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Examining the Effects of Annotating Text Strategies with Eighth Grade Students

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Reading in the Digital Age

With the ever increasing developments in technology, many question what it means to teach the skill of reading in such an unprecedented digital age. Not since the conception of the printing press have we seen such rapid changes in literacy and therefore the question of whether reading can be taught using a digital medium in order to equip learners with skills needed for the 21st century is a common discussion in the education field among educators and institutions. It is correct to say that this new era has drastically changed reading practices and behaviours towards reading as younger generations have shown they are proficient at reading digital texts just as they are when they are presented with a printed text due to how commonplace digital formats of text have become (Chen & Chen, 2014). Furthermore, it should not be assumed that one format is seen as more important than the other in terms of educational value in the eyes of the readers.

In fact adolescents not only have shown an ability to transition between both formats (digital and print), but consider them both to be of equal importance (Eden & Eshet - Alkali, 2013). Although it is true to say that students have the ability to read digital texts with ease, there is a key distinction that should be made between passive reading and active reading. This distinction being the latter requires critical reading of a text in order to understand the text in depth, gain new knowledge from the reading, examine facts and statements made by the author within the text, and create personal evaluations on the text. In fact with regards to adolescents and early adolescents, “their reading behaviours do not move seamlessly into digital environments. This is likely because the tools available to mediate the reading experience differ in the digital context versus when reading on paper” (Goodwin et al., 2020, p. 1856). It is therefore necessary to present texts in digital formats while adapting the strategies used to comprehend them in a bid to develop digital literacies. In terms of adapting reading strategies,

digital text will still require a reader to employ the core strategies used when reading a printed text such as skimming, scanning, predicting, reading for meaning and inference to name a few. However, due to the unique characteristics of digital text which may include hyperlinks and pages which are not sequential, techniques such as navigating the page itself and surfing from one link to another may be required (Uso-Juan & Ruiz-Madrid, 2009).

Digital Formats vs. Print Formats

Several studies have noted key differences between texts presented in a digital format versus those presented in a print format. In a study conducted on reading behaviours in the digital environment (Liu, 2005), the majority (83 percent) of participants reported that the percentage of time devoted to reading electronically is increasing, over 80 percent of the participants reported a greater percentage of time spent on browsing and scanning and about 45 percent of participants indicated that they were facing decreasing in-depth reading and concentrated reading. When compared to reading in print, reading a digital text is not just a matter of differing formats presented in front of the reader, but also poses different cognitive challenges such as reading speed, non-linear reading and focus (Chen & Chen, 2014). These differences can be detailed further into (1.) methodological reading whereby digital readers may move around the page while reading and may be required to move around in order to find relevant information, whereas print readers will progress through the text line by line due to the absence of distractors, (2.) text design having a significant effect on comprehension when a text that was originally intended for print is transformed into a digital version by simply scanning said document, and (3.) discomfort and disorientation due to fatigue caused by looking at a computer screen for a prolonged period of time as well as the lack of a tangible page causing readers to perceive the task of navigating through the text as challenging or even at times

overwhelming (Eden & Eshet - Alkali, 2013). For centuries readers of all ages have become accustomed to printed formats, however using a digital text effectively requires a different skill set (Liu, 2005). The advances in technology such as with touchscreen phones, tablets and E-readers have created an environment where texts of any form can be accessed at any time and from any location. It should not be assumed that a digital text is simply “print without paper” (McKenna et al., 2012, p. 299) as that signifies a narrow view of what technology can offer. Rather, the cognitive challenges posed require teaching approaches which will equip younger generations with a skill set suited for more digital than printed texts which they will be confronted with on various devices throughout their daily lives..

Annotations and Comprehension

Along with the common reading strategies of skimming, scanning, and receptive reading, active reading requires the reader to interact with the text through the use of annotations (Chen & Chen, 2014). This is a common task for early adolescent students to undertake when reading literature, but should not solely be perceived as a skill employed only when reading fiction. Moreover, the comments made on a text or the strategy used to highlight relevant information can contribute to overall comprehension of the text presented (Wolfe, 2008). In fact, in order to show proficiency as a reader, it is necessary to be able to utilise sophisticated reading strategies such as critically responding to the text with the use of annotations and in doing so has been shown to improve metacognitive skills (2014). It should not be assumed that annotating a text while reading is a modern concept. According to Joanna Wolfe (2008), medieval readers would often add comments on manuscripts due to how expensive and time consuming they were to produce. Therefore, any comment made automatically became public as the manuscript would then be read by other readers and comments would be visible to those who had possession of

said manuscript. They had further pedagogical value within the community in which the manuscript was read as they displayed the thoughts of those who had previously read the manuscript.

When viewed in a present day classroom, the task of annotation may be seen as an individual task with the reader making comments and interpretations on a text following certain specifications made by the teacher. However with the growing number of texts being provided in digital format, the notion of annotations becoming increasingly digitised as well as public in the cyber realm should be considered. In one particular study, it was observed that the relationship a reader has with the annotations on a text is different from the way they interact with the text itself (Wolfe, 2008). Wolfe further noted that when readers encounter either positive or negative comments left by prior readers on a digital interface where a section of the paragraph to be studied has been uploaded and comments made in the margin were anchored to the primary text with underlining, the learning value of annotations increased as students were provoked to take their own stance towards the text.

In the study by Goodwin et al. (2020) on the effect of digital versus paper reading processes and their links to comprehension, it was noted that the quantity of highlighted sections on a paper text made by eighty-two college students who took an introductory college writing class did not enhance reading comprehension whereas the quantity of highlighted sections on a digital text did enhance reading comprehension. Furthermore, Goodwin et al. also noted that paper highlighting may be an easier task to undertake when compared with having to highlight on a screen. However, the fact that digitally there was a stronger link to comprehension could be due to the fact that the task of having to navigate a digital text in order to locate the correct information required to complete the task specified, in the case of the Goodwin et.al study a

response essay which took a stance on the materials provided and required the annotations to be read, “was important in active processing, moving the information comprehended into long-term memory versus short-term recall” (2020, p. 1859).

Collaborative Reading

A number of national and international studies have shown that the reading levels and understanding of complex texts have reached a low level among adolescents and young adults (Vaughn et al., 2011). In a bid to change this trend, moving to a collaborative approach while reading has been shown to have positive outcomes. Firstly, in order to read collaboratively, at least one other person is required (Kiili et al., 2012). Secondly, this particular style of reading includes a process in which the meaning and knowledge gleaned from a text is then constructed through a discussion on the text. A key point raised is that this particular approach can also be used when the task of annotating has been added to the reading task on a fictional text using scaffolds which were used to help identify types of annotations such as reasoning, discriminating, linking, summary, quizzing, explanation and other (Chen & Chen, 2014). Chen & Chen (2014) further detailed how the interactive discussion scaffold was proven to facilitate high-level thinking and interactive discussion while at the same time keeping students focused on the task at hand when a CRAS - RAIDS (collaborative reading annotation system with a reading annotation and interactive discussion scaffold) was implemented.

According to Chen & Chen (2014), when reading annotations and scaffolded discussion are conducted, the level of reading annotations increases as does the discussion on said annotations among Grade 5 students. Therefore, when students were asked to adopt a collaborative approach it was shown to improve reading comprehension performance. Furthermore, the use of collaborative structures has also been shown to increase student

engagement with and discussion of a text and could be seen as the core learning outcome rather than simple comprehension of the text (Vaughn et al., 2011).

Methodology

Overview

A quantitative study was conducted to determine the efficacy of annotations using a section of a novel presented as a digital text and in paper format to a class of eighth grade students in a private school in Turkey. Different data was collected over a two-week period during the third quarter of the academic year. The whole intervention was conducted in three stages and data was collected from three Google Forms and a questionnaire which was administered post-test to determine the attitude students had towards taking annotations using a digital format as well as its effect on comprehension and engagement versus annotating directly on the text versus not annotating at all. Prior to the third stage of the intervention, a model for how to take effective annotations using a digital text on Jamboard was introduced in order to ensure students knew how to use the new method at that particular stage of the intervention. Finally, as all forms of data were digital, students who were not able to attend school due to issues related to Covid-19 were able to participate in the intervention. This chapter describes the participants in this study, the general site location, my role as the researcher, as well as the methods used to collect and analyse the data.

Research Design

A Survey Research Design, which allows the administration of surveys to a sample or to the entire population of people to describe the attitudes, opinions, behaviors, or characteristics of the population (Creswell, 2015), was used for this study. This particular design was chosen in order to measure the opinions of the sample group towards the efficacy of annotations on a

digital text which could then be expanded to describe the attitudes of the year group, in this case the eighth grade population at a private school. Furthermore, the procedures conducted allowed for quantitative, numbered data using three separate Google Forms to measure comprehension and a questionnaire to be statistically analyzed in order to describe the trends about the responses to the questions and to test the research question (Creswell, 2015, p.379).

Research Purpose and Question

The purpose of this quantitative study will be to investigate the affects of annotations using a digital text on engagement and comprehension of 8th grade students at a private school in Istanbul, Turkey. The following question was asked:

How do digital annotations relate to engagement and comprehension compared with paper annotations on a fictional text for 8th grade students at a private school in Istanbul, Turkey?

Role of the Researcher

I am a middle school English teacher and have been teaching for fifteen years. I have worked in Germany, Thailand and Turkey and have taught a range of learners from elementary level students to adults. At present I am working at Forest Private School in Istanbul, Turkey and am currently pursuing a graduate degree from the State University of New York at College at Buffalo.

I am conducting research in my 8th grade classroom. For the purpose of this study, I assumed the role of *Moderate Participant* (Spradley, 2016). Spradley described this role as moderate compared to the other levels of participation because *Moderate Participants* “...seek to maintain a balance between being an insider and an outsider, between participation and observation” (p. 60). This particular role will allow me to introduce students to the format they

will be presented with in the intervention as well as observe how students react and interact with the new format for collaborative annotations. As the sole researcher for this study, it was my role to collect, organise and assess the data from students, including the results from the questionnaires and the evidence of comprehension from the students' responses.

Bias and Plan to Combat Bias. As I am the participants' teacher, I already have knowledge as to what their opinions were towards being asked to write annotations on a text (the intervention that will be explained later). The students are familiar with writing annotations in a form called Active Reading Notes. This has been a strategy taught to them since fifth grade at my school. It requires the students to look for new vocabulary pertinent to the unit of study, note down points they feel are interesting or questions they may have and then expands into recognizing various literary signposts/devices in the upper grades, namely seventh and eighth.

One point that is commonly stated by students when undertaking this task is that the process of annotating (writing Active Reading Notes) causes them to miss key points in the text and therefore impedes their comprehension and enjoyment. With that being said, I approached my research role objectively and avoided my own assumptions and presumptions. Having studied literature at university, I am aware of how important and beneficial annotations can be. However, this concept can be difficult to impart to an 8th grade student who can not see their academic time at the university yet.

As someone who enjoys annotating in order to connect more with the text, it can be frustrating when my opinion about annotating is not shared by my students and it is even more difficult to comprehend why others may have an aversion to it. Therefore, I was mindful not to become too insistent or domineering when asking the students to work together to annotate. I set clear specifications for what needed to be noted on the text when working and modelled the

format before the intervention was conducted, I was cognizant of what challenges the students may face and I felt those could be overcome with scaffolding.

No mark was attached to the assignments used in the annotation intervention. This alleviated the burden of achieving a score which some students may have felt a pressure to attain. Finally, during the intervention I kept my interactions with the students to a minimum so as to not influence what they chose to write either. As certain elements of annotating were subjective, it was imperative that students display their own understanding and interpretation of the text in question.

Participants and Site

The participants in the study were 23 eighth-grade students from Forest Private School, a private K-12 middle school in Istanbul. Forest Private School has a 1514 student population across all 4 of its schools: kindergarten, elementary, middle school and high school. This year's eighth grade consisted of 114 students across 5 classes with an average class size of 23. Most students are bilingual or B2 level based on CEFR (Common European Framework of Reference) with regards to their English abilities. The demographic was predominantly Turkish. In the class in which the intervention was conducted all 23 students were Turkish. Forest Private School is located on the European side of Istanbul in the area of Göktürk. It was founded in 1996 and is focused on raising academic standards in Turkey.

With regards to middle school, the aim is to ensure that students discover their interests, gain awareness of their life goals and develop a strong character. This has been achieved through positive discipline, an innovative program and an active learning approach. The English program follows the Common Core Curriculum utilized in the United States and was approved by the CIS (Council of International Schools) and NEASC (New England Association of Schools and

Colleges). Each day, students obtain feedback related to their grade assessments while developing their skills during lessons. Each task and exam is assessed according to a rubric once it is explained to the students how to use it correctly. It is one of the priorities of the English department to teach self-assessment to students.

Each student has their own device, in this case an iPad, and all assignments and tasks were completed digitally. At present, students who couldn't attend school in person due to Covid or other health issues still had the opportunity to follow the lesson using a hybrid teaching model. Students who were in the class could also work with those online, with no difficulty at all, by simply joining the online classroom through Google Meet and being assigned to a breakout room by the teacher. This meant there was a combination of students working with one another in the classroom and also partners who worked using the hybrid model with one physically present in the class and the other online.

The school day is made up of 8 lessons with the first period as a block lesson of 70 minutes. Thereafter, all lessons were 40 minutes. The eighth grade English program consists of 9 lessons per week, one being a single lesson of 40 minutes and the other being double lessons of 80 or 70 minutes if they were taught in the first period of the day. The double lessons have 10 minutes of recess in the middle.

The annotation interventions designed for this study were conducted during the block and double lessons in order to provide students with an adequate amount of time.

Sampling Technique. The sampling technique chosen for this study is called Theory Sampling; it was completed before the data was collected. This particular technique was chosen as it “samples individuals or sites because they can help the researcher generate or discover a theory or specific concepts within the theory” (Creswell, 2014, p. 207). As I had already gained

a detailed understanding of the concept of annotating, this sampling technique allowed me the flexibility to collect and analyse the data simultaneously. Furthermore, it allowed me to be open to describe the attitudes, opinions, behaviours, and characteristics of the participants. As a teacher/researcher who is looking for new ways to implement the concept of annotating it was important to understand the perspectives of my students.

Data Collection

Before developing my research design, I conducted a literature review in order to become more informed on the concept of annotations and taking annotations digitally. The annotation intervention was conducted in three stages and data was collected with three Google Forms. Each form consisted of ten questions and was assigned after a reading of different sections of I Am the Cheese (Robert Cormier, 1977). Eight of the questions were literal comprehension questions and two were inference based questions. (See Appendices A and B)

A post-intervention questionnaire, again using Google Forms (see Appendix C), was given to the participants to collect results on which of the interventions was preferred and the effects of annotating on reading comprehension.

Intervention #1: Data Source #1. The text used for the first intervention was I Am the Cheese, with the focus being on pages 70 - 73. The first intervention was conducted in the block lesson in the morning as it was an uninterrupted lesson of seventy minutes. For each of the interventions, the participants were asked to read four pages from the novel with the reading itself being conducted individually and silently. They were asked not to make any kind of annotations on their texts or in any other format. After the reading had been completed, students were directed to a Google Form which had been posted on their Google Classroom page to complete and submit. No mark was given for this task so as to avoid presenting the activity as an

assignment, which they may have felt obliged to complete. Rather, the participants were requested, when finished, to try and complete the Google Form. In total, fifteen minutes was given for both the reading and submission of the Google Form.

The intervention detailed above differs from normal classroom procedures in three distinct ways. Firstly, reading would normally be done with the whole class, students would be expected to annotate while reading, the key elements from the section covered in class would be discussed and a short exit ticket would be completed at the end of a forty-minute lesson. As stated above, within the fifteen minutes allotted for the intervention, the participants were given more autonomy over their reading and the pace of their reading without the need to annotate the text. Secondly, the questions presented on the Google Form required students to know the text in more detail and two of the ten questions were inference questions which is not normally a question type explicitly focused on during class discussions. Finally, the number of students who were engaged in the reading and submitted their responses was much higher than if a normal classroom discussion had been conducted.

Of the twenty-three students in the class, twenty-one read the assigned pages and completed the Google Form. Regarding the two students who did not register responses, one was online and did not respond when called upon. The second was in class, but chose not to participate. Overall, it was noted that students' interest level in this intervention was higher than normal due to the fact that they were asked not to annotate and were directed to a Google Form to complete after reading. Many participants were curious to know what their score out of ten was and some noted that they were able to concentrate on the text because they were not required to annotate. This action, in turn, may have helped them answer more answers correctly on the Google Form.

With regards to the English level of the participants, there is one individual who is significantly weaker than the others when it comes to reading comprehension. However, the participant in question was still able to read the pages specified for this intervention and the two subsequent interventions without any issues and within the given time. Furthermore, the score achieved on the Google Form was not the lowest of those who submitted responses.

Intervention #2: Data Source #2. The second intervention was conducted one week after the first and in the same period of the day. The first lesson was chosen as it is a block lesson where the class lasted for seventy minutes and was not interrupted by any breaks.

The participants were asked to read pages 92-95 from I Am the Cheese. While they were reading, they were asked to annotate in their books and focus on four areas. Those areas were: new vocabulary, observations about the text, a connection or connections with this section of the text to the essential questions of this unit, and literary signposts such as foreshadowing etc. While students were reading, a visual reminder of the vocabulary, essential questions and literary signposts was displayed on the smartboard at the front of the class. For those students who were joining online, the screen was shared through Google Meet. The visual was used in order to provide scaffolding and to ease the cognitive load so participants did not feel overwhelmed by having to memorise and recall information while simultaneously reading, annotating and comprehending the text.

As with the first intervention, fifteen minutes was allocated for the reading, annotating and completion of the Google Form for the pages specified. Stipulations regarding the format of annotations were not given. Rather, it was left to the participants' discretion. Some were observed to be extremely diligent with using various colours, underlining vocabulary, adding symbols which corresponded with their observations and clearly stating which essential question

they were able to perceive a connection with. Others chose to use one colour throughout, in this case a pencil, and kept their annotations shorter. All participants in the second intervention annotated their own copies of the novel.

Intervention #3: Data Source #3. The third intervention was conducted two days after the second intervention and took place during a double lesson. Although there was a ten-minute break in between the two forty-minute sessions, the third intervention was implemented during the first of the two lessons.

Participants were assigned pages 118-122 from I Am the Cheese. For this intervention, the text was presented on a Jamboard and participants were asked to put their books to the side, meaning they were reading the text directly from the Jamboard itself. They were asked to use the different features of Jamboard to annotate around the pages from the novel which had been positioned in the middle of each slide. As was the case with the second intervention, the third followed a similar format in that participants were asked to highlight new vocabulary, note down their own observations, find connections from the assigned section with the essential questions of the unit and identify literary signposts. Jamboard was chosen over other digital tools as it is a format used before and easy to manipulate. Furthermore, it allowed the work assigned to be individualised and not public such as in the case of Padlet which may have caused issues with plagiarism had it been chosen. The third intervention was not designed to be collaborative, but rather to display individual understanding of the text through personal annotations.

Prior to beginning reading, an example (See Appendix D) of how annotation could be approached while using Jamboard was displayed on the smartboard and the screen was shared with those who were joining remotely via Google Meet. While some participants took annotations that were very similar to the example shown, others created annotations in a way that

they chose to be more suitable for them personally. As there was no correct or incorrect format, I did not interfere or direct them to change what they were creating. The instructions were given succinctly and students were advised how much time they had for the reading, annotating and submission of the Google Form for this section of the novel which was fifteen minutes.

There were several issues which arose during this particular intervention which did not exist in the previous two. Firstly, several participants were taking very detailed notes which then resulted in them needing longer than the allotted time for this particular intervention. Secondly, two participants either did not hear the instructions or misunderstood the instructions and were reading from the book, but had the Jamboard open at the same time. They were reminded to read only from the Jamboard itself. Finally, two participants found the Jamboard to be very frustrating to use effectively; therefore they took minimal notes which did not address the four areas outlined, read through the text and submitted the Google Form.

Intervention Comparisons

There are several aspects which were the same between the interventions. To begin with, both intervention two and three asked participants to focus on the same four areas while annotating. Those were: new vocabulary, personal observations, connections with essential questions from the unit and identification of literary signposts. Additionally, throughout all interventions the amount of pages assigned to the participants was the same. Finally, all interventions required students to read independently and silently.

The principal difference between interventions two and three was that in the second intervention participants read using their book and annotated directly onto the physical copy using a pen, pencil or highlighter. In the third intervention they were instructed to read from the screen and annotate on the screen. Therefore, the book was never physically held. As was

detailed in Intervention #3, screenshots of the selected pages were uploaded onto individual Jamboard slides and then maximised so they were easy to read. The logic behind this action being that all participants needed the digital version in order to be able to participate in the intervention. Having a pre-prepared Jamboard which was then individually assigned using the feature on Google Classroom, meant that all participants had the necessary material directly in front of them and were not required to look in several places which would have added another set of instructions on top of those already being given to follow for annotation. As all participants have their own iPads, nobody was required to share a screen and for those joining the class remotely, with the material being placed on Google Classroom, they were able to follow the intervention without any difficulty. Moreover, this allowed the intervention to reach the maximum number of participants which in this case was twenty-three.

The argument could be made that for the third intervention simply asking the participants to read from their print text and take annotations digitally would have been simpler and may even be perceived as more convenient. It would have been possible for the participants to have read the allocated section from their print copies and then taken their annotations on a Jamboard, going page by page and correlating what they were noting down on the different digital slides. However, the reasoning for not implementing the third intervention in such a way was twofold. Firstly, if there had been a switch from paper to digital continuously throughout one intervention, this may have caused an intense cognitive load which in turn may have impaired long-term memory and comprehension of the text being read. Secondly, by placing the assigned pages to be read in the same digital format as where annotations were to be made, the task was made more interactive. Since the actions required to take annotations digitally such as highlighting in various colours, drawing arrows to connect text boxes with specific lines, or even finding images which

connected with themes or vocabulary all required more time, this physical demand was important with regard to active processing and moving what was being comprehended from a short-term recall into long-term memory (Goodwin et al. 2020).

A further difference observed between intervention two and three was time management. During the second intervention, all participants were able to read their print texts, annotate and complete the Google Form within the given time frame. However, this allotted time of fifteen minutes proved to be more challenging for three of the participants in the third intervention of the study. As Liu (2005) stated, “The screen-based reading behaviour is characterised by more time spent on browsing and scanning, keyword spotting, one-time reading, non-linear reading and reading more selectively, while less time is spent on in-depth reading and concentrated reading.” This concept of screen-based reading creating a different reading technique within the role of the reader may account for the fact that some students took longer to complete the third intervention than the two prior. The details stated by Liu (2005), such as scanning and non-linear reading to name two, do not lend themselves to the task of annotating a text whereby a reader should show a critical thought process.

Of the three participants who were challenged by the time allotted, one was a slow reader and was one of the last to finish in the second intervention, but this in no way impacted her performance during either intervention two or three. Of the other two participants, one had a slight issue with concentration and the other participant may have felt challenged by the content of the text which demanded more from their existing knowledge of English. The aforementioned participants were male and were vocal about their dislike of having to annotate. Their delay in completing the intervention may partly be due to the preconceived prejudice they already harboured towards this particular task.

Data Analysis

Data was collected from the participants with a researcher-generated google form. It was exported to a spreadsheet for analysis. The survey included a Likert-type attitude inventory (Huck, 2008) to measure the participants' responses, indicated by selecting their degree of agreement: Strongly Disagree, Disagree, Neither Agree nor Disagree, Agree, and Strongly Agree, to several statements. When the data was exported, the responses appeared in word form, so they needed to be converted into numbers; this conversion enabled the responses to be scored. The following numbers represented the levels of agreement: Strongly Disagree = 1, Disagree = 2, Neither Agree nor Disagree = 3, Agree = 4, and Strongly Agree = 5; this produced ordinal data.

Descriptive Statistics were used to provide information about the central tendency and variability of the data. Histograms were generated to present frequency distribution to reveal the shape of the distribution, its central tendency, and the spread of values in the data. A histogram was chosen because they enabled me to show the degree of overlap between the groups.

A Mann-Whitney U test (sometimes called the Wilcoxon rank-sum test), a non-parametric test, was used to compare the differences between the independent samples because the sample distributions were not normally distributed and the sample sizes were small ($n = 23$). It was used to compare the medians between the two populations (independent groups- female and male) to determine whether there is a statistically significant difference between them.

Summary

In this study, a quantitative research design was utilised to study two distinct annotation strategies. Data was collected from a group of 23 students through the use of three google forms.

As the researcher, I acted as both the administrator of the tasks and instructor on how the task should be completed by introducing a framework prior to the intervention taking place. To confront my biases, I utilised a questionnaire using a rating scale and did not assign a grade to the completion of the Google Forms or digital annotation task. Data was analysed and reported with descriptive statistics. The results of my data analysis will be further explained in the following chapter.

Results

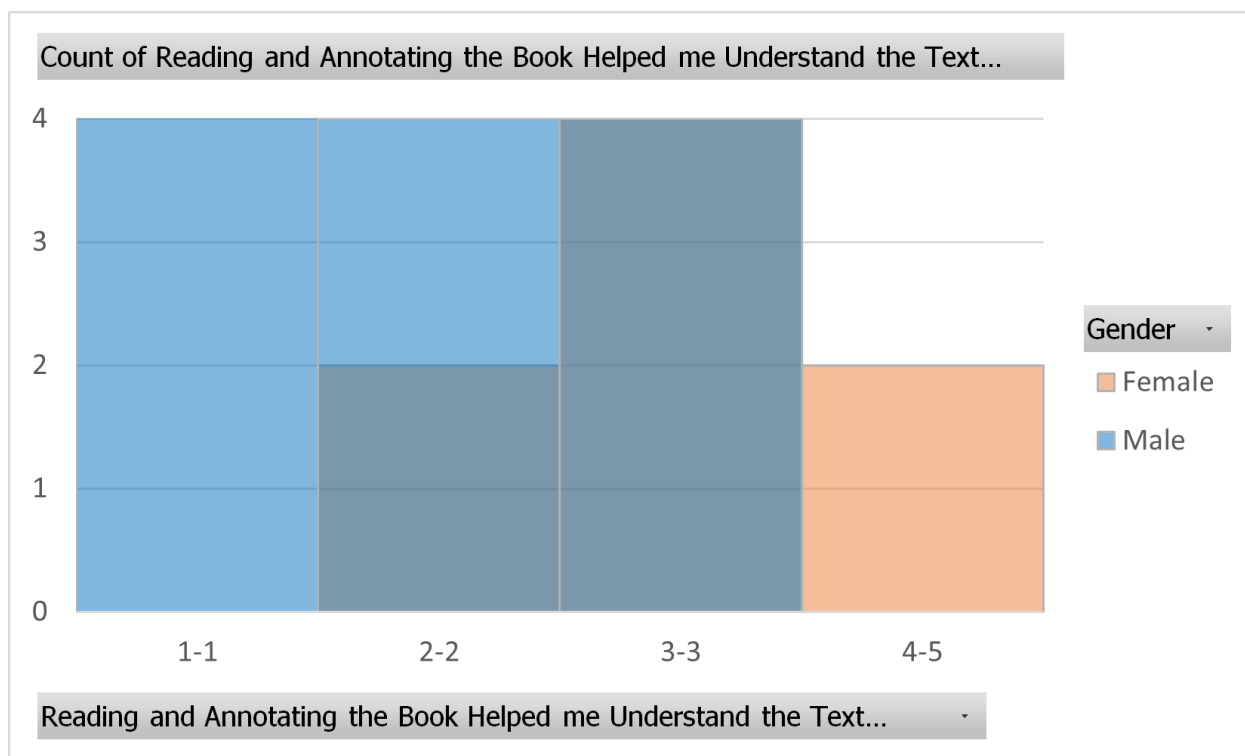
The following assertions will be discussed: (1.) More Females than Males Thought Reading and Annotating the Book Helped Them Understand the Text Better; (2.) I Annotated the Text in More Detail on Jamboard Than in the Book; and (3.) More Girls Than Boys Used Their Annotations to Answer the Questions. These assertions will be discussed.

Assertion #1: More Female Students than Male Students Thought Reading and Annotating the Book Helped Them Understand the Text Better

Figure 1 displays an overlapping histogram of the responses to the statement: *Reading and Annotating the Book Helped me Understand the Text Better*. This data was collected during the second stage of the intervention. In this intervention, the students wrote annotations on their copy of I am the Cheese. Likert Scale indicators ranged from Strongly Disagree (1) to Strongly Agree (4). No neutral option was added so as to avoid participants submitting misleading or inconsequential results.

Figure 1

Reading and Annotating the Book Helped me Understand the Text Better



The results of a Mann-Whitney U Test resulted in a U-value of 22 and the critical value $p < .05$ was 28. Therefore, the result was significant at $p < .05$ with the z-score being -2.40401 and the p-value .0164. It can be concluded that there is statistically significant evidence that the two sample groups were different. The female students believed reading and annotating helped them understand the text more comprehensively than the males students.

In order to fully comprehend the results presented above and the motivations of the male participants, it must be noted that the boys in the class have been vocal about how much of a burden they perceive the task of annotating to be. This is not an opinion which has been formed in eighth grade, but rather an ongoing reticence which began in fifth grade when the concept of annotating was introduced to students. Moreover, in previous grades, students were awarded marks for the annotations they made on the novels being read during that academic year. The

marks awarded may have been low and further fossilised the notion that annotating is a cumbersome task which yields little reward rather than a key element of engaging with the text.

The female participants were much more positive towards the concept of annotating and agreed that it does in fact help them to understand the text better. While it may not be a preferred task, they were not as resistant as the male participants. In fact, some female participants enjoyed the task of annotating directly in their books with notes which were personal to them. This personalisation and ownership of the task was an element lacking in the male participants of the intervention.

With regards to the concept of reading in general, according to the results of the study conducted by McKenna et al., 2012, it was shown that females had a slightly more positive attitude towards reading academic print than males. It was observed that there was a slight worsening of attitude towards reading as a whole over time with those in eighth grade having a worse attitude than in sixth and seventh grade (McKenna et al., 2012). The study further claimed that this worsening in attitude could be a form of plateau which occurs as students get older. The point aforementioned could be considered in light of this study as it may not just be annotating which the male participants disagreed with, but the task of reading itself.

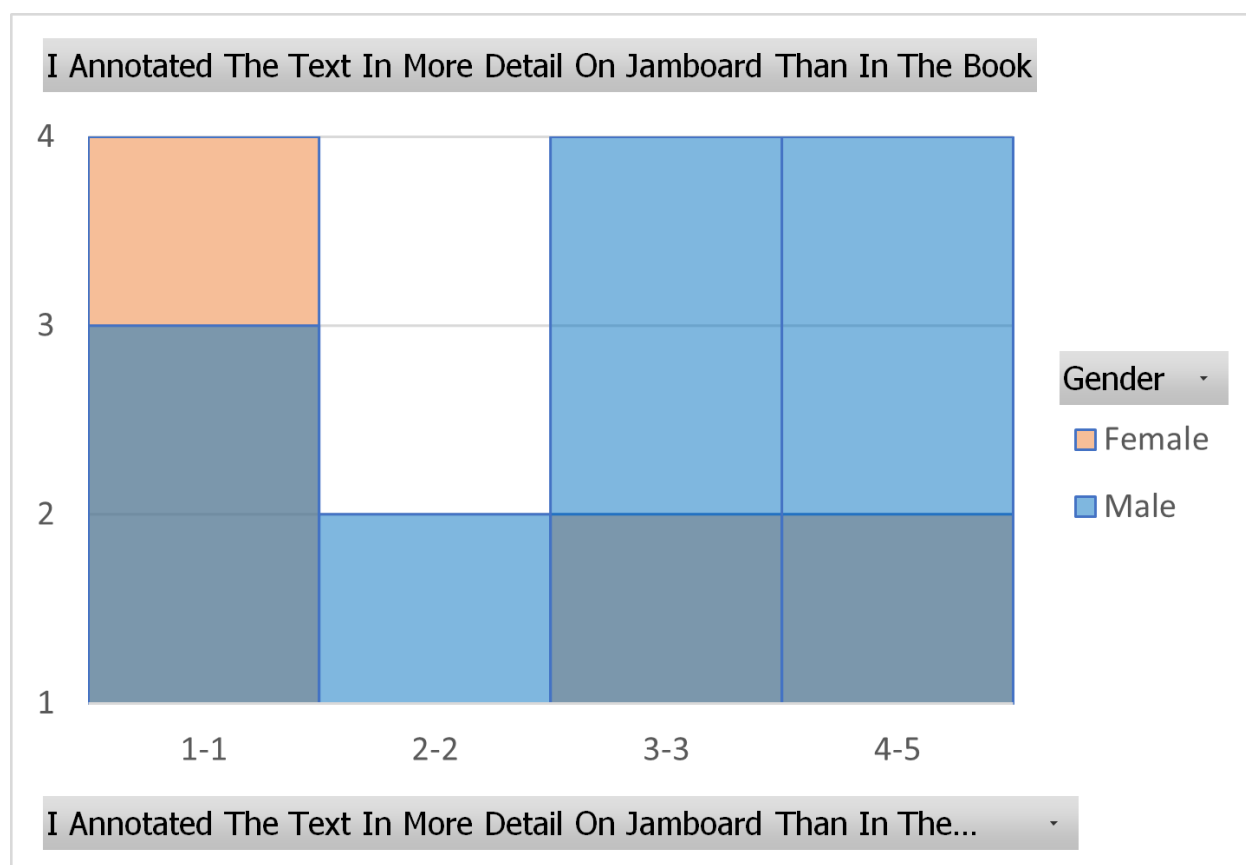
Assertion #2: I Annotated the Text in More Detail on Jamboard Than in the Book

Figure 2

I Annotated the Text in More Detail on Jamboard Than in the Book

Figure 2 displays an overlapping histogram displaying the results of the responses to the statement: *I Annotated the Text in More Detail on Jamboard Than in the Book* and refers to the data collected during the third stage of the intervention. The graph shows the combined responses of both male and female participants. During this intervention stage, students

annotated a Jamboard that presented the text of the book I am the Cheese embedded in the Jamboard.



The results of a Mann-Whitney U Test resulted in a U-value of 46 with the critical value of U at $p < .05$ equal to 28 with a z-score of 0.80134 and the p-value is .42372. The result was not statistically significant at $p < .05$.

The lack of significant evidence could be attributed to reading behaviours in students. As the task of annotating digitally was new to students, how much and to what extent the annotation should have been made digitally may need more familiarisation. However, it is necessary to point out that detailed annotations do not always equate to good annotations. In fact the idea of quality over quantity was a lense used by Goodwin et al. (2020) in their study on Digital Versus Paper Reading Processes. As was noted by Goodwin et al., “ we found that readers used fewer

digital annotations and highlights, but that they were more strategic” (p. 1857). Furthermore, Liu (2005) noted that in-depth reading usually involves the use of annotating and highlighting, but we should consider that just because adolescents are seen as digital natives, it does not mean that their reading behaviours can be transferred directly into a digital environment (Goodwin et al. 2020). In fact, with an entire generation now having grown up surrounded by new technology, they are likely to have different expectations and behaviour towards text presented digitally (Liu 2005).

In terms of the digital annotations themselves, while both groups showed no conclusive results for either strongly disagreeing or agreeing, it may be useful to highlight the idea of “screen real estate” (Wolfe 2008). In the case of this study’s intervention, Jamboard was chosen for its assumed ease of use, familiarity and opportunity to engage students with highlighting features and sticky notes. However, although this particular interface with the features mentioned above is usually for documents which are going to be revised or are in other words are “in progress,” it is not necessarily a useful layout to read and discuss a primary text as it may interrupt the flow of the text being read and cause confusion (Wolfe 2008); in the case of this study the text was the excerpt from the novel which was not a text “in progress.”

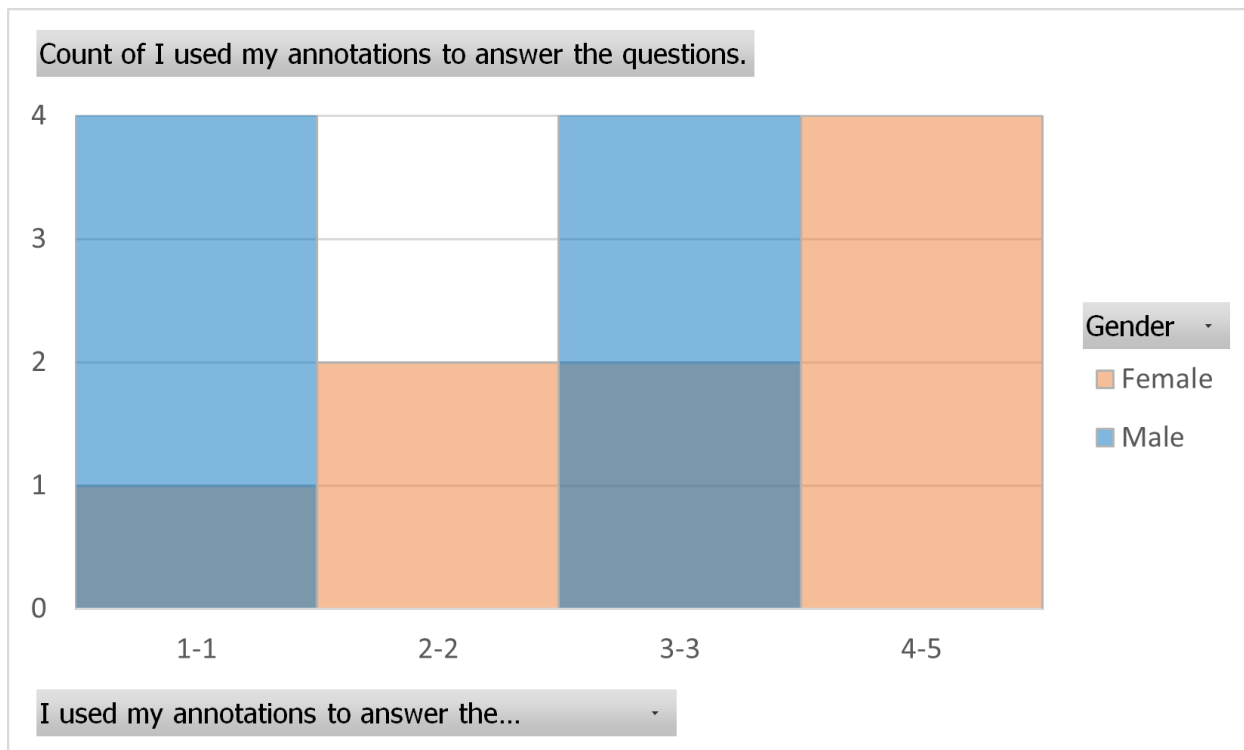
Therefore, the amount of annotation taken by the participants or the lack thereof, could be attributed to their own perceptions of how much screen space they had and what could be achieved with the available space around the primary text. What some may have perceived as a crowded screen full of notes, may be entirely the opposite for an objective observer.

Assertion #3: More Girls Than Boys Used Their Annotations to Answer the Questions

Figure 3 displays an overlapping histogram that displays the responses to the statement: *I Used my Annotations to Answer the Questions* and also refers to the data collected during the second and third stage of the intervention.

Figure 3

I Used my Annotations to Answer the Questions



The results of a Mann-Whitney U Test resulted in a U-value of 27.5 and with the critical value of U at $p < .05$ equal to 28. and with a z-score equal to -2.03673 and p-value equal to .04136. Therefore, the result is significant at $p < .05$. There is statistically significant evidence between the two samples when they used their annotations to answer questions following the reading.

The responses gathered from the female participants show more agreement when it came to using their annotations to answer the questions. While it was shown that the girls favoured annotating in print rather than digitally using the Jamboard, both formats were used to some

extent to help them with the comprehension task. The girls in general tended to display a more positive attitude towards reading as a whole as well as seeing the benefit of annotating. As Petscher (2010) noted, as boys and girls get older a gap appears between their attitudes towards reading, with girls maintaining a more positive attitude regardless of grade level or socioeconomic status.

The male participants showed a more polarising attitude towards using their annotations to answer the comprehension questions. This reluctance to see the use of annotating was evident at different stages of the intervention and in particular during the second intervention when students were asked to annotate their print text. Male students tend to show more of a questioning attitude towards the concept of reading when it is presented along with a task. To elaborate, Tatum (2005) states that they look for a reason to comprehend the text to offset the questions such as “Why do we have to read this?” and “What does this have to do with me?” (p.1210).

Overall, the boys appeared to enjoy the reading when it was simply reading, without the need to interact with it on a critical or personal level. Evidently there is a gender relationship gap shown in the results, however what was interesting to note was that the mean scores of the comprehension forms did not show an overwhelming series of negative results for the male participants. Therefore, to say that there is a negative interaction between gender-attitude-achievement would be misleading.

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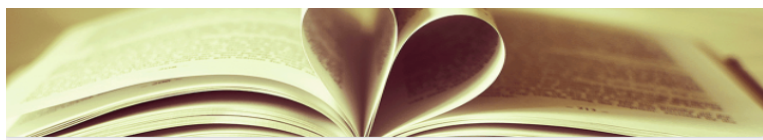
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Appendix A

First Intervention Google Form



I Am the Cheese

After reading the pages 70-73 WITHOUT annotating (Active Reading Notes), answer the questions.

clare.low@hisarschool.k12.tr [Switch account](#)

Draft restored

Your email will be recorded when you submit this form

* Required

1. What was kept in the bottom drawer of Adam's father's desk? * 1 point

- All the certificates Adam had ever been given
- Certain important certificates
- Documents related to his father's job

2. When did Adam take the keys? * 1 point

- When his dad was upstairs with his mum.
- When his dad was down in the den.
- When his dad was mowing the lawn.

3. When did Adam first need to show his birth certificate? * 1 point

- To open a bank account on his 10th birthday
- To show he was old enough to join the Boy Scouts.
- To show the Town Clerk in Rawlings.

4. According to the documents Adam found in the drawer, when is his birthday? * 1 point

- February 14
- July 14
- February 14 and July 14

5. True or False? Adam was given the middle name David because it was his father's name. * 1 point

- True
- False

6. What was the first thing did Adam before he opened the second envelope? *

- He held it up to the light.
- He looked to see what was written on the envelope.
- He compared the other white envelopes in the desk with the one he was holding.

7. What did Adam put in his pocket when he heard the mower stop? *

- The keys
- Both birth certificates
- The torn envelope

8. Where was Adam when his father came back into the house? *

- In the den
- Near the front door
- In the cellar

9. Why did Adam begin trembling and why couldn't he close the envelope again? *

- He was scared that his father would catch him in the den.
- The shock of finding a second birth certificate provoked a physical reaction.
- He was extremely excited about what he had found.

10. On page 71 we learn about Adam's mother. What could be causing her to 'increasingly' spend more time in her room. *

- She wants to distance herself from her family and their situation. She may even be depressed.
- She is upset that her husband works so much.
- She liked the upstairs area of the house more.

Appendix B

Second Intervention Google Form



I Am the Cheese (2)

After reading pages 92-95 while ANNOTATING (taking Active Reading Notes), answers the questions below.

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Your email will be recorded when you submit this form

* Required

1. What word does Adam use to describe himself when he wakes up? * 1 point

- Unknown
- Isolated
- Cold

2. What question does Adam repeatedly ask himself in this section? * 1 point

- What life - whose life?
- Who is Adam Farmer?
- Who am I?

3. What is Adam experiencing when he wakes up? * 1 point

- A cold room
- A panic attack
- Irritation that he can't remember

4. True or false: Adam hears himself moaning but doesn't recognise the sound at first. * 1 point

- True
- False

5. What does Brint say when Adam asks him, "Why can't I remember? Why can I remember just so much, a little at a time?" * 1 point

- Do you suppose it's because you really don't want to remember?
- We have filled in many blank. Or don't you remember?
- Who knows?

6. What does Brint think is a good sign? * 1 point

- That Adam is bored of taking medication.
- That Adam is questioning his memory.
- That Adam is no longer panicking.

7. Which questions does Adam NOT ask Brint? * 1 point

- What am I doing here?
- How long have I been here?
- Who is Adam Farmer?

8. What does Adam not want to talk about? * 1 point

- The blanks in his memory that have been filled.
- The blanks in his memory that have not been filled.

9. What conflict is Adam experiencing in this section? * 1 point

- Hate towards the other people who are around him.
- Anger towards Brint.
- An identity crisis.

10. Why does Brint appear to act kindly towards Adam at the end of page 95? * 1 point

- He wants him to rest so that he may be able to remember more later in the day.
- He understands that he has had a panic attack.
- He is curious why Adam feels so isolated from the others.

Appendix C

Third Intervention Google Form



I Am the Cheese (3)

After reading pages 118-122 and annotating (Active Reading Notes) on the Jamboard, answer the questions below.

This form is automatically collecting emails for Hisar School users. [Change settings](#)

1. Which narrative is presented on p. 118-122? *

- First
- Second
- Third

2. What problem does A experience on p. 118? *

- He doesn't like needles.
- He is confused.
- He is in pain because of the needles used on him.

3. How does T respond when A says, 'I don't understand anything, really. Why I'm here. How I got here.' *

- That's what we are attempting to learn.
- It's possible you went into retreat because you were getting close to remembering.
- Who was this gray man?

4. How does T describe the gray man? *

- As a door
- As a key
- As fear of something

5. When would the gray man visit A's family? *

- Once a year
- During the week
- At the weekend

6. True or false: The gray man would meet with both of A's parents. *

- True
- False

7. What information is NOT given about the gray man? *

- His surname
- His job title
- His age

8. What did A's father work on with the gray man during their meetings? *

- Reading confidential reports.
- Writing confidential reports.
- It was never explained.

9. Why did A feel he couldn't look his parents in the face on p. 122? *

- He was angry with them about the lies they had told.
- He felt embarrassed about spying on and doubting his parents.
- He was suspicious of them.

10. At the end of the interview on p. 122 and from what A said, what is he likely to do next? *

- Spy on his parents.
- Confront his parents.
- Pretend that nothing strange is going on.

Appendix D

Digital Annotation Example

Third Narrative: Adam is recalling a key memory.

Why the need to spy? Why not a direct conversation with his parents? Fear, disappointment, confusion.



He doubts his parents. He doubts what is happening in his own home.



ABILITY TO LIE: He can lie easily. Seen before when on the phone with Amy - story of where he is from.

But he did do something. He became a spy, a secret agent in his own home, listening at doorways, eavesdropping on telephone conversations, watchful and wary and suspicious.

“What’s the matter—don’t you feel well?” his mother asked. She was always solicitous about him, concerned and worried, emerging from her sad cocoon to fuss over him.

“I’m all right, Mom,” he answered.

But he would study his mother, even though she was so sweet and innocent that he felt guilty for his

There’s something about the home environment that has changed - was it just the discovery of the birth certificate? Does this go back further for Adam?

EQ 3 SUSPICIOUS OF AUTHORITY: Kind of unfair to study his mother especially since something is not right with her. Can Adam recognise this? Should we doubt our parents?