly handwritten essay, the typewritten essay, and the fairly neatly handwritten essay. While the authors concede that the fact that the typewritten essay did not offer any advantage and that the poorly handwritten essay did not necessarily serve as a disadvantage may be a bit surprising, they themselves were unsure as to whether these results reflect the unusual grading situation that was created by their experiment or

whether these results authentically reflect the effects of handwriting neatness on grading, leaving this conclusion open to conjecture.

"The Effect of Variations in Handwriting and Print on Evaluation of Student Essays," an article published in the journal *Assessing Writing* in 2005, revolves around the research of Joseph Klein and David Taub. While this study focuses on the effects of students' handwriting on a teacher's evaluation and grading of their papers, these authors take an additional step from the research previously done and examine the potential effects of various writing implements and tools upon grading. As Klein and Taub (2005) point out, while variations in handwriting quality had already been considered (i.e. "neatness, spatial considerations, uniformity in slant and in size and alignment of letters and words, intensity of print, and type of script") at the point in which this study was conducted and published, they propose that the specific instrument used for transcribing these ideas could also be to blame for any grading biases (p. 135). In this study, 53 teachers were asked to read and evaluate previously constructed compositions which had been assigned a grade of 80% by impartial experts and, based upon these results, "a comparison was made of scores assigned to essays containing a variety of biasing factors: legibility as opposed to illegibility, use of different writing tools, and employment of esthetic devices such as color or underlining" (Klein & Taub, 2005, p. 134). The results from this research indicate that there are significant differences in the manner in which graders regard assignments written in varying degrees of handwriting quality and when composed using different writing implements. Additionally, Klein and Taub also confirmed that the interaction between legibility and chosen writing implement also affects the grading process. Of all of the mediums and varying degrees of legibility

utilized, the highest scores were assigned to legible, typed essays that utilized a standardized, unembellished font (87.72), followed by legible pen-written essays (86.58), legible and esthetic pen-written essays (85.69), legible and esthetic pencil-written essays (83.89), legible pencil-written essays (80.81), legible and esthetic typed essays (79.32), followed by a drop to unclear pencil, pen, and typed essays (71.98, 70.26, and 57.07, respectively). The findings of this research support the authors' original hypothesis regarding the effects of not only handwriting but writing implement selection on grading, that graders are recognizing and being swayed by the irrelevant in their pursuit of the relevant.

Conclusions from Prior Research on the Effects of Penmanship on Grading

In compiling the results of the research highlighted above, the investigations of these authors reveal that a general consensus regarding this inquiry can, in fact, be attained. While the offered collection of respected authors published their works within a seventy-six year span of time, each of these sources individually and collectively prove that, in the presence of variation in the quality and neatness of students' handwriting, teachers are allowing factors other than the content of the writing to affect their ability to impartially grade assignments. However, if the research concerning this topic has been ongoing since the late 1920s and the results have been consistent, why is it that, in the face of such truths, teachers are still asking their students to submit handwritten documents? What can and will we, as educators, now elect to do? How can we stop this continuum of biased grading? In order to understand the current cultural and educational perceptions regarding penmanship, we must turn our attention towards how the

importance of handwriting and the manner in which it is taught have evolved over time, delving into whether or not educators should devote more instructional time to improving student penmanship and what strategies can be implemented in order to improve this skill. Additionally, educators must consider whether or not, as a technologically developed nation, we should perhaps rely upon another medium for composing papers in the attempt to resolve this bias.

Evolving Conceptions of the Importance of Handwriting and its Effect on Quality

If the favoritism associated with handwriting was addressed almost a century ago and the quality of handwriting has been in discussion for almost half of that time, why has so little emphasis been put on penmanship in recent years? The reason for this lack of attention may very well be related to the nation's evolving conceptions of the importance of handwriting. In the epilogue of the 1996 text *Handwriting in America: A Cultural History*, entitled "The Symbolic Functions of Obsolescence," the author, Tamara Plakins Thornton, explains how our nation's perception of the art of penmanship has altered, specifically within the classroom. Referencing the findings of prior educators and journalists, Thornton states that, during the Great Depression, handwriting specialists within the United States were predominantly fired as a means to cut costs, yet, afterwards, when the nation's economic state was revived, these teachers were never replaced. As a result, professors within teaching colleges elected to discontinue "training future teachers in techniques of penmanship," forcing novice teachers to incorporate this art into their curriculum yet to rely upon their distant memories and conceptions of the handwriting classes that they themselves were enrolled in decades prior (Thornton, 1968,

p. 185). In the years after World War II, teachers across the nation began to accept the conception that, since the ultimate purpose and premise of writing is to express one's ideas and to communicate meaning, handwriting should be "regarded as a tool, not an end in itself" (Thorton, 1996, p. 185). Based on these insights, Thorton (1996) relates that elementary school teachers "deemphasized formal drill, eliminated the use of handwriting scales, integrated handwriting instruction into the rest of the curriculum, and generally gave penmanship a lower priority than had teachers of the prewar years" (p. 186).

Within her studies, Thorton (1996) alludes to the fact that the illegibility generated in the wake of abandoned penmanship education was only worsened in its comparison to the high quality of penmanship that existed in generations prior, adding, as well, that one could now make a similar comparison between the handwriting practices of today and decades ago, with the noticeably inferior writings of today reflecting our nation's disregard for clear and legible writing. Similar to these conclusions, E.A. Enstrom stated within the 1965 article "The Decline of Handwriting" that the quality of handwriting within many areas of the United States had hit a record low, a problem that he believed that our elementary and middle schools could no longer afford to ignore. Enstrom's research into this issue in this article from *The Elementary School Journal* revealed that, between 1900 and 1930, handwriting was taught more consistently, effectively, and skillfully in the larger schools within the country through the use of extensive, mechanic drills and daily, dedicated time to partaking in this practice, a standard and dedication that was never and has yet to be met or excelled by any other time period. Along those same lines, in 1968, Paul C. Burns published *Improving Handwriting Instruction in Elementary Schools*, a text that reflects the then-current ideals

concerning the importance of proper penmanship and legibility, and in reading this highly intricate, explicit, and thorough text one can clearly see how our conceptions of handwriting have transformed over time. In order to demonstrate the importance of legible handwriting, Burns emphasizes that the primary purpose of writing is to express one's ideas and to communicate meaning, that, as the importance and quality of penmanship lessens, there is a need for students to recognize the fact that if their handwriting is illegible than their attempt at communication and discussion has failed, that their ultimate purpose in composition and writing has not been attained.

The Need for a Consistent and Effective Handwriting Education

The growing disregard for proper penmanship education has been and is predominantly evident within the mandated curriculums currently required of elementary and middle school teachers, with the reduction (and potential absence) of handwriting instruction clearly affecting the general neatness of penmanship in America. Within the United States, forty-five states have currently adopted the Common Core State Standards, a system in which educators are specifically informed of what is expected of students at each grade level, with the standards being “designed to be robust and relevant to the real world, reflecting the knowledge and skills that our young people need for success in college and careers” (Common Core State Standards Initiative, 2012). However, in spite of the aims of these shared and consistent standards, handwriting is not at all mentioned or referenced as an element of this “high-quality education” that enables students in America to be “fully prepared for the future” (Common Core State Standards Initiative, 2012). Similarly, before accepting the Common Core in 2011 and implementing it in the

2013-2014 school year, the state of Massachusetts' previous English Language Arts Curriculum Frameworks reveal the same exclusion, a set of standards that had been in effect since 2001 (The Commonwealth of Massachusetts Department of Education, 2001).

Within "Handwriting Instruction in Elementary Schools," an article originally published in *American Journal of Occupational Therapy* in 2006, Asha Asher sheds light upon the discrepancies involved with handwriting instruction, showing that there is a great need for order and structure when it comes to teaching this specific subject. The author's conducted survey sought to determine the manner in which handwriting is typically taught within an elementary school setting and to examine multiple variables associated with this instruction, including the types of paper utilized, the manner in which letter formation is taught, the handwriting programs referenced, and the time allotted for practicing these skills. For the purposes of this research, Asher (2006) surveyed 25 elementary school teachers from a single school district and, based upon the results, concluded that the sampled educators used a wide variety of methods and tools in order to teach handwriting, "with no continuity of instruction between the grade levels" and "variation in the order of introduction of letters, paper used, and practice time provided" (p. 469). Given these results, Asher (2006) felt that the inclusion of these inconsistencies within the students' handwriting education could result in ineffective instruction, a fact that both fifth and sixth grade teachers within this sampled district confirmed as they reported that the vast majority of their students "had not developed fluent handwriting as a tool of expression, because of which instructional time was used to review handwriting again" (p. 469). In taking all of this into account, Asher states that these educational

inconsistencies and the observed consequences suggest that there is a dire need for teachers to implement a structured and consistent handwriting instruction that begins in kindergarten and continues throughout subsequent grade levels so that students may develop and refine their handwriting competencies based upon their physical ability to do so. With all of this information in mind, if the school district surveyed within Asher's study is an accurate representation of the manner in which our nation is currently teaching handwriting, it is not surprising that students' abilities in this art are declining.

Implementing a Consistent and Effective Handwriting Education

Today, the concerns of Thorton (1968), Enstrom (1965), and Burns (1968) are still valid as the overall quality of the nation's penmanship continues to decline. Considering the fact that decades of research have proven that the quality of students' handwriting sways a teacher's grading of their work and that the nation's devolving conceptions regarding the importance of handwriting have led to a limited penmanship education and an increasing number of students emerging from elementary and middle school with poor handwriting, the next question becomes, "How can we improve the overall quality of our students' handwriting?" In terms of education, the majority of this responsibility falls upon the teachers themselves, the adults who will first teach these important and valuable skills and who must then encourage the proper practice and utilization of this art.

The importance of perception. According to the author Enstrom (1965), in order to increase the quality of students' handwriting, administrators and teachers within elementary schools must first be aware of the importance of handwriting, that unclear and

messy handwriting defeats the purpose of writing itself, which is to communicate meaning to not only ourselves but to others. In recognizing the fragile relationship between legibility and communication, teachers can thus augment the growing disregard that the nation and educators themselves have adopted concerning handwriting, a point that Enstrom documented within his research. Similarly, Burns (1968) states that it is only when the school system, the teachers, and the students themselves view the teaching and practice of handwriting as valuable that this education can be most effective; once educators are aware of the need for and significance of neat and legible handwriting they can make the changes necessary to create a curriculum where this art is both practiced and valued, fortifying this system by properly training teachers on not only how to consistently and effectively teach handwriting but by providing them with the means to better understand the mechanics behind this skill as well.

Educating teachers on how handwriting develops. Burns (1968), within *Improving Handwriting Instruction in Elementary Schools*, states that, in order to successfully teach the invaluable skill of handwriting, teachers must first be aware of how the handwriting process develops and matures so as to better serve their pupils and their evolution. Within the author's own research, he discovered that, between the ages of five and seven (pre-kindergarten through second grade), handedness has typically already been established and that teachers should not attempt to change this determination, adding that, during this phase, educators should expect to observe some letter reversals and irregularities in their students' handwriting but that they should not have unreasonably high standards at this time. Between the ages of eight and ten (second grade through fifth grade), the smaller muscle coordination within children's hands has better

developed and, thus, they are able to adapt “to more refined handwriting demands,” meaning that, at this phase, students should be able and allowed to practice reducing the size (yet maintaining the form) of their letters (Burns, 1968, p. 7). It is by the end of the fifth grade that a student’s handwriting “should be under relatively good control. It should be more uniform and more mature looking but individual characteristics in handwriting are to be expected from pupil to pupil at this time, just as later” (Burns, 1968, p. 7). Finally, the author states that teachers can and should expect an “average pupil” to have attained and generated fairly good handwriting form and production speed towards the end of the sixth grade. However, a point of interest that Burns (1968) points out is that a primary difficulty and hindrance to handwriting development is that teachers often expect too much of their students in the primary elementary grades and “then too little attention to improvement and maintenance is given [to] handwriting in the intermediate years,” that, once students have, essentially, learned the formation of letters and have developed the necessary skills, teachers elect to abruptly stop teaching and reinforcing the concepts of handwriting, thus prompting a decrease in the legibility and neatness of their students’ penmanship (p. 8).

Best practices for teaching handwriting. In order to teach handwriting effectively, Asher (2006) suggests that, when students are within the acquisition phase of their handwriting education in the first and second grades, they should be taught handwriting through blocked practice, an educational method in which the order of the tasks being practiced remains the same, with this form of instruction fortifying children’s abilities to reproduce and copy letters in a consistent and refined manner. After students have had enough experience with these trials and repeated practices, “gain[ing] mastery

of a few letters, the letters could be practiced further in differing combinations (i.e., under random conditions) to reach the optimal challenge conditions for better performance,” thus expanding upon and implementing the skills strengthened within the repetitious blocked practice (Asher, 2006, p. 463). While Asher’s (2006) results concluded that there is no single method or program for handwriting that is superior to another, that the specific writing tool or paper utilized does not necessarily affect the quality of the handwriting education, the author encourages implementing blocked practice as the primary phase of handwriting instruction, adding that it is only with the development of one’s handwriting skills through this practice that one’s abilities can be further refined under random conditions and within later grades, thus “facilitating further acquisition, transfer, and retention of the skill of handwriting” (p. 463). Overall, the author supports the notion that students require consistent and specific handwriting instruction to first understand how to correctly form individual letters and that, once this has been accomplished through focused work, teachers within higher grades should then continue to monitor and reinforce these skills.

The authors of “How do primary grade teachers teach handwriting? A national survey” offer further suggestions regarding the best methods for teaching handwriting to students. First and foremost, regarding the nation’s growing disregard for penmanship, Graham et al. (2008) state that handwriting instruction is only effective when it is delivered and introduced properly, thus requiring teachers to be specifically trained and educated on the subject. According to the authors, rarely do teachers receive “adequate preparation to teach handwriting in their college education courses,” with this blatant lack of instructional knowledge and recognition of how the handwriting process develops and

matures impacting teachers' ability to successfully and effectively teach penmanship (Graham et al., 2008, p. 66). In reference to elementary grades, Graham et al. suggest that teachers should specifically and methodically devote 50 to 100 minutes of their weekly instructional time to handwriting, additionally recommending that this subject should be taught several times a week if not daily. During these portions of the class, the following methods should be utilized: teachers should model how to properly form letters, students should be provided with ample time to practice tracing and copying letters, and students should be praised for those letters which they correctly format as well as directed on how to correct those letters which are malformed. Additionally, skills relative to handwriting should also be discussed, such as how to correctly hold and grip one's pencil and the position in which the paper should rest upon the desk, addressing each of these topics for both right- and left-handed students. Finally, Graham et al. (2008) state that educators should not only teach and reinforce these concepts but that they should also make "specific adaptations/modifications for students with poorer handwriting, including extra encouragement, one-on-one instruction, extra time to complete written assignments, and additional conferences with students about their handwriting" (p. 67). With these recommendations in mind, future and current educators can improve upon their ability to successfully and meaningfully teach penmanship, doing so in a way that is both strategic and based upon the mechanics and nature of the development of this art.

In order to improve overall instruction regarding handwriting (and, thus, improve the quality and neatness of students' penmanship), not only should this necessary and influential skill be given considerable attention within the state standards for teaching elementary students but, if we are to do so, teacher preparation programs and professional

development workshops for teachers must recognize the need for future and current educators to be formally trained in how to teach handwriting effectively and consistently. Additionally, teachers within the same school must confer on this subject just as with any other, making sure that what is taught within individual grades is consistent as well as discussing how to progress from one grade to another. In terms of this evolution, after specific and focused handwriting instruction has begun in the first and second grades, educators must continue onward with further instruction and practice, enabling the development and refinement of the students' handwriting by providing time either on a daily or weekly basis to address both individual and collective concerns. The key here, it appears, is for teachers to become more fluent and familiar with the topic of handwriting, to expand their understanding and perceptions of it so that it can be treated and taught as the influential and vital skill that it is.

Implementing Technology – A Potential Next Step to Eliminate Biased Grading

As remarked above, prior studies have emphasized the need for educators to acknowledge the importance of handwriting and to implement a consistent and effective handwriting education as a means to improve the overall quality of student penmanship, thus attempting to alleviate the bias associated with varying degrees of penmanship legibility and neatness within written assignments. However, as time and technology advance, the question remains as to whether or not this partiality may be lessened or even eliminated through the utilization of technology.

While, within their research, Burns (1962), Marshall and Powers (1969), and Klein and Taub (2005) all mention the potential effects that technology (i.e. typewriters,

computers) could have on the biased grading of students' work, there appears to have been little, additional research done on the topic in subsequent years. Considering how technologically evolved our nation has become, it was a bit surprising to discover that there have been few, supplementary studies to determine whether or not the uniform presentation that computers now offer would help to eliminate the proven prejudice associated with handwritten assignments. Within the research previously mentioned, the authors declare that the untidy and messy handwriting of students can be distracting for teachers and that, as a result, the paper's poor, overall presentation draws the grader's attention away from the content and towards elements that should not be considered within the grading process. However, with the abundance and constant presence of computers surrounding us, shouldn't those schools with the proper resources and access to this technology encourage all students to submit their work within the same, mandated font with the exact same margins and format requirements so that legibility no longer becomes an unacknowledged factor in the grading process? If all papers were submitted in an identical fashion, would that relieve the current and identified partiality? Although this may seem like a rather simple solution, we may not know how beneficial this proposition may be until further research is done, specifically to compare the manner and bias associated with grading assignments that are all presented in the same, typed fashion as opposed to the variances offered when some submitted assignments are handwritten and others are typed.

Concluding Remarks

For almost a century, researchers have been studying the potential effects of variables that are created when a student is asked to compose a handwritten document and to submit it for grading. Within these reports, it was revealed that these inconsistencies do, in fact, play a part in a teacher's supposed unprejudiced grading process, that "teachers are influenced by the quality of composition and the writing neatness of an essay response, even when they are given explicit directions to grade on content alone" (Marshall, 1969, p. 100). While all of this research concludes that "handwriting is one of the non-content factors which may influence a teacher's evaluation of children in his or her classroom," why is it that, in the wake of this evidence, teachers are still grading handwritten documents and students' penmanship skills are declining as a result of a poor and haphazard education (Markham, 1976, p. 280)? In order to attempt to lessen and/or potentially alleviate this bias, author Lynda R. Markham (1976) proposes that teachers must, first and foremost, be aware of this bias' existence, that they should "strive for fairness and objectivity in evaluating the written work of children in their classrooms" (p. 282).

Secondly, to improve the overall quality of students' handwriting, children should be given a consistent and thorough education that begins within the primary grades and evolves as they mature, with teachers constantly stressing the importance of proper penmanship, beginning with blocked practice as the primary phase of handwriting instruction and encouraging extended practice under varying conditions so as to "provide an optimal challenge point, facilitating further acquisition, transfer, and retention of the skill of handwriting" (Asher, 2006, p. 463). In terms of future recommendations, teachers

within districts who have the means should perhaps refrain from grading handwritten documents and should, instead, encourage students to type their work so that neatness and legibility is no longer an influential factor when grading. While it is highly likely that, with increasing access to technology that is continuously improving and developing, handwriting may soon become obsolete and we will end up communicating solely through technology, at the current moment our nation has not reached that point and, until we do (and even in the face of such advancement), students should be offered the most effective and valuable services while enrolled in school and that includes receiving a proper handwriting education in order to successfully and legibly communicate their ideas on paper.

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