Using Online Video Scribed Animation to Teach Writing Self-regulation

by

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ABSTRACT

USING ONLINE VIDEO SCRIBED ANIMATION TO TEACH WRITING SELF-REGULATION

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In a world that is increasingly digital, the ability to communicate clearly in writing is of utmost importance. An important part of writing in both professional and academic settings is self-regulation. In academics, the use of video as a teaching tool in online environments is becoming more popular.

This thesis investigated whether or not video scribed animation could be used to teach writing self-regulation strategies in an online course. Student perceptions of video scribed animation and its use in education were also examined. Students completed self-report measures of their grade goals, self-efficacy for grade achievement, and self-regulation strategy use on blogging assignments.

Results showed that there were statistically significant increases in students’ environmental self-regulation and goal setting. For example, students worked in quieter environments and set more concrete, challenging goals after watching the video scribed animation that modeled self-regulation strategies. Students found the video both entertaining and educational, and indicated that it caught and sustained their attention. Treatment group students that opted not to watch the video scribed animation were more likely to have achieved their grade goals on the previous assignment than the students that watched the video.
ACKNOWLEDGEMENTS

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Chapter 1  Introduction
Statistics Canada defines e-learning as “the application of computer technologies to education.” [1]. Online learning is a subset of e-learning in which at least 80% of a course is offered online [2]. Online learning has many benefits: it enables students to control the location, timing, and pace of their studies, and supports the re-use of high-quality learning resources [1].

According to the Sloan Consortium reports on online education in the United States, enrollment in online courses has grown at rates far in excess of the growth of the total higher education population for the last eight years [2]. In the United States, over 5.6 million students were taking at least one online course in the fall of 2009, which represented an increase of nearly a million students over the previous year. Although at some point the enrollment in online learning will eventually reach a saturation point, the report indicates that the growth of online learning is far from finished.

The importance of online learning is being recognized now more than ever by academic executive officers [2]. In 2010, 63% of reporting institutions reported that online learning is a critical part of their long-term strategy. This represents an increase over previous years, especially in for-profit institutions: there was a 10% increase between 2009 and 2010 (51% to 61%). After remaining constant for a number of years, this increase indicates that more higher-education institutions are realizing the importance of online learning to their long-term success.

More and more degree-granting institutions are offering lectures and courses free to the public online. For example, MIT has their Open Courseware initiative which provides audio and video recordings of hundreds of their courses after they are taught. Though people that take these courses cannot receive certification, the material is available at no cost to the public. Other
websites, such as Academic Earth offer a place where free lectures from a number of universities and colleges are available in a central location for one-stop educational shopping [3].

In addition to traditional degree-granting institutional offerings, there are many non-degree-granting educational institutions offering online education that aren’t included in the demographics of online learning. For example, the Khan Academy uses short video-lectures to provide free-of-cost education on a wide range of subjects [4]. They have created over 2,400 videos that are used in conjunction with a knowledge map that guides learners as they progress through subjects. Another company, RSA provides a series of animated video lectures that teach people about various subjects [5]. Though their videos are not academic, they have received acclaim for their “video scribed animation” style and have proven immensely popular.

With an increasing amount of communication being done online, developing ideas and clearly expressing them in writing is essential to academic and professional success. Yet, Canada is “slipping down the international learning curve” according to a report by the Canadian Council on Learning [6]. The report goes on to say that 42% of Canadian adults are below the international standard in literacy required to be productive in today’s economy and society. The council estimates that the trend is continuing and an additional 3 million Canadians will be below that level in another 20 years.

Regardless of the instructional medium, learning theorists and social scientists have been examining factors that affect learning for many decades. One factor that affects learning outcomes is self-efficacy, or a student’s beliefs about his/her capability to perform a particular task at a designated level [7]. Self-efficacy (SE) mediates between skills and performance by influencing effort, persistence, and perseverance [8]. In writing, self-efficacy has been shown to
directly affect achievement, and to indirectly affect it by raising students’ grade goals [9]. In the writing literature, research has examined relationships between self-efficacy and a number of constructs such as causal attributions, epistemology, writing beliefs, writing enjoyment, and self-regulation (SR) [10]. Self-regulation is particularly important: research shows that when students are taught self-regulation strategies to improve their writing, their writing confidence and competence increase [11].

1.1 Research problem

There has been a dramatic increase in online learning enrollment and also in the use of video instruction, but there has been little research exploring how students perceive video instruction in online environments. Also, the popularity of video scribed animations is increasing, but there has been no formal research examining video scribed animation as a teaching tool. Furthermore, there has been no research to date on whether or not self-regulation strategies can be taught using video, even though teaching self-regulation strategies has been shown to increase students’ confidence and competence. The goal of this thesis is three-fold: first, I will examine student perceptions of video scribed animations as teaching tools; next, I will examine whether or not students are able to learn self-regulation strategies from a video scribed animation; and finally, I will examine the relationship between self-regulation in writing and self-efficacy.

1.2 Document summary

This remainder of the document is divided into four sections. Chapter 2 reviews the literature on self-efficacy, self-regulation, and learning using video, and develops the research questions. Chapter 3 describes the methodology used in the experiment to answer the research questions. Chapter 4 provides both quantitative and qualitative analysis of the results of the experiment, and
discussion of what the analysis reveals. Chapter 5 contains the conclusions and recommendations for future work.
Chapter 2  Literature Review

This chapter reviews the literature related to this thesis. It contains three sections:

- 2.1 Self-efficacy
- 2.2 Self-regulation
- 2.3 Using Video in Teaching and Learning

Section 2.1 provides an overview of self-efficacy. Self-efficacy is a key concept in social cognitive theory and has been shown to mediate between skills and performance. The formation of self-efficacy is explained, and relationships between self-efficacy and writing outcomes, and self-efficacy and self-regulated learning are examined. Various methods of assessing self-efficacy in writing are discussed.

Section 2.2 provides an overview of the social cognitive view of self-regulation. Correlations between self-regulation and writing outcomes are examined, followed by a discussion of the development of self-regulation. The section concludes with a review of the methods used to measure self-regulation.

The final section in the literature review, section 2.3 Using video in teaching and learning, examines two contemporary methods of teaching through video. The first is the Khan Academy, founded by Salman Khan. With a library of over 2600 videos, they provide free access to a range of subjects from math to finance to history. It was one of the winners of Google’s 10^100 contest which was to find the ideas that would change the world by helping as many people as possible. The second part of the teaching and learning section is about video scribed animation.
Video scribing is the art of combining an oral presentation with hand-drawn illustrations to tell a visually-appealing, engaging story.

2.1 Self-efficacy

Self-efficacy is a key component of social cognitive theory, and is related to self-regulation. The following section will provide an overview of self-efficacy, why it’s important, how it’s formed, and how it’s measured.

2.1.1 Overview

Self-efficacy is defined as “people’s judgments of their capabilities to organize and execute courses of action required to attain designated types of performances.” [7] Self-efficacy is a key component of Bandura’s social cognitive theory, which emphasizes humans’ ability to be proactive and self-regulated. Since being introduced in Bandura’s seminal paper [12], research has clarified the role of self-efficacy as an underlying mechanism in behavioral change, maintenance, and generalization [13]. Bandura wrote that “self-efficacy beliefs determine how people feel, think, motivate themselves and behave.” [14] Table 2.1 describes how people with high and low self-efficacy differ in their approaches to various situations.
<table>
<thead>
<tr>
<th>Situation</th>
<th>High self-efficacy</th>
<th>Low self-efficacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approaching difficult tasks</td>
<td>View them as challenges to be mastered.</td>
<td>View them as personal threats and shy away from them.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dwell on personal deficiencies, obstacles that will be encountered, and adverse outcomes.</td>
</tr>
<tr>
<td>Facing failure / difficulties</td>
<td>Efforts are heightened and sustained.</td>
<td>Efforts are slackened and given up quickly.</td>
</tr>
<tr>
<td>After setbacks / failure</td>
<td>Quickly recover their sense of efficacy. Failure attributed to insufficient effort, or deficient knowledge and skills that can be acquired.</td>
<td>Slowly recover their sense of efficacy. Failure often attributed to personal deficiencies in aptitude.</td>
</tr>
<tr>
<td>Goal setting</td>
<td>Set challenging goals and maintain commitment to them.</td>
<td>Low aspirations and weak commitment to goals they pursue.</td>
</tr>
</tbody>
</table>

Table 2.1: Comparison between students with high and low self-efficacy, based on Bandura [14]

It’s clearly advantageous to develop a high sense of self-efficacy. Self-efficacy has been shown to be predictive of many things, including academic success [8]. Self-efficacy beliefs have also been shown to influence various writing outcomes in school [11]. In order to understand how a strong sense of self-efficacy can be established, we must examine the sources of people’s self-efficacy perceptions.

### 2.1.2 Sources of self-efficacy

There are four main sources affecting self-efficacy beliefs: mastery experiences, vicarious experiences of social models, social persuasion, and physiological indexes [14].

The primary and most influential source of self-efficacy beliefs are mastery experiences. Success builds up a strong sense of self-efficacy, while failure undermines it. Failure is especially detrimental to self-efficacy if it occurs before a robust sense of efficacy is established. The ease with which success is achieved also plays an important role in the development of self-
efficacy. If successes come easily, quickly, and without much effort or many setbacks, failure can easily reduce one’s sense of efficacy. On the other hand, if obstacles are encountered and overcome through persistent effort and hard work, one’s sense of self-efficacy will be resilient. Though failures are often difficult to endure, they can serve to strengthen the understanding that successes are often built upon sustained effort. After a person develops a sense of “can”, they often “will”. This attitude often leads to quickly overcoming setbacks and perseverance through tough times.

Vicarious experiences provided by social models are another source of self-efficacy. Watching a person who is perceived to be similar to the observer persevere and succeed in a given task increases the observer’s belief that they too can succeed in that task. Similarly, watching somebody who is perceived to be similar fail in a given task despite a sustained effort decreases the observer’s belief that they can succeed in that task. The effect of observing models succeed or fail varies depending on the observer’s perceived similarity to the model. If the observer perceives a model as highly similar, the impact of the vicarious experience is stronger than if the observer views the model as highly dissimilar. In addition to providing a social standard that an observer evaluates themselves against, social models also display skills and strategies that observers can learn from. Increasing one’s skill also positively affects self-efficacy.

Another way of strengthening self-efficacy is through social persuasion. People who are told that they can succeed in a given activity are likely to expend the necessary effort required to achieve success. They are also more likely to sustain that effort when facing adversity than people who harbor self-doubt. Persuading people that they have the capability to master a given task promotes sustained effort, which in turn leads to the development of skills and a greater sense of efficacy. This sense of efficacy can be undermined quickly though, if the sense of self-
efficacy is buoyed by social persuasion and not backed by mastery experiences. If a person’s efficacy is unrealistically boosted by verbal persuasion, it can quickly be reduced by disappointing results. On the other hand, people who have been persuaded that they cannot succeed in a given activity are more likely to avoid challenging activities and give up quickly when facing difficulties. This not only limits their opportunities for success, but also leads to validation of a low sense of self-efficacy through lack of expended effort.

The last source of self-efficacy is the interpretation of various emotional and physiological states. People interpret tension and stress as signs of being susceptible to poor performance. Mood also affects perceptions of efficacy: a good mood enhances it, and a bad mood reduces it. People with a high sense of self-efficacy use affective arousal to facilitate performance, whereas it is debilitating for people with low self-efficacy.

It is important to keep these sources of self-efficacy in mind when teaching self-regulation. Mastery experiences are the most influential source of self-efficacy [15], and teachers should do what they can to help students have mastery experiences. It was hypothesized that increasing students use of self-regulation skills would lead to mastery experiences. Research has shown that teaching self-regulation strategies increases both writing skills and writing self-efficacy [11].

Next we will examine the literature on self-efficacy and writing.

2.1.3 Self-efficacy and writing

Research has consistently found that self-efficacy beliefs and writing achievement are related [11]. Writing achievement is typically assessed by examining essay scores provided by professors. As proposed in social cognitive theory, results have shown that self-efficacy plays a mediating role between skills and performance [11]. Using regression and path analysis,
Zimmerman and Bandura showed that self-efficacy made an independent contribution to the prediction of writing outcomes.

### 2.1.4 Self-efficacy and self-regulation

Students’ confidence in their ability to use self-regulated learning strategies (i.e., their self-efficacy for self-regulation) correlates with writing competence [9]. Researchers theorize that the use of self-regulatory strategies is linked to a writers’ self-efficacy in two ways: first, when novice writers learn to be more self-regulated, their self-efficacy for writing will increase; secondly, self-efficacy beliefs will be predictive of self-regulatory strategy use and achievement [16]. This hypothesis has been supported by research in self-efficacy and self-regulation.

Research has found correlations between self-efficacy and self-regulated strategy use. Zimmerman & Kitsantas [17] found that higher levels of writing self-efficacy are positively correlated with higher levels of strategy use and attribution to strategies. Schunk demonstrated how social models, goal setting, and self-evaluation (all related to self-regulation processes) affect self-efficacy [18]. Pintrich and De Groot found that global academic self-efficacy was correlated with cognitive strategy use and self-regulation [19]. Furthermore, research has demonstrated that teaching self-regulated strategies increases both writing skills and self-efficacy [11]. Given these findings, it’s unsurprising that teaching self-regulation strategies is a recurring theme in research [10].

This discussion leads us to the first research question (RQ):

**RQ1: Will teaching students writing self-regulation skills increase their self-efficacy for grade achievement?**
In order to examine relationships between self-regulation and self-efficacy, we need a way to measure self-efficacy. The following section details measures used to assess self-efficacy for writing.

2.1.5 Assessing self-efficacy in writing

Self-efficacy is one’s belief in his/her own ability to perform a task at a designated level. One’s perceived self-efficacy is therefore dependent on two things: the task to be performed, and the level that it is to be performed at. A person may have a certain level of confidence to perform task A, but much lower confidence in their ability to perform task B: their sense of efficacy is not the same across all domains. For example, in an academic setting a student may have a high sense of mathematical efficacy but low writing efficacy. Moreover, within a given domain a student may have high efficacy for one task, but not for another. This is the case when a student has a high sense of efficacy for creative writing but a low sense of efficacy for essay writing. Furthermore, a student may have high self-efficacy to achieve a certain outcome in task A, but a much lower sense of self-efficacy to achieve a different outcome in that same task. For example, in creative writing a student may have high confidence in their ability to achieve a grade of C, but a low sense of confidence to achieve an A. When measuring self-efficacy, it’s important to capture the strength of a person’s self-efficacy for a given task at a given level [20].

In the literature, there are three primary methods of assessing self-efficacy for writing: measuring self-efficacy for writing skills, measuring self-efficacy for writing tasks, and measuring self-efficacy for grade achievement in writing assignment.
Self-efficacy for Writing Skills

The most widely used approach to measuring students’ self-efficacy for writing is to have students complete self-assessments of their ability to perform a number of writing skills from basic grammar skills to more advanced composition skills. A review of the literature has revealed four scales that have been used to measure students’ self-efficacy for writing skills (see Table 2.2).

<table>
<thead>
<tr>
<th>Self-Efficacy Scale</th>
<th>Author(s)</th>
<th>Used by</th>
<th>Measures</th>
</tr>
</thead>
</table>

Table 2.2: Self-Efficacy for Writing Skills and Tasks Scales

Meier, McCarthy, and Schmeck created the 19-item Self-Assessment of Writing Measure based on course objectives of remedial and required freshmen writing courses [21]. It is ordered from least to most difficult, determined by consensus of subjects in a pilot study, a composition expert,
and the experimenters. Students answer each question “yes” or “no”, and then rate their confidence in their ability to perform the skill on a scale from 0 (complete uncertainty) to 100 (total certainty). They reported a test-retest reliability for a 1-week period was $r = .84$ for the efficacy magnitude (“yes” or “no”) and $r = .85$ for the efficacy strength (0-100 confidence rating).

Shell, Murphy, and Bruning created a survey that assesses students’ self-efficacy for both writing skills and writing tasks based on the methods outlined by Bandura [23]. The subscale that assesses writing skills, the “Writing Skills Self-Efficacy Scale”, is an 8-item scale that students complete by indicating their confidence in being able to perform each of the skills on a scale from 0 (no chance) to 100 (complete certainty). Shell et al. reported a Cronbach’s alpha score of .95 for the skills scale, indicating a high degree of internal consistency. The experimenters found correlations between items and subscale scores were all positive and exceeded .40 for all items, indicating that the items discriminated well among subjects and it was satisfactory to retain them all for analysis.

Based on discussion with language arts teachers concerning Shell’s self-efficacy for writing skills subscale, Pajares and Valiente created the 10-item Writing Self-Efficacy Scale (WSES) [28]. In this scale, students rate items from 0 (no confidence) to 100 (completely certain) indicating their confidence in their capability to perform the item’s skill. The WSES has been administered to students from elementary school through high school. The scale can be used by students of various ages and grade levels due to the fact that when assessing grammar and composition skills, items are worded such that they are equally appropriate to all students. For example, an item asking a student to assess their capability to “write simple sentences with good grammar” is appropriate for students regardless of their grade level. In-depth analysis of this scale has shown
that it measures two factors (basic grammar skills, and composition skills) and functions equally well for all grade levels from elementary to high school [29].

**Self-efficacy for Writing Tasks**

The second method of assessing students’ self-efficacy is to have students’ complete self-assessments of their capability to perform a number of writing tasks of varying difficulties [23] [24]. The tasks range from writing letters to friends to writing short stories to writing essays. The second half of Shell et al.’s survey assesses students’ self-efficacy for writing tasks [23]. Specifically, the *Writing Tasks Self-Efficacy Scale*, is a 16-item scale that students complete by indicating their confidence in being able to perform each of the tasks on a scale from 0 (no chance) to 100 (complete certainty). Shell et al. reported a Cronbach’s alpha score of .92 for the writing tasks scale, indicating a high degree of internal consistency. Pajares & Johnson (1994) slightly modified the writing tasks subscale to include four additional questions. See Table 2.2: Self-Efficacy for Writing Skills and Tasks Scales for additional information about the scale used to assess self-efficacy for writing tasks.

**Self-efficacy for Achieving Grades**

The third method of assessing self-efficacy in writing is to have students’ complete assessments of their capability to achieve a certain grade level in a particular writing assignment or course (see Table 2.3: Self-efficacy for grade achievement). Students indicate their confidence in their ability to achieve various grade levels (e.g. A, B, C, etc.) in a particular context (e.g. in a language arts class, or a particular assignment).
<table>
<thead>
<tr>
<th>Measure</th>
<th>Used by</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-efficacy for grade achievement</td>
<td>Usher and Pajares [32]</td>
<td>Students self-assess their capability to earn a particular grade along a</td>
</tr>
<tr>
<td></td>
<td>Pajares, Britner, and Valiante [33]</td>
<td>continuum of grades. Judgments typically range from “no confidence” to</td>
</tr>
<tr>
<td></td>
<td>Zimmerman, Bandura, and Martinez-Pons [34]</td>
<td>“complete confidence”. For each grade, students’ indicate how confident</td>
</tr>
<tr>
<td></td>
<td>Zimmerman &amp; Bandura [9]</td>
<td>they are that they can achieve that grade in the given context.</td>
</tr>
</tbody>
</table>

Table 2.3: Self-efficacy for grade achievement

2.2 Self-regulation

It has been suggested that one of the most important human qualities is the capability to self-regulate [36]. Our ability to self-regulate has allowed us to adapt, learn, and progress in the face of difficulty and changing conditions through the human timeline. This ability lies at the core of our sense of self, so it is important to understand the components of self-regulation as well as how it develops and functions.

Self-regulation refers to the “self-generated thoughts, feelings, and actions that are planned and cyclically adapted to the attainment of personal goals.” [36] This definition stresses three key aspects of self-regulation:

- *Self*-generated thoughts, feelings, and actions
- *Planning* of actions
- *Cyclical* adaption to attain goals

Although the exact definition of self-regulation varies between researchers depending on their theoretical orientations, these key aspects are common themes of self-regulation research.
generation is an important characteristic of self-regulated learning. In order to be self-regulated, a person must take responsibility for their own learning, which includes their generated thoughts, and feelings, as well actions taken during the learning process. If a student is dependent on others for their motivation and behavior, they are not self-regulating their learning process. The second important aspect of self-regulation is planning, which refers to the use of strategies that help a student acquire knowledge. In order to self-select and make use of strategies to improve their learning process, students must be aware of their learning and also have an arsenal of strategies they can use. The third part of the definition is cyclical adaption of thoughts, feelings, and actions to attain goals. This adaption is at the heart of self-regulated behavior. If a person has defined goals, and is aware of their thoughts, feelings, and actions but fails to refine and adapt them to achieve their goals, then they are missing the point of being self-regulated.

Extending this definition, self-regulated learners are characterized as being metacognitively, motivationally, and behaviorally active participants in their learning [37].

Metacognition, defined as “the awareness of and knowledge about one’s own thinking” [38], plays an important role in self-regulation. Metacognitively, self-regulated learners plan, set goals, organize, self-monitor, and self-evaluate during the learning process. This increases the self-awareness of self-regulated learners. In turn, they are able to make educated decisions about their own knowledge and strategy use, and to refine their learning approach. Sometimes students use self-regulatory strategies without clear understanding that they are regulating their behavior. This is not self-regulated behavior because to qualify as being self-regulated a student must use self-regulation strategies to achieve defined goals, on the basis of self-efficacy perceptions [39]. For example, if a student is using a particular self-regulation strategy but they are not aware of the reason they are using it (i.e., to achieve their goal), that student is not self-regulated. If they
are using that strategy in order to achieve a certain goal, based on their self-perceptions of efficacy for performing the task in question, then they are self-regulating their behavior. For example, if a student believes themselves to be capable of writing an essay with three sub-sections (the self-efficacy perception) and they use self-regulation strategies such as creating an outline to achieve their goal, that student is considered to be self-regulated.

Motivationally, self-regulated learners report high self-efficacy, self-attributions, and intrinsic task interest [37]. They show the typical signs of people with high self-efficacy: they are self-starters that exert high levels of effort; and are persistent when working toward their goals. Behaviorally, self-regulated learners structure their environments to optimize learning. They also define goals and use strategies that help them achieve these goals.

Zimmerman sums up self-regulated learners as students that “select and use self-regulated learning strategies to achieve desired academic outcomes on the basis of feedback about learning effectiveness and skill.” [37]

2.2.1 Self-Regulation Processes

Social cognitive theorists view self-regulation as an interaction of three types of processes: personal, behavioral, and environmental [36].

<table>
<thead>
<tr>
<th>Self-regulation process</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal (covert)</td>
<td>Self-monitoring and adjustment of cognitive and affective states (e.g., relaxation techniques)</td>
</tr>
<tr>
<td>Behavioral</td>
<td>Self-observation and adjustment of performance processes (e.g., method of learning)</td>
</tr>
<tr>
<td>Environmental</td>
<td>Observation and adjustment of environmental conditions</td>
</tr>
</tbody>
</table>

Table 2.4: Social cognitive view of self-regulation processes
Self-regulation is described as a cyclical process where feedback from previous experiences is used to make adjustments to future efforts.

![Triadic view of self-regulation processes](image)

**Figure 2.1: Triadic view of self-regulation processes, adapted from [36]**

**Personal**

Personal, or covert, processes are related to one’s regulation of their cognitive beliefs and affective states [16], such as anxiety and self-efficacy. By definition, covert processes are processes which cannot be directly observed by external parties. In order to discover how one regulates covert processes, an observer needs to have an opportunity as well as the appropriate resources and training. An example of this would be watching a student talk through a math problem, listening for verbal cues about their self-efficacy.
Environmental

**Environmental processes** refer to the regulation of one’s social setting and physical environment. These processes are the most obvious to both an external observer, and to the self-regulator. The self-regulator is able to observe the environmental conditions (both physical and social) that they are working in. The self-regulator is often able to influence their physical environment. For example, they may choose to reduce the noise level by working in the library, or they may remove external distractions, which draw their attention away from their current task, such as shutting off their cell phone and television. To some extent, social influences are more externally controlled. For example, the level of encouragement that a student receives from a parent or teacher is harder for a student to control. However, it is possible for a person to exert some control over this, for example, by getting feedback and help from other available resources such as library services.

Behavioral

**Behavioral processes** refer to the motoric processes associated with the task at hand. As these processes involve motor functioning, they are directly observable by an outsider as well as the regulator.

As shown in Figure 2.1: Triadic view of self-regulation processes, adapted from [36], the interactions between the processes are cyclical: feedback from previous experiences is used to update current self-regulation efforts. This self-oriented feedback loop of observation-reaction involves all three self-regulatory processes. When a student self-monitors and increases awareness of their thoughts, feelings, and actions and the effectiveness of those actions or strategies, they are able to refine their behavior in a variety of ways to improve their learning.
process. The reactions that students make to this self-feedback can range from covert changes in self-assessments and self-efficacy to overt behaviors such as using a different monitoring technique or learning strategy. This self-initiated feedback loop is central to improving one’s learning process due to the fact that the environmental, personal, and behavioral processes of learning are constantly changing.

2.2.2 Self-regulation in writing

The need for self-regulation in writing stems from the fact that writing is self-planned, self-initiated, and self-sustained [16]. Writing is generally a solitary activity that can be disheartening as it can take a long time and often the effort required produces few results. The development of self-regulation strategies can help writers overcome some of these difficulties, and therefore it’s no surprise that instruction in self-regulation strategies is a recurring theme in the writing literature [40] [16] [10].

Self-regulation of writing is defined as the self-initiated thoughts, feelings, and actions that writers use to achieve literary goals such as producing higher quality written outputs and improving writing skills [41]. Applying the social cognitive view of self-regulation to writing allows us to model writing self-regulation as three processes: personal, behavioral, and environmental, see Table 2.5: Writing self-regulation processes. The relative importance of each of the processes changes from one person to the next on the basis of (a) personal self-regulation efforts, (b) outcomes of behavioral performance, and (c) changes in the environment [16].
<table>
<thead>
<tr>
<th>Writing self-regulation process</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal (covert)</td>
<td>Writers’ self-regulation of cognitive beliefs and affective states (e.g., setting aside a chunk of time to write each day)</td>
</tr>
<tr>
<td>Behavioral</td>
<td>Writers’ self-regulation of overt motoric activities (e.g., keeping a written record of writing output each day)</td>
</tr>
<tr>
<td>Environmental</td>
<td>Writers’ self-regulation of the physical and/or social settings in which they write (e.g., going to a quiet place to write)</td>
</tr>
</tbody>
</table>

Table 2.5: Writing self-regulation processes

Zimmerman and Risemberg identified ten common forms of self-regulation reported by well-known writers that have been studied in descriptive or experimental research, see Table 2.6: Writing self-regulation processes based on . These forms of self-regulation were further examined and formed the basis of the video used to teach self-regulation in writing.

Correlational research has shown that self-regulated learners use more learning strategies and achieve better results than learners that use fewer self-regulated strategies [34]. Next we will examine how to aid students in the development of self-regulation skills in writing.

2.2.3 Developing self-regulated writers

Teaching post-secondary students self-regulation skills is important because they have a lot of freedom over their studying and learning and often struggle to manage this freedom [42]. Much of the research on self-regulation in college settings is ecologically valid because it’s been done in classroom settings.
<table>
<thead>
<tr>
<th>Self-regulation process</th>
<th>Sub-process</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Environmental</strong></td>
<td>Environmental structuring</td>
<td>Selecting, organizing, and creating effective writing settings, e.g., choosing to work in a quiet space.</td>
</tr>
<tr>
<td><strong>Environmental</strong></td>
<td>Self-select models, tutors, or books</td>
<td>Finding social sources of writing knowledge and skill, e.g., imitating gifted writers’ style, such as using metaphor.</td>
</tr>
<tr>
<td><strong>Behavioral</strong></td>
<td>Self-monitoring</td>
<td>Overt tracking of performance, e.g., recording daily written output.</td>
</tr>
<tr>
<td><strong>Behavioral</strong></td>
<td>Self-verbalization</td>
<td>Personal articulation to enhance the writing process, e.g., talking through problems out loud.</td>
</tr>
<tr>
<td><strong>Behavioral</strong></td>
<td>Self-consequences</td>
<td>Rewarding or punishing oneself based on writing accomplishment, e.g., going out for dinner after completing a draft of a paper.</td>
</tr>
<tr>
<td><strong>Personal</strong></td>
<td>Time planning &amp; management</td>
<td>Estimating and budgeting time for writing, e.g., setting aside a block of time to write each day.</td>
</tr>
<tr>
<td><strong>Personal</strong></td>
<td>Goal setting</td>
<td>Specifying the intended outcomes of writing efforts, e.g., finishing a chapter of a book in one week.</td>
</tr>
<tr>
<td><strong>Personal</strong></td>
<td>Self-evaluating standards</td>
<td>Setting and adhering to specific standards of personal satisfaction, e.g., criteria for judging the quality of a blog.</td>
</tr>
<tr>
<td><strong>Cognitive strategies</strong></td>
<td>Mental imagery</td>
<td>Methods for organizing, producing, and transforming written text, e.g., creating an outline to guide writing; revising a draft, etc.</td>
</tr>
</tbody>
</table>

Table 2.6: Writing self-regulation processes based on [16]

Graham & Harris outline two suggestions for promoting self-regulated strategy use in writing: create a writing environment that increases the likelihood of self-regulation, and tackle self-regulation head-on [43]. Though most of Graham & Harris’ work has involved teaching children how to be more self-regulated, these suggestions are similar to the principles for improving college students’ self-regulation outlined by Pintrich [42].
Creating a writing environment that promotes self-regulation encompasses three things: providing ample opportunity to self-regulate, making writing enjoyable and interesting, and using writing tasks that require self-regulation skill use. One way to provide students with opportunities to self-regulate is to encourage writers to work on projects of their own choosing. To make making writing enjoyable, they encourage making writing assignments authentic and aimed at a real audience. Their final suggestion is to use writing tasks that require self-regulation strategy use. This involves creating non-trivial writing assignments that encourage the use of self-regulation strategies such as planning, outlining, etc. due to their complexity.

The second method suggested by Graham and Harris to increase self-regulation is to tackle teaching self-regulation head on. This can be accomplished by having teachers model self-regulation in writing, explicitly teaching students how to incorporate self-regulated strategies in their writing, and activating existing self-regulatory procedures through scaffolding. The following sections will discuss how to teach self-regulation.

**Modeling**

Zimmerman states that each self-regulatory process can be learned from instruction and modeling [38]. Cognitive modeling is when a person describes their thoughts and explains their reasoning as they perform a task. Cognitive modeling is an important part of observational learning [18].

It’s hypothesized that learner-model similarity is an important source of information that students use to form outcome expectations and assess the appropriateness of modeled behavior [18]. The more alike the learner and the model, the more likely similar actions by learners are to produce
similar results. This suggests that peer models may have more desirable effects on students than teacher models.

**Scaffolding**

Educational scaffolding refers to the specialized instructional supports that are put in place to help facilitate learning when students are introduced to new subjects. Scaffolding provides students with the structure they need to stay on track in academic situations and succeed [44]. Scaffolding provides clear directions, clarifies purpose, keeps students on task, points students toward appropriate resources, and creates momentum.

The development of self-regulation skills is aided by the use of scaffolding. Scaffolding provides support for students as they begin to use the strategies that they’re learning. Scardamalia and Bereiter indicated that writers may possess writing self-regulation skills that they fail to habitually use due to the processing demands required to do so [45]. They have focused on activating additional self-regulatory processes by providing scaffolding that makes using the strategies easier. They have demonstrated that children can incorporate additional self-regulatory strategies when given additional support.

Graham & Harris created the most widely used self-regulated strategy package, the Self-Regulated Strategy Development (SRSD) [40]. The SRSD focuses on teaching students with low performance (typically children with learning disabilities) writing self-regulation strategies and composition and has been empirically validated in over 20 studies [46]. In a typical deployment, the SRSD has six steps: develop and activate background knowledge, discuss the strategy, model the strategy, memorize the strategy, support the strategy, and independent performance. Supporting the strategy, called scaffolding, is an important step in the learning
process. Scaffolding is when teachers provide support and assistance as students integrate what they’ve learned until they are able to use the strategy independently.

This discussion about self-regulation, modeling and scaffolding leads to our second research question:

**RQ2: Can we teach students to be self-regulated writers through video instruction in an online environment?**

In order to answer this question we need a way of measuring self-regulation in writing. The following section examines how to obtain that measure.

### 2.2.4 Measuring self-regulation in writing

A number of protocols have been used to assess self-regulated learning. These include questionnaires, structured interviews [47], teacher ratings, think aloud methods, error detection tasks, trace methodologies, and observations [48]. All of these methods with the exception of questionnaires require the researcher to have the opportunity to observe the student engaged in a task. As this is not possible in an online course, the only option is to assess self-regulation via questionnaire.

Self-report questionnaires are the most popular method of assessing self-regulated learning [48]. There are a number of research-validated survey tools that have proven popular for assessing metacognitive awareness and self-regulated strategy use in academic settings. These tools are valuable for providing insight into student use of self-regulated strategy behavior in general but not specifically for writing tasks. Bandura’s guideline for specificity in measuring self-efficacy can be applied to measurement of self-regulation: the measure of self-regulation should be
specific to the task being regulated. It is important that the questions being asked are appropriate given the experimental context. For example, asking students about what they do during class time does not make sense in an online course that does not have set times for class and lecture.

Two of the most widely used questionnaires are the Motivated Strategies for Learning Questionnaire (MSLQ) [49] and the Metacognitive Awareness Inventory (MAI) [50]. The Metacognitive Self-Regulation subscale in the MSLQ focuses on students’ behaviors when studying and during class time. As there is no class time, and the specific task at hand does not involve studying, this would not be an appropriate measure of self-regulated learning. Unlike the MSLQ, the MAI does not focus on class time and strategy use during studying. It assesses students’ knowledge of their strategy use (metacognitive awareness) and their use of specific strategies (cognitive control), but not specifically related to writing tasks.

In order to judge whether or not the intervention makes a difference, it is important to closely match the self-regulated strategy assessment with self-regulated strategies that are modeled in the intervention video. A review of the literature on self-regulation in writing revealed only two surveys that measured self-regulation of writing: the Writing Self-Regulatory Efficacy Scale [9] and the Self-Regulation Scale Contextualized in Writing [51], see Table 2.7: Scales used to measure self-regulation.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Created by</th>
<th>Used in</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Writing Self-Regulatory Efficacy Scale</td>
<td>Zimmerman and Bandura, 1994</td>
<td>Zimmerman and Bandura, 1994. Impact of Self-Regulatory Influences on Writing Course Attainment.</td>
<td>A 25-item scale that assesses students’ self-efficacy for self-regulation in writing. It was developed from a formal analysis of the writing process, consultations with the writing faculty, and knowledge of self-regulation of motivation.</td>
</tr>
<tr>
<td>Self-Regulation Scale Contextualized in</td>
<td>Theresa Carmela E.</td>
<td></td>
<td>A 115-item scale that assesses students’ use of self-regulatory processes outlined by</td>
</tr>
</tbody>
</table>
Zimmerman and Bandura created the *Writing Self-Regulatory Efficacy Scale* to assess students’ perceived abilities “(a) to execute strategic aspects of the writing process such as planning, organizing, and revising compositions; (b) to realize the creative aspects of writing such as generating good topics, writing interesting introductions and overviews; and (c) to execute behavioral self-management of time, motivation, and competing alternative activities.” [9] This 25-item scale was developed based on a formal analysis of the writing process, consultation with writing faculty, and expert knowledge of self-regulation and motivation. Students rate each of the items on a 7-point scale indicating their level of perceived ability on each. The scale was shown to have a Cronbach’s alpha of .91, indicating high reliability. Examination of the scale shows that it covers a mix of writing skills and self-regulatory strategies. In accordance with Bandura’s guidelines for measuring self-efficacy, items are written in terms of “can” (i.e. a judgment of capability). Measuring self-efficacy for self-regulation is useful in certain contexts but it is not appropriate for this work.

The *Self-Regulation Scale Contextualized in Writing* is based on Zimmerman’s characterization of the self-regulation processes and measures students’ self-regulation of their writing process [51]. The researchers reported the overall Chronbach’s Alpha to be 0.94, indicating that the questions that make up the scale have a very high internal consistency (i.e., questions in the scale measure the same construct). The strategies modeled in our intervention video are based on the same self-regulatory processes. Since the intervention is based on the same self-regulatory processes, this survey formed the basis of the self-regulation measure used in this work. The

<table>
<thead>
<tr>
<th>Writing</th>
<th>Kanlapan, Joseph C. Velasco</th>
<th>Zimmerman.</th>
</tr>
</thead>
</table>

Table 2.7: Scales used to measure self-regulation
original survey is composed of a number of sections, each relating to a specific aspect of self-regulation such as goal setting, monitoring, etc. Each of these sections is comprised of 10 or 15 statements.

2.3 Using video in teaching and learning

Video is a useful tool in teaching and learning for a number of reasons. First, using video as a teaching tool allows students to pause, rewind, and re-watch content at their own pace, in their own time [52]. This is different than a typical lecture situation where students typically have one opportunity to hear/assimilate the information. Secondly, video has the benefit that it is a reusable artifact: the content of the video will be as applicable in ten years as it is now. Face-to-face teaching requires teachers to repeat the same information each time they teach it.

Two Internet-based educational ideas influenced the video intervention described in this experiment: the Khan Academy, and a composition technique called video scribed animation. The following sections discuss these in detail.

2.3.1 Teaching/Learning through video (Kahn academy)

One of the primary inspirations for this project was the Khan Academy [4]. The Khan Academy is a not-for-profit organization “with the goal of changing education for the better by providing a free world-class education to anyone anywhere.” Their video library contains over 2600 educational videos, covering K-12 math, sciences, and some of the humanities. And best of all, it’s free to the public. The Khan Academy won Google’s 10^100 Project competition; a project calling for “ideas that will change the world by helping as many people as possible.” They (and the other four winners) were selected from a pool of over 150,000 ideas [53]. The Khan Academy is starting to receive international attention and has been featured on some major
media networks such as CNN, PBS, and in various newspapers, magazines, and other outlets [54] and the founder, Salman Khan, gave a TED talk in 2011.

The Khan Academy software has separate interfaces for the students and the teachers. The student software is a complete, self-paced learning tool, with dynamic exercises, help, and a profile to track progress. Teachers are able to view real-time class reports, and get detailed views of students’ progress.

There is an increasingly large volume of quantitative data in the form of YouTube video comments, email, etc. supporting the efficacy of the Khan Academy as a teaching tool. Students have written that it has “changed their lives.” [55]

To date, there have not been many controlled experiments that have used the Khan Academy. The only real-world trial that the author is aware of was completed in the summer of 2011 [56]. Blend My Learning is a group of educators dedicated to experimenting with the way brick and mortar schools and classrooms are run. In the summer of 2011, the Envision Academy in Oakland, CA completed a 5-week test of trial of the Khan Academy program using Google-supplied Chromebooks. Students were randomly assigned to one of two classes: a 5-week traditional remedial algebra summer school course (the control group), or the Khan Academy (the treatment group). Students using the Khan Academy material used it for almost all of the period (2-hours) each day, and both the control and treatment groups had the same teacher. Evaluation of students’ progress was made using their scores on the University of California’s Mathematics Diagnostic Testing Program (MDTP).

The experimenters list three caveats to keep in mind when interpreting the results: the sample size is too small to attribute any real significance to the findings; the pilot test was very brief
(only 24 classes of 2-hour sessions); and the difficulty of selecting a measure to assess student progress (primarily the fact that any gains made in pre-algebra content would not be accounted for using this measure). For these reasons, they caution against over-stating the importance of or over-generalization the results. Their results indicated both groups saw slight increases in their performance, with the Khan Academy students increased their percentage of correctly answered problems slightly more than those in the control group. In both groups, only one third of students saw significant gains (at least a 10% increase in correctly answered scores). These results don’t indicate whether or not the Khan Academy is better or worse than a traditional classroom model (see the stated caveats), but it is clear that the Khan model at least kept pace with the traditional model. Longer trials with many measures are required before anything can be generalized about the Khan Academy. Longer trials would allow testing of whether or not there are gains in underlying knowledge and what (if any) the benefits of those gains are.

More research is required to test the Khan Academy teaching system, but early results indicate that video is a useful and effective teaching tool that is still in its infancy.

2.3.2 Video scribed animation

The other primary motivation to create the intervention video came from RSA-Animate video-scribed animations. Video scribing has been described as “the real-time capture, processing and iteration of information in visual form. This could be presented in words, cartoons, pictures, diagrams, flows and hierarchies.” [57]. It has been made famous by the RSA Animate videos, some of which have over 5.5 million views [5].

A number of studies show that combining audio and visual information makes for a more memorable and effective presentation. In a study that investigated optimal learning environments,
researchers found that learning mechanisms operate optimally under multisensory conditions [58]. They argue that human perceptual and cognitive mechanisms have evolved in and are tuned for multisensory environments. They found multisensory training protocols were more effective than unisensory protocols. Unisensory training protocols used to develop skills (e.g. only using visual, or only using audio protocols) provide an unnatural setting that doesn’t tap into learning mechanisms that evolved in multisensory environments.

The Office of Training and Education at the United States Department of Labour has a set of guidelines outlining how to make effective presentations [59]. They state that experimental research has shown recall to be six to seven times greater when information is presented as a combination of visual and audio cues, as opposed to audio alone. They further state that three days after a presentation, people retain 10% of audio-only presentations, 35% from visual presentations, and 65% from presentations that used audio and video.

Personal communication with companies that provide video scribed animations supported the hypothesis that people are engaged with this kind of presentation. One company indicated that the video scribed animations were the most viewed of any of their videos, and that the feedback received through comments and emails was positive. This leads to the next research question:

**RQ3: How do students perceive instructional video scribed animations?**

Specifically, what are student’s perceptions of the educational value, length, entertainment, and attention grabbing/sustaining properties of a video scribed animation that teaches them self-regulation in writing?
This literature review has described the background relevant to the experiment described in this thesis. To summarize, this goal of this thesis is to answer the following research questions:

**RQ1:** Will teaching students writing self-regulation skills increase their self-efficacy for grade achievement?

**RQ2:** Can we teach students to be self-regulated writers through video instruction in an online environment?

**RQ3:** How do students perceive instructional video scribed animations?

Table 2.8: Research question summary

The next section describes the methodology used to answer the research questions laid out in the literature review.
Chapter 3 Methodology

This section describes the methodology used in the experiment. First, the sample demographic information is presented. That is followed by a detailed description of the materials used in the experiment: a video scribed animation that models writing self-regulation strategies and the accompanying checklist, as well as the experimental surveys. Next, the experimental design is described. The method used to create the experimental groups is explained, as well as the measures used to collect the data (student perceptions of the video, their self-regulation, and self-efficacy). This is followed by a description of the procedure used in the experiment. This section concludes with an overview of how the data was screened and reduced before analysis was performed.

3.1 Participants

Participants were students enrolled in CIS*2050*DE during the summer 2011 semester at the University of Guelph. Dr. Blair Nonnecke was the instructor for the course, and Jonathan Beer was one of the teaching assistants (TA). Dr. Nonnecke and Mr. Beer are familiar with the course design and layout as they worked together to create the course during the fall and winter 2010 semesters, and presented it in the summer of 2010. The course is offered by the Office of Open Learning at the University of Guelph as a fully-online distance education course.

There were 142 students in CIS*2050*DE after the course drop deadline. Demographic information was collected using an online survey tool [60]. Demographic information was submitted by 139 students. There were 74 females and 65 males, ranging in age from 18 to greater than 40, with a median age of 21. 98.5% of the students were less than thirty years old.
Age

The experiment consisted of two groups, a control group used as a baseline and a treatment group that received an intervention. The control group consisted of 67 students: 37 females, 27 males, and 3 of unknown gender. The students ranged in age from 18 to 39, with a median age of 21. 98.4% of the students were less than thirty years old. The treatment group consisted of 75 students: 37 females and 38 males. The students ranged in age from 18 to greater than 40, with a median age of 21. 98.6% of the students were less than thirty years old.

Degree pursuit

There were 130 students working toward their first degree (93.5%), and nine had previously completed another degree. Students in the control and treatment groups had almost a similar split (control: 95.3%, treatment: 92%). 135 students were working toward an undergraduate degree (97%), one was working toward a master’s degree, two were not pursuing a degree, and one student was working on another unspecified degree. The split between the control and treatment group was fairly even: all control group students were pursuing an undergraduate degree, and 94.5% of the treatment students were working toward an undergraduate degree. Students in both groups were pursuing degrees in a wide variety of majors in both the arts and sciences.

Of all respondents 44.4% were in their sixth semester or less and 65.6% were in at least their seventh semester with the median being the 7th semester. 24.4% of the students were in at least their 9th semester. Control group students were slightly further along in their current studies: 37.5% of the control group students were in their sixth semester or less, therefore 62.5% were in at least their seventh semester with the median being the 7th semester. Of the treatment group
students, 50.7% were in their sixth semester or less, meaning that 49.3% were in at least their seventh semester, with the median being the 6th semester.

**Summer activities**

During the summer 2011 semester, 91 students were registered as part-time meaning they had less than 2.0 credits and 48 were full-time students. Upon further examination of the full-time statistics, it appears that some students did not understand the question as 13 of the 48 students indicated that they were in less than four courses. Though it’s possible to take courses that are 0.75 or 1.0 credits, it seems unlikely that this is the case for all of these 13 students. Therefore examining how many other courses students were taking concurrently is a better indicator of student school-related activity: 27.3% of the students were only enrolled in this course (control: 29.0%, treatment: 25.7%), 28.8% were enrolled in two courses, including this one (control: 32.3%, treatment: 25.7%), 20.5% were enrolled three courses (control: 17.7%, treatment: 22.9%), and 23.5% were enrolled in four to six (control: 12.3%, treatment: 25.7%).

<table>
<thead>
<tr>
<th>Summer courseload</th>
<th>Control</th>
<th>Treatment</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (only CIS<em>2050</em>DE)</td>
<td>29.0%</td>
<td>25.7%</td>
<td>27.2%</td>
</tr>
<tr>
<td>2 courses</td>
<td>32.3%</td>
<td>25.7%</td>
<td>28.8%</td>
</tr>
<tr>
<td>3 courses</td>
<td>17.7%</td>
<td>22.9%</td>
<td>20.5%</td>
</tr>
<tr>
<td>4-6 courses</td>
<td>23.0%</td>
<td>25.7%</td>
<td>23.5%</td>
</tr>
</tbody>
</table>

*Table 3.1: Demographics: summer courseload*

Of the enrolled students, 25.6% indicated that they were unemployed, 45.7% had part-time employment, and 28.7% were employed full-time. The summer employment of the experimental groups was similar in all three categories: unemployed (control: 26.2%, treatment: 25%), part-time employment (control: 49.2%, treatment: 42.6%), and full-time employment (control: 24.6%, treatment: 32.4%)
Online experience

There were 14 students enrolled in the course that had never completed an online course before (10.1%), 35 that had completed only one or two online courses (25.2%), and 56 that had completed 3-5 online courses (40.2%). The other 34 students had completed at least 6 online courses (24.5%). Students in the control group were slightly less experienced with online education in general. Of the control group students, 26.6% had completed less than three online courses compared to 42.7% of the treatment group; however, the groups were almost even when looking at students that had completed up to six online courses: 73.4% of the control group had completed up to six online courses compared to 77.3% of the treatment group.

<table>
<thead>
<tr>
<th>Online courses previously completed</th>
<th>Control</th>
<th>Treatment</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>6.3%</td>
<td>13.3%</td>
<td>10.1%</td>
</tr>
<tr>
<td>1</td>
<td>7.8%</td>
<td>5.3%</td>
<td>6.5%</td>
</tr>
<tr>
<td>2</td>
<td>12.5%</td>
<td>24.0%</td>
<td>18.7%</td>
</tr>
<tr>
<td>3-5</td>
<td>46.9%</td>
<td>24.7%</td>
<td>40.3%</td>
</tr>
<tr>
<td>6-10</td>
<td>20.3%</td>
<td>20.0%</td>
<td>20.1%</td>
</tr>
<tr>
<td>10+</td>
<td>6.3%</td>
<td>2.7%</td>
<td>4.3%</td>
</tr>
</tbody>
</table>

Table 3.2: Demographics: online courses previously completed

Students were also asked about their previous blogging experience and 28 students indicated they had written a blog before (20.3%). The bloggers were split fairly evenly between the groups: 22.2% of the control group had blogged, and 18.7% of the treatment group. Of those people that had blogged, 12.5% of the control group and 10.6% of the treatment group had maintained a blog for more than 6 months.

3.2 Materials

Two materials were provided to students in the treatment group: a video scribed animation that modeled self-regulation in blog writing, and checklist of tasks that corresponded to information...
given in the video. Two experimental surveys (the pre- and post-surveys) were completed by all students. Students were given a 0.5% bonus mark for each of the experimental surveys they completed.

3.2.1 Video scribed animation

Students in the treatment group were given a link to a video scribed animation [61]. The video was created using a large whiteboard, dry-erase markers, a video camera, and video editing software. First, the researcher wrote a script in which he modeled a number of self-regulation strategies students can use while writing. The script was then narrated and recorded by the researcher. Next, an artist and the researcher created a series of drawings that corresponded to the various points in the script. The artist drew the illustrations on a white board, which was filmed in real time. After all of the illustrations were complete, the researcher used video editing software to edit the real-time footage and speed up the drawings to have the drawings be shown with the corresponding part of the script. The result of this process was the video scribed animation given to the treatment group students.

There were a number of considerations taken into account when choosing how to present the self-regulation strategies:

- Completely online course, no face-to-face communication
- Competing distractions
- The course workload

As the course was completely online, there was no opportunity to present the strategies and model how to use them in a blog writing context in real time. In a face-to-face class, the teacher has a time that is allotted for the course, and therefore can model and teach self-regulation
strategies during that time. In an online course, there is no specified class time, and no real-time interaction with the students. Using a video to teach self-regulation skills allows students to watch a perceived expert discuss and model how they would approach and complete the assignment.

The second consideration when choosing the delivery method was the course context: it was run in the summer, and it’s a credit that many students take to finish their degrees. Having run the course before, we were aware that a number of students enrolled in the course do not appear to exert more than the minimum effort required to pass the course. From personal observation, it is harder to motivate yourself in the summer semester due to the number of non-scholastic opportunities that are available to students. Often summer is a time for employment and vacation and summer courses are not given as much attention as courses offered at other times. It appears as though this is particularly true when a student is taking the course to complete their degree. To counter-act these potential motivational issues, the researcher wanted to make the video as interesting and engaging as possible. Having seen and been engaged with a number of video lectures and video scribed animations, it was decided to adopt this approach.

The final item taken into consideration when choosing how to present the materials was that CIS*2050 has a fairly heavy workload. Adding anything that required students’ time required it to be very rewarding to the students. For this reason, the email sent to the treatment group said that the video may help with their blogging, and mentioned that it is a video scribed animation.

Given these considerations, the self-regulation strategies were modeled through video rather than written instruction. Students already receive a large amount of written instruction, and it was
believed there was a higher chance of engagement if the students were presented with a video rather than additional reading.

**Video content**

The structure and content of the video was carefully planned, based on research in self-regulated learning. The delivery method and content will be examined in this section.

**Modeling**

The video’s central figure is a hand-drawn representation of the researcher, who was also a TA in the course. The researcher delivered the script in the 1st person, providing a personal account of how he writes a blog (i.e. the researcher is modeling how he writes a blog). The script was carefully planned to clearly articulate the writing process and self-regulation strategies employed by the TA. Knowledge is transmitted to people by proficient models through their behavior and their expressed ways of thinking [14]. From a self-efficacy perspective, it’s important that the learners can relate to the model. The reason the TA was chosen as the main character instead of the professor is that students are likely to perceive themselves as more similar to the TA.

**Timeline & topic coverage**

The video scribed animation is 13 minutes, 13 seconds long (13m:13s). Table 3.3: Intervention video timeline shows the video timeline.
Every part of the video was carefully planned and edited. The contents of the video are based on research conducted in the field of self-regulated learning (with an emphasis on self-regulation in writing) and self-efficacy. The script for the video can be found in Appendix A.

The video starts by introducing the researcher, and briefly explaining the purpose of the video (“Hey, I’m Jonathan. I’m going to show you how I write a blog, and show you some strategies that you can use to improve your writing.”). Before the blog writing process and self-regulation strategies are modeled, one minute is spent addressing epistemological and writing beliefs. Among other things, epistemological beliefs include beliefs about knowledge acquisition. The more students believe in quick, all-or-nothing learning, the more likely they are to overestimate their understanding of a subject, and the more likely they are to perform poorly on mastery tests [62]. Hammann found that regulation and knowledge of cognition were negatively related to beliefs of ability as a fixed entity [10]. The video addresses these beliefs by telling students that writing is a skill, and that it can be improved over time through practice and effort. Students are

<table>
<thead>
<tr>
<th>Time (m:s)</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>0:00</td>
<td>Causal attribution</td>
</tr>
<tr>
<td>0:50</td>
<td>Writing attitudes</td>
</tr>
<tr>
<td>1:30</td>
<td>Environmental SR</td>
</tr>
<tr>
<td>2:15</td>
<td>Planning</td>
</tr>
<tr>
<td>2:35</td>
<td>Timeline</td>
</tr>
<tr>
<td>4:00</td>
<td>Goal setting</td>
</tr>
<tr>
<td>5:00</td>
<td>Topic selection</td>
</tr>
<tr>
<td>5:40</td>
<td>Self-monitoring (on-going)</td>
</tr>
<tr>
<td>7:00</td>
<td>Outline</td>
</tr>
<tr>
<td>8:40</td>
<td>Research</td>
</tr>
<tr>
<td>10:00</td>
<td>Draft</td>
</tr>
<tr>
<td>10:45</td>
<td>Self-verbalization</td>
</tr>
<tr>
<td>11:30</td>
<td>Revision</td>
</tr>
<tr>
<td>12:45</td>
<td>Proofreading</td>
</tr>
<tr>
<td>13:00</td>
<td>Self-evaluation</td>
</tr>
</tbody>
</table>

Table 3.3: Intervention video timeline
encouraged to work hard and believe in themselves, and that if they do so they can improve their writing. Social persuasion like this is one way to increase self-efficacy.

The first self-regulation process, environmental self-regulation, is addressed at the 1:30 mark. Environmental self-regulation is one of the three processes of self-regulation. The video shows how the model structures his environment to reduce distractions and get comfortable, while telling the students that “research shows that students have the lowest confidence in their ability to concentrate when there are distractions around.” [16]. After this, the model demonstrates how to plan a writing assignment, and explains the importance of planning in writing [16]: “The quality of writing assignments is determined more by the amount of planning done than by the number of revisions completed.” Students are shown how to create a timeline, select a topic, and make an outline. These are all part of personal self-regulation. During the planning stage, the model also discusses and shows how to set goals, which is an important part of personal self-regulation. While demonstrating these all of these things, self-monitoring is being modeled. The researcher is writing down what they’re doing, how long they’re doing it for, and the environmental conditions. Self-monitoring is a component of behavioral self-regulation.

The primary focus of the next section is personal self-regulation and demonstrating cognitive strategies. The model gives tips on how to do research for the writing assignment, and how to create a draft. He addresses the benefits of self-talk and encourages students to be positive in their self-assessments. Next, he explains the revision process, proofreading, and peer-evaluation. Finally, he encourages students to self-mark their assignments using the rubric (self-evaluation) before submitting them.
3.2.2 Checklist

The intervention video provides students with a lot of information in a relatively short time. It’s unreasonable to expect a student to remember and recall all of the information without some scaffolding. A “todo” list of the strategies was chosen as it provides a concise summary of the information in the video and allows students to check off what they have done, so they can see the progress they are making, and the process they are using to write the blog.

A Word document containing a checklist of tasks corresponding to the information conveyed in the video was attached to the email that contained the video link, see Appendix B. The checklist was provided to help students operationalize what they learned by watching the video. The checklist was divided into headings that corresponded with the different parts of the video: “Setting up your writing environment”, “Planning”, “Research”, and “Writing & Revision”. Each section contained a number of tasks. For example, under “Planning”, one of the tasks is “Made a timeline.”

3.3 Design

3.3.1 Experimental Groups

There were two groups in the study: the control group, and the experimental (treatment) group. Students in CIS*2050*DE worked on multiple group work assignments. To reduce the potential for cross-contamination of the experimental groups, students that had worked together in project groups were put into either the treatment group or the control group. This was done by splitting the project groups in half and assigning members from one half into the treatment group, and members from the other half into the control group. The project groups were randomly assigned.
The original experimental groups were both approximately the same size \((N_{\text{control}} = 75, N_{\text{treatment}} = 78)\); however, modifications were made to the project groups for two reasons:

1) Students that were not participating in their project groups were removed from their original groups and placed together in new groups

2) Students dropped the course

Due to these changes, the group sizes became slightly unbalanced. The control group had 67 students and the treatment group had 75. It’s good that the treatment group was slightly larger as not all students in the treatment group viewed the video (i.e., not all students in the treatment group were manipulated by the experiment).

3.3.2 Measures

Three things were measured in this experiment: student perceptions of the video, self-regulation in writing, and self-efficacy for grade achievement.

**Student perceptions of the video and checklist**

After the intervention, students in the treatment group were asked if they watched the video. Those that did were asked about their perceptions of the video, and those that didn’t were asked why not, see 5.1Appendix F. Questions about the students’ perceptions of the video covered four topics: perceived educational value, video length, attention, and entertainment. These questions were all 7-point Likert-scales. Students also gave open-ended responses to questions about the video and checklist.
**Self-regulation**

One goal of the intervention was to teach students writing self-regulation strategies that they could use on their next blogging assignment. To assess whether there was a change in self-regulatory behavior after the intervention, pre- and post-measures of the students’ self-regulation were needed. Self-regulation was measured using a self-report questionnaire based on the *Self-Regulation Scale Contextualized in Writing*. That scale is based on Zimmerman’s characterization of the self-regulation processes [63] and measures students’ self-regulation of their writing process. The researchers reported the overall Chronbach’s Alpha = .94. The strategies taught in my video intervention are based on roughly the same self-regulatory processes, so the questions in this survey formed the basis of my survey for measuring self-regulation. The original survey is composed of a number of sections, each relating to a specific aspect of self-regulation such as goal setting, monitoring, etc. A number of modifications were made to the survey, which are detailed below.

The questions from that survey that were included in this experiment’s surveys were the ones most relevant to the information conveyed in the video. This was done to ensure that the self-regulatory aspects being analyzed were discussed in the video and therefore could have changed based on the intervention. The self-regulation questions in the pre- and post-surveys were identical. The mean self-regulated learning score for each process and sub-process was used in the analysis. Cronbach’s alpha reliability scores for each of the self-regulation processes was acceptable (>0.65) and are provided in Appendix C.
Questions removed

A number of questions from the original survey were removed. The original survey was 115 questions long. The length of the survey was reduced to shorten the time required to complete it in the hopes that more students would complete the entire survey. Questions were removed that:

- were unrelated to strategies taught in my intervention
- did not make sense (the original authors were ESL, and some questions were difficult to understand)
- were duplicates

After removing questions based on the above criteria, questions were filtered based on their relevance to the intervention. For example, asking students about their interactions with an English teacher or what they do during class time are inappropriate in the context of this online course.

Two sections of the original survey were removed in their entirety: the section on self-monitoring, and the section on causal attributions. The section on self-monitoring was removed because there was an error on the author’s part: they had copy and pasted the questions from the goal setting section into the self-monitoring section and omitted the self-monitoring questions. The section on causal attributions was omitted and replaced by another scale to measure causal attributions [64]. This was done as the other scale is more succinct and has been used in other experiments to assess causal attributions.
Questions added

As mentioned above, the author’s accidentally did not include questions on self-monitoring. Self-monitoring is a large part of self-regulation and one of the primary strategies focused on in the intervention, so questions on self-monitoring needed to be included. Questions were created based on Zimmerman’s self-regulatory processes related to self-monitoring [17].

Additional questions were added to the survey to reflect strategies taught in the intervention. An outline of the video intervention was created and compared with the questions in the original survey. Survey questions were added to include self-regulation strategies taught in the video that were not covered in the original survey.

Questions modified

A number of questions were slightly modified. Questions that were not clear due to improper use of English were corrected. Other questions that were ambiguous or lacked clarity were also modified. Finally, questions specific to assignments were rephrased to reflect blog writing.

Self-efficacy

This experiment used self-efficacy for grade achievement to measure self-efficacy for writing. In the literature there are three ways to measure self-efficacy for writing: self-efficacy for writing tasks, skills, and grade achievement. The following is an examination of the appropriateness of each of the methods and a discussion of why self-efficacy for grade achievement was chosen.

To accurately measure self-efficacy in a particular domain, the scale used to measure it must be tailored to that specific domain [35]. In this experiment, the domain of interest is blog writing. The purpose and structure of a blog may vary across domains. Blogs may serve many purposes:
daily journaling, news reporting, self-reflection, gossip, topic-focused reports, etc. A blog, by definition, is not a particular type or style of writing, and therefore a general scale to measure self-efficacy for blog-writing may be accurate for one blogger but not for another. A blogging assignment from an online course (CIS*2050*DE, Computers and Society) was used in this work. Students were asked to write blogs that augmented what they were learning from the course textbook. They were encouraged to pick a specific topic that they are interested in, research it, and write an informative, insightful blog entry on the subject. Measuring self-efficacy for tasks captures a student’s efficacy for many tasks. We are only interested in self-efficacy for the blog writing task so measuring self-efficacy for writing tasks is not appropriate.

Measuring self-efficacy for writing skills involves students making assessments of their confidence that they can perform skills from basic grammar skills to advanced composition skills. This experiment was run in a computer science course, not a writing course. Due to this there was no explicit material or time spent developing writing skills, yet writing was a large component of the course. Blogs were marked using a rubric that can roughly be broken into the following sections: high-level writing skills (focus and structure, research: 30%), critical thinking skills (insight and quality of discussion, 30%), personalization (20%), and low-level writing skills (sentence flow, variety, diction, spelling and grammar: 20%). To capture self-efficacy for blog writing skills a scale would need to assess efficacy beliefs for each part of the rubric. The intervention in this experiment teaches self-regulation skills, not writing skills. Examining changes in self-efficacy for writing skills would not accurately reflect changes in self-efficacy due to the intervention.

Given the guidelines for measuring self-efficacy, the nature of the course, and the goals of the intervention, self-efficacy for blog writing was measured by having students assess their efficacy
for achieving grades. Students filled out a survey indicating their confidence to achieve each grade between an F and an A+, in half-grade measurements (i.e., F, D-, D, D+, C-, etc.).

Self-efficacy for grade achievement has been used in a number of studies and has been shown to be an ecologically valid way of measuring self-efficacy (see Table 2.3: Self-efficacy for grade achievement). Students were asked about their belief that they are able to achieve each grade between F and A+ in half-grade increments. Students assigned a value from “highly uncertain” (1) to “highly certain” (7) to each grade. The mean of the students’ self-efficacy scores was used in analysis involving self-efficacy. This was done to have a single factor representing a student’s self-efficacy for grade achievement. The higher the mean self-efficacy score, the more self-efficacy a student has to achieve higher grades. This is not a perfect measure as it’s possible that students could achieve the same mean score with different confidence scores given to each of the grades, however, a single factor was needed for self-efficacy for analysis. Given than all students used in the analysis had a monotonic decreasing curve representing their self-efficacy, the mean value provides a good estimation of their overall efficacy. For example, a student that is highly confident to achieve the excellent grades (e.g. above an A) would have higher overall efficacy than a student that is not very confident at all to achieve high grades, but still highly confident that they could achieve average grades. The Cronbach’s alpha measure of reliability for the self-efficacy for grade achievement was .86.

3.4 Procedure

The following is a high-level overview of the experiment:

1. **Blogs 1 & 2:** Students wrote two blog posts and received their grades.

2. **Pre-test:** Obtained self-regulation and self-efficacy measures via an online survey.
3. **Intervention:** Provided treatment group students with two materials: a video scribed animation of the researcher modeling self-regulation in writing, and an accompanying checklist.

4. **Blog 3:** Students wrote their 3rd blog.

5. **Post-test:** Obtained self-regulation and self-efficacy measures via an online survey.

The primary goal of this intervention was to teach students writing self-regulation skills. As discussed in the literature review, creating a writing environment that promotes self-regulation encompasses three things: providing ample opportunity to self-regulate, making writing enjoyable and interesting, and using writing tasks that require self-regulation skill use. One way to provide students with opportunities to self-regulate is to encourage writers to work on projects of their own choosing. Students in CIS*2050*DE were required to choose their blog topics. Another way to promote self-regulation is to make writing enjoyable by making writing assignments authentic and aimed at a real audience. The blogging assignments in CIS*2050*DE were world-viewable and provide students with an authentic writing task that could be used to explore and share information on self-selected topics. The final way to promote self-regulation is to use writing tasks that require self-regulation strategy use. Writing a blog is an involved process that involves planning, outlining, drafting, and a number of other strategies. The best blogs are highly structured, informative, and insightful and are similar to a short essay.

All students in CIS*2050*DE completed three blogging assignments. Each blogging assignment was worth 9% of the course grade and consisted of two parts: writing a blog post, and peer-reviewing blog posts.
After writing and submitting a blog, students were assigned three of their peers’ blog posts to review and mark using a well-defined rubric, see Appendix D, and a set of guidelines for completing satisfactory reviews. For each incomplete or unsatisfactory peer review a student submitted, their mark for that blogging assignment was reduced by 10%. This meant that a student could lose up to 30% on each assignment if they did not submit satisfactory peer reviews.

If a peer review was unsatisfactory and a student was left with less than two completed reviews, the professor or a TA marked the blog post and their mark was averaged in with the other review(s). If a student complained about their reviews, the professor or a TA marked the blog post and the student’s mark became either (a) the prof/TA mark if it was higher or (b) an average of the peer reviewers marks that were close to the prof/TA mark (within 20%). The reason that peer reviewer marks were averaged with the expert marks in the second case was to avoid punishing the students too harshly for getting “easy markers.”

After the first two blogs were completed and the marks had been returned to students, an email that contained a link to the first experimental survey was sent to the entire class, see Appendix E. This pre-survey served as a baseline for the experiment and measured the students’ self-regulation in writing and self-efficacy for grade achievement. Appendix F contains the survey. Of the 142 students in the course, 110 students filled in the pre-survey (77.5%) and gave consent for their data to be used in the experimental results.

After the pre-survey was due, students in the treatment group were sent an email containing a link to the intervention video and the checklist, see Appendix G. Treatment group students were sent a reminder about the video before their next blog was due, see Appendix H.
A second survey, the post-survey, was administered after the third blogging assignment was completed but before marks were returned. The post-survey given to the control group was identical to the pre-survey. The post-survey given to the treatment group contained all of the questions from the pre-survey but had additional questions about the video intervention. All students were sent emails reminding them to fill in the post-survey, see Appendix I. Fifty-three people from the control group (79.1%) and 65 members of the treatment group (87%) filled in the post-survey.

Table 3.4: Experimental outline provides an outline of the experiment that shows the sequence of events. After the course had ended, the data was examined and data screening and reduction took place.

<table>
<thead>
<tr>
<th>Date</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 2nd</td>
<td>Blog 1 due</td>
</tr>
<tr>
<td>June 9th</td>
<td>Blog 1 peer-reviewed marks received</td>
</tr>
<tr>
<td>June 23rd</td>
<td>Blog 2 due</td>
</tr>
<tr>
<td>July 3rd</td>
<td>Blog 2 peer-reviewed marks received</td>
</tr>
<tr>
<td>July 5th</td>
<td>Blog 1 expert-reviews received (N= 11)</td>
</tr>
<tr>
<td>July 6th</td>
<td>Email link to pre-survey to all students (Appendix E)</td>
</tr>
<tr>
<td>July 11th</td>
<td>Pre-survey due</td>
</tr>
<tr>
<td>July 14th</td>
<td>Email checklist and link to video to treatment group (Appendix G)</td>
</tr>
<tr>
<td>July 21st morning</td>
<td>Email reminder about the video (Appendix H)</td>
</tr>
<tr>
<td>July 21st midnight</td>
<td>Blog 3 due</td>
</tr>
<tr>
<td>July 22nd</td>
<td>Email link to post-survey to both groups (Appendix I)</td>
</tr>
<tr>
<td>July 26th</td>
<td>Email reminder to fill in post-survey (Appendix J)</td>
</tr>
<tr>
<td>July 26th</td>
<td>Blog 2 expert-reviews received (25 students)</td>
</tr>
<tr>
<td>July 28th morning</td>
<td>Email final reminder to fill in post-survey.</td>
</tr>
<tr>
<td>July 28th midnight</td>
<td>Post-survey due.</td>
</tr>
</tbody>
</table>

Table 3.4: Experimental outline

3.5 Data Screening and Reduction

First, demographic data was examined for completeness. Students were able to access and respond to the demographic survey multiple times. In the case that a student responded multiple
times, duplicate responses were removed, keeping the most complete response. In cases where there was information in one response missing in the other, all the information was condensed into a single response. In the case where there was conflicting information, information from the more complete response was used (N=2).

Next, the experimental survey data was examined for correctness and completeness. Changes in self-regulation were assessed using the subset of the sample that completed the self-regulation parts of both the pre- and post-surveys. Without data from both pre- and post-surveys there would be no way to identify if a student experienced changes in their self-regulation during the experiment. Students were also removed if they gave the same answer for every question or if they were in the treatment group but did not watch the video. Students that had the opportunity but did not watch the treatment video were obviously not affected by the treatment. They were not included as controls because they had access to the video and could have caused contamination in the control results. There were 38 control group students and 31 treatment group students used in the analysis.

A similar screening was performed before the self-efficacy data was analyzed. Students that did not properly interpret the self-efficacy question were removed from the analysis. See Appendix K for the algorithm used to determine correct interpretation/filling in of the question. Students in the treatment group that did not watch the video were excluded from the analysis. There were 75 students that properly interpreted the self-efficacy question on the pre-survey (68.2% of respondents). On the post-survey, 44 members of the control group (83.0%) and 52 member of the treatment group (80%) filled in the self-efficacy question correctly. Only students that filled out both the pre- and post-survey self-efficacy questions correctly were used in the analysis (N_{control} = 27, N_{treatment} = 21).
Given the relatively small sample size, in order to ensure that the relationships found were representative of the sample and not a few participants, it was sometimes necessary to remove outliers from the data. As suggested in Tabachnick and Fidel, outliers were screened using relatively conservative cut-offs [65]. Individual cases were deemed outliers if they had a Cook’s distance value that was greater than 3 standard deviations above the mean of the Cook’s distances for that particular analysis. Values this far from the mean could have undue influence on the results, so each analysis was run once with the outliers and once with them removed.
Chapter 4  Results & Discussion

In the literature review, we reviewed three topics: self-efficacy, self-regulation, and teaching and learning through video. The experimental results presented here discuss those topics in reverse order for a number of reasons. In the literature review, self-efficacy was presented first because an understanding of self-efficacy, and its role in social cognitive theory, is a prerequisite to understanding self-regulated learning. The discussion of video learning naturally followed this discussion, as the experiment addressed teaching self-regulation skills through online video. In the results, the way students received the video is presented first as it sets the stage for the discussion regarding the effects of the intervention on both self-regulation and self-efficacy. The self-regulation results are presented before the self-efficacy results because self-efficacy was directly addressed by the intervention.

Generally, the video and checklist were very well received. Comments the students made about the video were almost all positive, indicating that it was both entertaining and educational. These results were confirmed in the student responses to the video. In addition to being education and entertaining, the video caught and sustained the attention of most students. The students that didn’t watch the video indicated they didn’t because they were either “too lazy” or “too busy”. Analysis revealed that the students that didn’t watch the video were more likely to have achieved their grade goals.

Results showed that the intervention had a statistically significant effect on two aspects of students’ writing self-regulation: regulation of their environment, and goal setting. Overall, the writing self-regulation of students that watched the video improved, but not a statistically significant amount. Even though there was an increase in the writing self-regulation of students
in the control group, there was a statistically significant drop in both the control and treatment groups self-efficacy for grade achievement.

The following sections discuss each of these results in depth.

4.1 Video and Checklist Reception

If we’re going to use video to teach students in online environments, it’s important to understand how students perceive online video instruction. In particular, we attempt to answer the research question presented in the literature review:

**RQ3: How do students perceive instructional video scribed animations?**

We also need to understand what motivates students to participate in online video instruction: why do some students watch optional instructional video, while others do not?

The following section examines how the treatment group students’ perceived and interacted with the video and checklist. First we examine how and when students watched the video, and how they perceived the video with respect to its educational value, length, ability to capture and maintain their attention, and entertainment value. This is followed by an examination of students’ reactions to the checklist. The section concludes with a closer look at the students that didn’t watch the video. We examine their reasons for not watching the video, and analyze differences between those who watched the video and those who did not.

Of the 67 students in the treatment group that filled in the post-survey, 44 watched the video (65.7%) and 23 did not (34.3%). Fewer students (19) reported using the checklist that accompanied the video (28.4% of total) and 18 of the 44 students that watched the video used the checklist (40.9%).
4.1.1 Student response to the video

Of the 44 students that watched the video, 20 commented on the video. The comments were broken into three categories: *positive*, *neutral*, and *negative*. Positive comments accounted for 18 of the 20 comments, two were neutral, and none were negative. Appendix L contains all of the comments.

The positive comments focused on the educational and entertaining aspects of the video, and many students talked about how impressive the quality of the video was. For example, one student wrote “With the support of video I could write my blogs more efficiently and easily,” and another wrote that it “was a good video to watch as it was informative and entertaining at the same time.” It is possible that the positive response was in part due to other unmeasured factors such as the novelty of the presentation style. The open-ended request for comments about the video was included to allow students an opportunity to express any other thoughts or feelings, and nobody mentioned novelty or other factors.

The two neutral comments were related to the content of the video. One student said that there was a lot of information and the speed of the dialogue made it difficult to follow. That same student commented in the checklist comment section that the video was “very helpful”, so this comment could be considered positive. Another student said that the video could be shortened, specifically the introduction.

Informal pilot testing of the video revealed these issues prior to its delivery. It was difficult to balance having enough information with keeping the video relatively short. On one hand, there was a lot of information to convey, and on the other, we didn’t want to risk boring the students and creating a video that was too long. The compromise was to cut out a few of the less
important parts of the video and speak clearly but quickly while using the video-scribed animation to sustain students’ attention. Pilot testing showed that though the video was 13 minutes long, attention was maintained throughout. People that missed a portion of the video or wanted to augment their understanding went back and re-watched the section they needed to watch again.

In addition to the comments left in the survey, two comments were left on the YouTube video, both of which were general statements regarding the “awesomeness” of the video. It was also “Liked” three times.

**Engagement with the video**

To determine how engaged students were while watching the video, they were asked how they watched it. There were two factors inquired about: the number of times they watched the video, and the attention they paid to the video while watching it. Forty-two students that watched the video responded.

<table>
<thead>
<tr>
<th>Attention Given</th>
<th>Number of times watched</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Once</td>
</tr>
<tr>
<td>Skimmed</td>
<td>2</td>
</tr>
<tr>
<td>Multi-tasking</td>
<td>10</td>
</tr>
<tr>
<td>Full attention</td>
<td>24</td>
</tr>
</tbody>
</table>

*Table 4.1: Results: How students watched the video*

The majority of the students watched the video at least once with their full attention (n=29, 67.4%). This is quite remarkable considering the number of possible distractions available to
people while on a computer. Of the students that watched the video multiple times (n=7), the mean number of times it was watched was 3.7, with a standard deviation of 1.38.

Five students took notes while watching the video. Unsurprisingly a higher percentage (80%) of these students gave the video their full attention. Each of these students left very positive comments about the video. Two of these students used the checklist, which is a far higher percentage compared with the use of the checklist by all people that watched the video. There were no other obvious correlations in the collected data that suggest why they might have taken notes.

Students were also asked when they first watched the video. The graph of when the students first watched the video is bi-modal, see Figure 4.1: a large portion of the students watched the video when it was first sent to them (n=19, 44.2%), and then another group first watched the video the day the blog was due (n=10, 23.3%). The day the blog was due, an email reminder was sent to the students that included the link. Seven of the ten students specified that it was when they received this reminder that they watched the video. The email reminder was highly effective. It’s unfortunate that more students didn’t engage with the video sooner as some of the self-regulation skills taught require actions over many days, though there were useful skills shown in the video that could be used immediately.
Figure 4.1: When students first viewed the intervention video

Impressions of the video

Six questions were asked in four categories to assess the students’ perceptions of the video. The categories were: educational value, video length, attention, and entertainment. All of the questions were asked in a Likert-scale format, with responses ranging from 1 (strongly disagree) to 7 (strongly agree).

Educational Value

The point of the video was to teach students self-regulation skills and help them with their blogging process. Students were asked if the video improved the quality of their blog; see Figure 4.2: Video effect on blog quality for the results. Of the 43 students that responded, 26 of them at least somewhat agreed that the video improved the quality of their blog (60.4%). 20.9% of the students strongly agreed that the video improved the quality of their blog.
It’s important that the video had an immediate impact on the quality of the blogs. If students hadn’t perceived the skills as immediately useful it is unlikely that the students would continue to use and develop the newly acquired skills. The goal of the video was to teach self-regulation skills and the fact that most students found the video improved the quality of their next blog is encouraging.

**Video Length**

Students were asked two questions about the length of the video: one to assess if it was too long, and another to assess if it was too short, see Figure 4.3. The video was 13 minutes, 13 seconds long (13:13). One of the concerns was that if the video was too long, students would not watch it. There was no question on the post-survey that explicitly asked the students that did not watch the video if length was a factor in their decision. One student that did not watch the video explicitly stated length as a factor in their comments.

The original goal for the length of the video was to be no longer than ten minutes. The reason for this was the same as the reason for selling items for $9.99 instead of $10.00: the experimenter
wanted to increase the consumption of the video by having the students perceive the resource requirement to be lower [66]. In this experiment the resource was time instead of money. It was decided that the content that would have been cut out to meet the goal was more valuable to the students than to have a shorter video.

Unsurprisingly, nobody thought the video was too short. Nineteen people indicated that the video was at least somewhat too long, and almost all of those indicated that the video was at least somewhat too long (n=17). Clearly, people that thought the video was too long really felt like it was too long as shown by the fact they said it was not too short also. However, 13 of the 19 still reported that the video improved their blog. All of them reported that the video caught their
attention and 15 of them at least somewhat agreed that the video sustained their attention. This implies that even the people that thought the video was too long still found it useful.

There were 10 people that were neutral about the video being too long, and all of them were either neutral about it being too short (n=7) or disagreed that the video was too short (n=3). These people didn’t seem to mind the length of the video, however, 50% of them reported never viewing the video with their full attention. On average 67.4% of viewers gave the video their full attention, implying that the people that were neutral about the length were paying less attention than the average viewer. Even though they were paying less attention, 60% reported at least somewhat agreed that the video improved their blog.

Perhaps the most interesting group are the people that at least somewhat disagreed that the video was too long (n=14): all of these people either at least somewhat disagreed that the video was too short (n=11) or were neutral about the video being too short (n=3). This implies that people in this group thought the video was the perfect length. People in this group were also more likely than others to have watched the video with their full attention (12/14 = 85.7%). Strangely, people in this group reported that the video improved their blog less than the average viewer (n=7, 50%).

Attention

An important factor in motivating students to learn is the ability of a teacher to both catch and maintain students’ attention [67]. When teaching through video, the video must sustain and maintain the students’ attention the same way a teacher would in a face-to-face scenario. It’s generally easier to catch a student’s attention than it is to sustain it. For this reason, it was anticipated that the students’ scores for initial attention would be higher than for sustained
attention. It was also hypothesized that due to the engaging content delivery method (video
scribing) the video would sustain the students’ attention to some extent.

![Attention Graph](image)

**Figure 4.4: Student attention while watching video**

Results show that the majority of students at least somewhat agreed that the video both caught
(n=37, 86.0%) and sustained their attention (n=35, 81.4%), see Figure 4.4. The notion that it’s
easier to catch than to sustain attention is supported when looking at the number of people that at
least agreed that their attention was caught (n=30, 69.7%) versus the number that at least agreed
that their attention was sustained (n=24, 55%). Interestingly, the number of students that
strongly agreed that the video caught and sustained their attention was equal (n=15, 34.1%).

All of the people that reported they were neutral or disagreed that the video caught their attention
reported that they did not ever pay full attention to the video (n=6). These people also all
reported either somewhat disagree (n=1), neutral (n=4), or somewhat agree (n=1) that their
attention was sustained. This is 62.5% of all the people whose attention was not at least
somewhat sustained. It seems as though these people simply did not pay much attention to the
video. They all reported that they did not find the video entertaining, and only two of them said
the blog somewhat improved their blog (33%). The average of the pre-survey blog marks of these students was lower than the average of the students whose attention was at least somewhat caught by the video (70.2% vs. 78.0%).

**Entertainment**

The primary reason that the content was delivered as a video scribed animation is that the researcher found the technique to be very engaging. Students were asked about how entertaining they found the video and the majority of the students reported that they found it at least somewhat entertaining (n=30, 69.8%), see Figure 4.5.

![Video entertaining chart]

**Figure 4.5: Student perceptions of video entertainment**

There were 13 students that did not perceive the video as at least somewhat entertaining and 11 of them reported that they didn’t watch the video even once with their full attention. These students account for 78.5% of the total students that didn’t pay full attention to the video at least once. Unsurprisingly, students that did not find the video at least somewhat entertaining were the students that didn’t give the video at least one viewing with their full attention.
4.1.2 Student response to the checklist

A checklist containing items corresponding to the video content was emailed to the students in the treatment group at the same time they received the link to the video. There were 19 students that reported using the checklist: 18 students both watched the video and used the checklist and one person reported using the checklist but not watching the video. Of those 19 students, 16 gave comments about their use of it. The comment question was open-ended and did not specifically ask about the various parts of the checklist. Comments were examined and assigned to the categories in Table 4.2: Checklist usage. Some students mentioned multiple uses of the checklist in their comments and therefore that comment was included more than once in table.

<table>
<thead>
<tr>
<th>Used for</th>
<th>Number of students</th>
</tr>
</thead>
<tbody>
<tr>
<td>General guideline / process</td>
<td>7</td>
</tr>
<tr>
<td>Brainstorming</td>
<td>5</td>
</tr>
<tr>
<td>Research</td>
<td>3</td>
</tr>
<tr>
<td>Timeline</td>
<td>2</td>
</tr>
<tr>
<td>Outline</td>
<td>2</td>
</tr>
<tr>
<td>Writing Environment</td>
<td>2</td>
</tr>
</tbody>
</table>

*Table 4.2: Checklist usage*

Some students commented on their use of specific parts of the checklist, but most students’ comments reflected that they used the checklist as a guide to help them with the writing process. Generally, the students indicated that the checklist helped them organize and structure their writing process more, and that it made the blog writing process easier. For example, one student wrote “I try to use all the parts. The video was very helpful. On my other blogs I didn't go through all the parts of the writing process. Using the checklist made my work quite easy.” All checklist comments are available in Appendix M.

The response to both the delivery method and the content was overwhelmingly positive. It seems as though video scribed animation can be used to engage students in learning
environments. The checklist proved to be very useful and was a very good scaffolding device when used in conjunction with the video. The video taught the theory, and the checklist gave students something concrete to use when implementing what they had learned. It served as a reminder of the video content and helped students with their self-regulation.

4.1.3 Students that didn’t watch the video

Twenty-three treatment group students did not watch the video. This section examines two things: the reasons students gave for not watching the video, and the differences between students that watched the video and those that did not.

**Reasons for not watching video**

Students that didn’t watch the video were asked their reason for not watching it. Of the 23 students that did not watch the video, 18 responded. Responses were grouped into the following categories: *too busy*, *not interested*, and *already satisfied*, see Table 4.3: Reasons for not watching video.

<table>
<thead>
<tr>
<th>Reason</th>
<th>Number of students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Too busy</td>
<td>9</td>
</tr>
<tr>
<td>Not interested</td>
<td>6</td>
</tr>
<tr>
<td>Already satisfied</td>
<td>3</td>
</tr>
</tbody>
</table>

*Table 4.3: Reasons for not watching video*

Students that stated the reason *too busy* often stated their lack of time due to work and course loads during the semester. For example, one student wrote “Unable to complete 3rd blog due to heavy course and workload this summer.” Students that stated they were *not interested* were not interested enough to make time to watch the video. Students that stated they were *already satisfied* were already satisfied with their blog writing method and/or marks. One student wrote “No time. Decent marks on blog already.” All of the comments are available in Appendix N.
Two students gave responses that were not about the intervention video. There were a number of short instructional videos made for the students by the researcher as part of his TA duties. These videos showed the students how to complete basic technical tasks that students were having trouble with. Two students responded about these videos and their responses were not included in the results.

**Factors influencing video viewing**

The following analysis examines differences between the students that watched the video and those that did not. The researcher hypothesized that students that watched the video were striving for higher grades than students that did not watch the video. The idea was that students who are striving for higher grades would try to do all they can to increase their grades. The email sent to the students with the video said that it might help them with their next blog. To test this theory a one-way ANOVA was conducted that examined the difference in the means of the treatment group students that watched the video and those that didn’t.

Of the 44 students in the treatment group that watched the video, 37 filled in the pre-survey question about the grade they were striving for on their next blog. Of the 23 students in the treatment group that didn’t watch the video, 20 filled in that question. Results showed no significant difference between the grades being strived for, $F(1,56) < 1$, $ns$. Looking more closely at the data showed that most people were striving for at least an A on their 3rd blog, see Figure 4.6: Treatment group students’ grade goals. Of the 37 students that watched the video, 27 were striving for at least an A (73.0%), compared to 16 of the 20 students that did not watch the video (80.0%). A slightly higher percentage of the students that didn’t watch the video were striving for at least an A. This is an interesting finding, but possibly due to the small sample size, it is not significant.
After finding that the treatment group students that didn’t watch the video had slightly grade goals, I examined if the students with higher grade goals got higher marks on their first two blogs. A Pearson product-moment correlation was conducted to assess the relationship between the grade students were striving for and the blog marks that they received on their first two blogs. There was a significant correlation between the two variables, \( r = 0.640, n=55, p=0.000 \) (1-tailed).

As the previously achieved grades increased, the grades a student strived for also increased. It appears as though the students that had already gotten high grades didn’t feel as much of a need to watch the video as those that got lower grades. This implied that students who achieved higher grades were more satisfied with their outcomes and therefore didn’t feel the need to improve on their blogging. To further examine this idea, the grades achieved were compared with the grades students were striving for and also to the self-reported values of satisfaction with the grade level achieved.
The grades students were given were numerical (e.g. 84) but they were asked in the self-efficacy and satisfaction questions about alphabetic grades (e.g. A-). These questions were asked in alphabetic grades to correspond with previous research in the area [9]. Only after the surveys were completed did the researcher realize there are various ways to translate numeric grades into letter grades in different regions [68]. As there was never a conversion table given to the students there is likely slight variation in student beliefs of what numeric grade the letter grades correspond. Though there is likely variation (e.g. one student might think an A- is 80-83, and another might think an A- is 78-82), the variance will not be large. The numeric to letter conversions used in the analysis can be found in Appendix O.

The numeric grades students achieved were converted into letter grades and compared to the grades that they were striving for. The letter grades were then coded from 10 = A+ to 1 = F. The level of dissatisfaction with the grade achieved was calculated for each student by subtracting the grade achieved from the grade that the student was striving for ($dissatisfaction = striving - achieved$). The higher the dissatisfaction, the further the student was away from reaching the grade they were striving for. Figure 4.7: Treatment students' distance from grade goals shows the percentage of students that both watched and did not watch the video plotted against how far they were from their desired grade. A score of 0 indicates that the desired grade was achieved, and each unit away from 0 is a half-grade below the desired grade. For example, if a student was striving for an A- but they got a B+, they are one half-grade away from their desired grade.
Students that either achieved the grade they were striving for or were one half-grade below their grade goal were less likely to watch the video than students that were two half-grades away from their goal. Sixty percent of the students that didn’t watch the video either achieved or were within a half-grade of their desired grade. Only 37.2% of the students that watched the video either achieved or were within one half-grade of their desired grade. When students were two half-grades away from their desired grade there is a spike in the percentage of people that watched the video. Of the people that watched the video, 40% were two half-grades away from their goal, compared to only 20% of the people that did not watch the video.

If a student’s results are within a reasonable distance (in this case, half a grade), they are less likely to take action than if they are further from their goal. This is possibly because they believe themselves capable of achieving their goal without needing to take action. It appears that at a certain point when results don’t meet expectations, students take action to rectify the problem. This starts when results are two half-grades below the desired goal, and appears to continue as
students are further from their goals, but there is not enough evidence to say anything with certainty about these students.

**Grade satisfaction as motivation**

Finding that students who got two half-grades below the mark they were striving for prompted an investigation about student-reported satisfaction with the different grades. Students were asked on the pre-survey about how satisfied they would be with each grade from F to A+ in half-grade increments (i.e. A+, A-, B+, etc.). Responses could range from “highly dissatisfied” to “highly satisfied”, with three options both above and below neutral. The satisfaction options were “somewhat satisfied” (4 on the 7-point Liker scale), “satisfied” (5), and “highly satisfied” (6).

An examination of each of the three levels of satisfaction was completed. First, the average grade achieved on the first two blogs was subtracted from the grade each student indicated they’d be “somewhat satisfied” with:

\[
\text{half-grades below satisfied} = \text{somewhat satisfied grade} - \text{grade achieved}
\]

If a student achieved more than the grade they would be somewhat satisfied with, their score was set to 0. Figure 4.8: Half-grades below somewhat satisfied graphs the distance below the mark students indicated being “somewhat satisfied” with (in half-grades) by the % of students in that category. The graph shows that most students achieved at least the grade that they would be somewhat satisfied with.
A similar analysis was run using the “satisfied” data instead of the “somewhat satisfied” data. Figure 4.9: Half-grades below "satisfied" shows that fewer people got the grade that they’d be satisfied with. 22.3% more people that achieved the grade they were satisfied with did not watch the video, implying that being satisfied with the grade achieved is a factor in the decision to watch the video.

The same analysis was then run comparing the students’ results to their “highly satisfied” grade, see Figure 4.10: Half-grades below "highly satisfied". The chart shows that fewer people again got the grade they’d be “highly satisfied” with. Students were less likely to watch the video if they got the grade they were highly satisfied with. Of all students that achieved their “highly satisfied” grade, 18.4% more reported they did not watch the video.
We can see by looking at the charts that not achieving the grade that the student was at least somewhat satisfied with was a motivating factor in watching the video.
4.2 Self-regulation

Students’ use of self-regulation strategies has been shown to be positively correlated with the quality of writing outputs [38]. This section attempts to answer the second research question:

**RQ2: Can we teach students to be self-regulated writers through video instruction in an online environment?**

We do this by contrasting the pre- and post-survey responses of the students in the control and treatments groups. The researchers hypothesized that students in the treatment group that watched the video would be more self-regulated after watching the video. Results showed that there was a significant increase in the treatment group’s environmental self-regulation and also in their goal setting, which is a part of personal self-regulation. Table 4.4: Self-regulation results summary summarizes the experimental findings.

This section examines the effects of the intervention on students’ self-regulation. We start by describing the effect of the intervention on self-regulation as a whole, and follow that by examining the effect it had on each of the self-regulation processes.
<table>
<thead>
<tr>
<th>SR Process</th>
<th>SR sub-process</th>
<th>Results Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>--</td>
<td>No significant difference in the SR score over time, though the treatment group scores went up and the control group scores remained approximately the same.</td>
</tr>
<tr>
<td>Environmental</td>
<td>Selecting, organizing, and creating effective writing settings</td>
<td><strong>A significant increase in the treatment group’s environmental self-regulation.</strong></td>
</tr>
<tr>
<td>Behavioral</td>
<td>Self-monitoring</td>
<td>No significant changes in self-monitoring over time.</td>
</tr>
<tr>
<td>Behavioral</td>
<td>Self-verbalization</td>
<td>No significant changes in self-verbalization after the intervention; increasing trend in the treatment group.</td>
</tr>
<tr>
<td>Personal</td>
<td>Time planning &amp; management</td>
<td>No significant changes in time planning self-regulation after the intervention.</td>
</tr>
<tr>
<td>Personal</td>
<td>Goal setting</td>
<td><strong>Significant differences in the treatment group’s goal setting self-regulation after the intervention.</strong></td>
</tr>
<tr>
<td>Personal</td>
<td>Self-evaluating standards</td>
<td>No significant differences in self-evaluating standards.</td>
</tr>
<tr>
<td>Personal</td>
<td>Cognitive strategies</td>
<td>No significant differences in cognitive strategies.</td>
</tr>
</tbody>
</table>

| Table 4.4: Self-regulation results summary |

### 4.2.1 Overall

A two-way mixed-model ANOVA was conducted that examined the effect of time and experimental group on self-regulation. The dependent variable, students’ mean self-regulation score, was normally distributed for the groups formed by the levels of time (pre- and post-surveys) and experimental group (control and treatment) as assessed by the Shapiro-Wilk test. There was homogeneity of variance between the groups as assessed by Levene’s test, which tests for equality of error variances. There was a non-significant Time x Group interaction, F(1, 63) = 1.970, *ns*. This effect tells us that the SR scores did not significantly differ in the control and experimental groups across time. Though the result is not significant, we can see by looking at Figure 4.11 that the treatment group saw an increase in their SR scores, while the control group did not. These results suggest that even though there was not a significant difference in the scores, there is reason to believe that video scribed animation can be used in online courses to
Teach people self-regulation. It’s possible that with a larger sample size, this positive change in self-regulation could be significant.

There was a non-significant main effect of time, $F(1, 63) < 1$, *ns*. This tells us that if we ignore which group the students were in there was a non-significant difference between the SR scores across time. There was also a non-significant main effect of group, $F(1, 63) < 1$, *ns*. This tells us that if we ignore the time that the SR measurement was taken, the groups had similar scores.

Teaching people to be self-regulated is a difficult task, especially college level students [69]. That there was an increase in the treatment group’s self-regulation provides encouraging feedback for the use of video to teach self-regulation. It was not expected that the behaviors of all of the students in the class would change so slightly increasing the self-regulatory abilities of some students is seen as a success. Given that the course was an online distance education course offered in the summer semester the results are especially encouraging. The 0.2 mean
increase in the SR score of the treatment group students, from approximately 4.6 to 4.8, means that on average one in five students increased their SR score one full increment on the Likert scale. To examine what specific areas were influenced by the video, further analysis was carried out on each of the SR processes.

4.2.2 Environment

A two-way ANOVA was conducted that examined the effect of time and experimental group on environmental self-regulation. The dependent variable, environmental self-regulation, was normally distributed for the groups formed by the levels of time (pre- and post-surveys) and experimental groups (control and treatment) as assessed by the Shapiro-Wilk test. There was homogeneity of variance between the groups as assessed by Levene’s test, which tests for equality of error variances.

There was a significant Time x Group interaction, $F(1,67) = 5.926, p < .05$. This tells us that the Environmental SR scores significantly differed in the control and treatment groups between the pre- and post-surveys. Paired-samples t-tests were conducted to compare pre- and post-survey Environmental SR in the control and treatment groups. There was a significant difference in the scores for the treatment group on the pre-survey ($M=4.47, S=1.33$) and post-survey ($M=5.52, S=1.26$), $t(29)=-4.533, p=.000$. There was no significant difference in the scores for the control group on the pre-survey ($M=4.96, S=1.39$) and post-survey ($M=5.26, S=1.14$), $t(34)=-1.27, p=.212$. 


There was a significant main effect of the time that the Environment SR score was measured, $F(1,67) = 16.328, p < .001$. This effect tells us that if we ignore which group the SR rating came from, the Environment SR scores in the pre- and post-surveys significantly differed. Bonferroni post-hoc tests showed that post-survey ratings for Environmental SR were significantly higher than the pre-test ratings, $p < .001$. There was a non-significant main effect of group, $F(1,67) < 1$, $ns$. This tells us that if we ignore the time that the Environmental SR measurement was taken, the groups had similar scores.

Environmental regulation was discussed in the first few minutes of the video. Students were encouraged to manipulate their physical environments to make them more conducive to writing. It suggested shutting off TVs and cell phones and working in a quiet place, as students have reported the least ability to concentrate with distractions around. The video also talked about the importance of being comfortable when writing. It takes very little effort to increase your
environmental self-regulation and the payback from doing so can be quite noticeable. For example, going to the library or another quiet place is an easy way to increase your ability to concentrate. Environmental manipulations such as going to the library or changing your clothes are one-time-per-session commitments and are not mentally taxing. This manipulation takes very little effort, so it’s unsurprising that students increased their environmental self-regulation after watching the video.

4.2.3 Behavior

A two-way ANOVA was conducted that examined the effect of time and experimental group on behavioral self-regulation. The dependent variable, behavioral self-regulation, was normally distributed for the groups formed by the levels of time and experimental groups as assessed by the Shapiro-Wilk test. There was homogeneity of variance between the groups as assessed by Levene’s test.

There was a non-significant Time x Group interaction, $F(1,61) < 1, ns$. This tells us that the behavioral SR scores did not significantly differ in the control and treatment groups between the pre- and post-surveys.
Pre-survey behavioral self-regulation scores suggest that there’s not a high level of behavioral self-regulation occurring when writing blogs. Behavioral self-regulation includes writing down what you’re doing, and when, and under what environmental conditions (self-monitoring) as well as self-verbalization (i.e., talking to yourself while working). Self-monitoring allows for better self-reflection on the strategies employed, and what works and doesn’t work for a particular person. Scores on the post-survey showed little change in these behaviors, despite the fact that self-monitoring was one of the focal points of the video intervention. This is not surprising: self-monitoring requires consistent effort and does not show immediate results, especially if the task at hand is relatively small. The perceived costs (time & effort required to self-monitor progress) are more than the immediately perceptible benefits. Longer-term, self-monitoring allows you to reflect on your process and identify strengths and weaknesses. In turn, you can then adapt your
strategies to improve performance. If an assignment is not perceived as large enough to warrant the effort required to self-monitor it’s unlikely a student would be likely to do so. Furthermore, if a student is satisfied with their current level of achievement on that assignment there is little benefit in expending the additional effort required to self-monitor.

There are two factors that make up behavioral self-regulation: self-monitoring and self-verbalization. Further behavioral analysis was completed by conducting two-way mixed-model ANOVAs using the behavioral factors as dependent variables.

**Self-monitoring**

There was a non-significant Time x Group interaction, F(1, 65) < 1, *ns*. This effect tells us that the ratings of Behavior – Self-monitoring SR did not significantly differ in the control and experimental groups over time, see Figure 4.14. For reasons previously discussed this is not surprising. We can see that the self-monitoring scores are lower than the average behavioral SR scores. As there are only two factors in behavioral SR, it’s clear that students self-monitor less than they self-verbalize. This isn’t surprising considering how much easier it is to talk to yourself than it is to monitor your progress.
There was a non-significant main effect of group, $F(1,65) < 1$, $ns$. This tells us that if we ignore the time that the Environmental SR measurement was taken, the groups had similar self-monitoring scores. There was a non-significant main effect of the time that the Behavior – Self-monitoring SR score was measured, $F(1,65) < 1$, $ns$. This effect tells us that if we ignore which group the SR rating came from, the Behavior – Self-monitoring SR scores in the pre- and post-surveys were not significantly different.

**Self-verbalization**

Only one question was used to assess self-verbalization. The data used in the analysis was the raw data for that question. There a non-significant Group x Time interaction, $F(1,65) < 1$, $ns$. There were also non-significant effects for both group and time for Behavior – Self-talk variables, $F(1,65) < 1$, $ns$. 
4.2.4 Personal

A two-way ANOVA was conducted that examined the effect of time and experimental group on personal self-regulation. The dependent variable, personal self-regulation, was normally distributed for the groups formed by the levels of time and experimental groups as assessed by the Shapiro-Wilk test. There was homogeneity of variance between the groups as assessed by Levene’s test.

There was a non-significant Time x Group interaction, $F(1,63) < 1, ns$, see Figure 4.16: Intervention effect: Personal SR. This tells us that the personal SR scores did not significantly differ in the control and treatment groups between the pre- and post-surveys.
There were non-significant main effects of the time and group for the behavioral SR scores, F(1,63) < 1, ns, meaning that there were not significant differences either between the groups’ scores, or between the times the scores were measured.

Further analysis was conducted on each of the personal processes sub-processes: time management & planning, goal setting, and cognitive self-regulation. Two-way mixed model ANOVAs were run for each, but no significant effects or interactions were found. Even though there were no significant Time x Group interactions found, there were some interesting trends worth investigating which yielded significant results. The trends and post-hoc tests completed will be discussed in the following sections.

Figure 4.16: Intervention effect: Personal SR
Time Management & Planning

There was a non-significant Time x Group interaction, F(1, 63) < 1, ns. This effect tells us that the ratings of Personal SR – Time management did not significantly differ in the control and experimental groups over time. There was a non-significant main effect of group, F(1,63) < 1, ns. This tells us that if we ignore the time that the Personal SR - Time Management measurement was taken, the groups had similar time-management scores. There was also a non-significant main effect of time on Personal SR – Time Management scores, F(1,63) <1, ns. This effect tells us that if we ignore which group the SR rating came from, the Personal SR – Time Management scores in the pre- and post-surveys were not significantly different.

Figure 4.17: Intervention effect: Personal SR, Time Management and Planning
As we can see, the time management scores for both the treatment and control groups dropped on the post-survey. This is possibly because third blog was due two days after another major assignment in the course which was worth far more than the blogging assignment. This meant that students were most likely busy working on the other assignment until two days before the blog was due, leaving little time to plan the blog.

**Goal Setting**

There was a non-significant Time x Group interaction, $F(1, 63) = 3.351, p = .072, ns$. This effect tells us that the ratings of Personal SR – Goal setting did not significantly differ in the control and experimental groups over time, see Figure 4.18: Intervention effect: Personal SR, Goal setting. There was a non-significant main effect of group, $F(1,63) = 3.241, p = .077, ns$. This tells us that if we ignore the time that the Personal SR – Goal Setting measurement was taken, the groups had similar time-management scores. There was a non-significant main effect of the time that the Personal – Goal Setting SR score was measured, $F(1,66) = 1.008, ns$. This effect tells us that if we ignore which group the SR rating came from, the Personal SR – Goal Setting scores in the pre- and post-surveys were not significantly different. Though the results were not significant, the treatment group was trending to the positive while the control group remained approximately the same. A paired sample t-test was run to investigate this trend.
The t-test showed a significant difference in the scores for the treatment group on the pre-survey (M=5.00, S=1.00) and post-survey (M=5.40, S=1.06), t(30)=−4.533, p<.05. This indicates that the goal setting self-regulation scores for the treatment group were significantly higher after watching the video.

This is an important finding as goal setting is an integral part of learning and motivation [18]. Goal setting was emphasized in the video, and the students were told to pause the video and set their own goals. The video explained the properties of good goals and the benefits of setting goals. Example goals were given, and the checklist had fill-in-the-blank areas for students to set their own goals. Goal setting is not a particularly time-consuming task, so it is unsurprising that students were willing to engage in it. The benefits of goal setting are also apparent: if you set goals, you have something concrete to aim for.
To examine which parts of the goal setting metric were most heavily influenced by the intervention, mixed model ANOVAs were run on each of the questions.

**Challenging Goals**

There was a significant Time x Group interaction, $F(1,63)=4.081, p<.05$ for the question on setting challenging goals, indicating that there was a change in the scores over time between the two groups.

![Graph](image)

**Figure 4.19: Intervention effect: Personal SR, Challenging goals**

A paired sample t-test was run on the treatment group data and results showed a significant increase in the treatment group’s challenging goal setting scores between the pre- and post-tests, $t(29)=-2.340, p < .05$. It appears as though the video and checklist combination encouraged and supported students to set challenging yet achievable goals. Setting challenging but achievable goals encourages students to work harder which over time will lead to improved quality of work.
Creating an outline

The question on creating an outline before the post had a marginally significant Time x Group interaction, F(1,63)=3.9, p=.053 which warranted doing a post-hoc paired sample t-test to compare the means of the treatment group on the pre- and post- survey, see Figure 4.20:

Intervention effect: Personal SR, Creating an outline.

![Personal SR - Creating an Outline](image)

Figure 4.20: Intervention effect: Personal SR, Creating an outline

Results of the t-test showed a non-significant difference in the outlining scores, t(29)=-1.86, p =.073 (2-tailed). Despite the fact that the test was non-significant, these results show a trend that students outlined more after watching the video. It is possible that this result would be significant with a larger number of participants.
**Blog length**

The final question that showed a marginally significant interaction was the question about setting a goal for the length of their upcoming blog. The Time x Group interaction was non-significant, F(1,62)=3.556, p=.064, but was close enough to warrant further investigation of the treatment group’s data.

![Personal SR - Blog Length](image)

**Figure 4.21: Intervention effect: Personal SR, Blog length**

A paired sample t-test was conducted on the pre- and post-survey data for the treatment group’s data on setting a concrete length goal. The results showed a significant increase in the setting of length goals for the treatment group students, t(29)=-2.165, p < .05 (2-tailed). Setting concrete
goals is a very important part of goal setting and it’s very encouraging that students that received the video and checklist showed an increase in their capacity to do so.

**Self-evaluative standards**

Students’ self-evaluative standards were measured with only one question which asked them if they self-marked their blogs using the rubric before submitting them. A two-way mixed-model ANOVA showed no significant Time x Group interaction, $F(1,61) <1$, *ns*. There were also no significant differences between the groups, $F(1,61) <1$, *ns*, or between the times $F(1,61)=2.959$, *ns*. Further paired sample t-tests were run to examine the trend of decreasing self-evaluation in both the control and treatment groups, but the tests yielded non-significant results.

There are a number of possible reasons why the self-evaluative standards decreased for both groups on the post survey. The most likely reason is that students were more familiar with the rubric and what was expected of them by the time they filled in the post-survey. Students filled in the pre-survey after handing in their second blog. This means that at the time of filling out the pre-survey they had only submitted two blogs and done one set of peer reviews. By the time students submitted the post-survey they had handed in three blogs and done two sets of peer reviews. This means that they had almost twice the experience with the rubric. By the time they handed in their post-survey they may not have felt the need to explicitly self-mark their blogs against the rubric as they knew what was expected.
Cognitive strategies

Self-regulated cognitive strategies refer to the methods students use to organize, produce, and transform their writing. Eleven questions were used to assess cognitive self-regulation. A two-way mixed-model ANOVA was conducted, and a non-significant Time x Group interaction was found, $F(1,62) < 1$, $ns$, see Figure 4.23: Intervention effect: Personal SR, Cognitive strategies. There were also non-significant main effects of time, $F(1,62)=1.503$, $ns$, and group, $F(1,62) < 1$, $ns$.  

Figure 4.22: Intervention effect: Personal SR, Self-evaluation
Although there were no significant differences over time, it’s interesting to note that both the control and treatment groups experienced a positive change in their cognitive self-regulatory behaviors. It appears that as students practiced writing blogs they developed and made more use of cognitive strategies such as brainstorming, writing a draft, and revision. Further analysis was completed on the individual questions using mixed model ANOVAs. There were no significant Group x Time interactions and no main effects of group or time for any of the survey questions.

4.3 Self-efficacy

The effect of the intervention on students’ self-efficacy was assessed in order to answer the first research question:
RQ1: Will teaching students writing self-regulation skills increase their self-efficacy for grade achievement?

This section examines the effect of the intervention on students’ self-efficacy. There was a significant drop in both the treatment and control group students’ self-efficacy after the intervention.

Measuring perceived self-efficacy for academic achievement has previously yielded a negative, monotonic curve in which the strength of the efficacy beliefs decreased systematically as grade levels increased [9]. It was assumed that the same pattern would exist for students in this class also: the strength of the belief that one can achieve a particular grade would be highest for F, and lowest for A+. This assumption is at the heart of the algorithm used to determine if a student “properly interpreted” the question. Examination of the self-efficacy for grade achievement data showed that this was the case.

Figure 4.24: Pre-test self-efficacy and satisfaction
Figure 4.24 shows that as a group, the highest grade that students feel somewhat confident of achieving (rating 5) is a B+ (M=5.24). This score is also the lowest grade that students reported being somewhat satisfied with (M=4.91). It appears as though achieving grades that students do not have confidence to achieve leads to increased satisfaction.

4.3.1 Effect of intervention on self-efficacy

Means and standard deviations for each of the grades and the mean self-efficacy scores on both the pre- and post-surveys are given in Table 4.5: Self-Efficacy Descriptive Statistics.

The mean self-efficacy scores dropped for each grade (except F) for both the control and the treatment groups on the post-survey, see Figure 4.25 and Figure 4.26. This was an unexpected result. It was hypothesized that if students’ self-regulation increased their self-efficacy for grade achievement would also increase. It’s possible that this happened due to an effect of the peer-evaluation of the blogs, or a problem with the scale used to measure self-efficacy.

A mixed model ANOVA was run to assess (a) whether or not there were differences in the experimental groups pre-test, and (b) the effect of the intervention on students’ self-efficacy. A two-way mixed model ANOVA is appropriate because there is one repeated-measures (within-subjects) independent variable with two levels (time - pre and post intervention) and one between-group independent variable (experimental group - whether or not they received the intervention video); the dependent variable is the self-efficacy score.
<table>
<thead>
<tr>
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<th>A</th>
<th>A-</th>
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<th>B</th>
<th>B-</th>
<th>C+</th>
<th>C</th>
<th>C-</th>
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<th>D</th>
<th>D-</th>
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Table 4.5: Self-Efficacy Descriptive Statistics
The results of the mixed ANOVA show that there was a non-significant main effect of group, $F(1, 46) < 1$, ns. This tells us that if we ignored the time the rating was given, the participants in both the groups gave similar self-efficacy ratings. There was a significant main effect of time, $F(1,46)=6.991$, $p<.05$. This effect tells us that if we ignore whether the self-efficacy rating came from the control or experimental group, the ratings of self-efficacy significantly differed between
the pre-test and the post-test. Bonferroni corrected post hoc tests showed that self-efficacy scores were significantly higher in the pre-test ($ps < .05$). There was a non-significant Group x Time interaction, $F(1, 46) = .002, ns$. This tells us that the pre-test and post-test self-efficacy ratings did not differ significantly in the control and treatment groups. These results imply that the treatment did not have an effect on the self-efficacy of the treatment group.

To further analyze the effect of the video on self-efficacy the hypothesis that the students that watched the video experienced less of a negative change in their self-efficacy was tested. A one-way ANOVA was conducted that examined the effect of watching the video on the change in self-efficacy. The change in self-efficacy was calculated by subtracting the post-survey self-efficacy score from the pre-survey self-efficacy score. The groups compared were the control group and the treatment group students that watched the video. The dependent variable, change in self-efficacy, was normally distributed as assessed by the Shapiro-Wilk test. There was homogeneity of variance between groups as assessed by Levene’s test for equality of error variances. Results showed no significant difference in the change in self-efficacy between the students that watched the video and the control group, $F(1,46) < 1, ns$.

To test for more fine-grained changes in self-efficacy, a series of mixed model ANOVAs were run on each of the grade groupings from As to Ds. Grades were grouped together such that all of the letter grades, regardless of their sign, made up a single factor (i.e. A+, A, and A- became “As”, B+, B, and B- became “Bs”, etc.).
As before, the between-subjects independent variable was time, the within-subjects independent variable was experimental group, and the dependent variable was the self-efficacy rating for each grade letter. Results showed no significant differences for any of the Time x Group interactions for any of the grades. There was a significant main effect of time for the As and Bs, but not for the Cs and Ds, see Table 4.6: Self-efficacy by grade grouping. This means that ignoring group, there was a significant change in the self-efficacy rating over time for the As and Bs, but not for the Cs and Ds. There were no significant main effects of group for any of the grade levels, nor was there any significant interaction between Time x Group.

<table>
<thead>
<tr>
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<th>Time</th>
<th>Group</th>
<th>Time x Group</th>
</tr>
</thead>
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<td>As</td>
<td>F(1,42)=5.577, p &lt; 0.05</td>
<td>F(1,42)=.001, ns</td>
<td>F(1,42)=.166, ns</td>
</tr>
<tr>
<td>Bs</td>
<td>F(1,42)=6.617, p &lt; 0.05</td>
<td>F(1,42)=.011, ns</td>
<td>F(1,42)=.001, ns</td>
</tr>
<tr>
<td>Cs</td>
<td>F(1,42)=1.143, ns</td>
<td>F(1,42)=.001, ns</td>
<td>F(1,42)=.830, ns</td>
</tr>
<tr>
<td>Ds</td>
<td>F(1,42)=.521, ns</td>
<td>F(1,42)=.25, ns</td>
<td>F(1,42)=.521, ns</td>
</tr>
</tbody>
</table>

Table 4.6: Self-efficacy by grade grouping
Chapter 5  Conclusions & Future work

As the results show, we were able to enhance students’ writing self-regulation through the use of a video scribed animation in an online environment. This is a success as teaching college students self-regulation skills has proven difficult in the past [69]. Students found the video scribed animation to be entertaining, engaging, and educational. This section reviews the research questions and results, and discusses possible directions for future research.

RQ1: Will teaching students writing self-regulation skills increase their self-efficacy for grade achievement?

RQ1 investigated whether teaching students self-regulation skills would increase their self-efficacy for grade achievement. In this experiment, it did not. In fact, although there was a statistically significant increase in some of the students’ self-regulation processes, the self-efficacy for grade achievement significantly dropped after the intervention. Although it’s not known why the self-efficacy for grade achievement dropped significantly between the 2nd and 3rd blogs, the drop existed in both the control and treatment group. This indicates that the drop was not likely due to the intervention. It’s hard to determine if the drop was a real drop in self-efficacy or resulted due to a problem with the measurement tool used to assess self-efficacy.

The self-efficacy question asked students to rate the strength of their belief that they could achieve each of the grades from A+ to F, including all + and – gradations, 13 grades in total. The wording in the question was changed multiple times during the pre-survey to try and increase understanding, and a video of the experimenter showing how to fill out the question properly was made available to the students. Despite all of these efforts, a number of students misinterpreted the question. The percentage of people that correctly interpreted the question
increased on the post-survey. It is likely that students who filled in the question before the wording was improved and the video showing how to interpret the question was available did not go back and update their answers on the pre-survey but correctly answered it on the post-survey.

I believe the primary problem was in the layout of the question: the grades were presented on the Y-axis, from A+ (at the top) to F (at the bottom), and the efficacy strength rating was on the X-axis, from “highly uncertain” on the left to “highly certain” on the right, see Figure 5.1: Self-efficacy survey question.

1. If there were another blogging assignment, for each of the following grades please indicate how certain you are that you could get “at least” that grade. For example, you should be “highly certain” you are capable of getting at least an F (not that you will get an F, but you are “highly certain” you CAN get an F).

Start at the bottom right (with F being "highly certain", meaning "I'm highly certain I can get AT LEAST an F").

Please see the email you were sent for an example.

<table>
<thead>
<tr>
<th></th>
<th>highly uncertain</th>
<th>moderately certain</th>
<th>highly certain</th>
</tr>
</thead>
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<tr>
<td>A+</td>
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<td></td>
<td></td>
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<tr>
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<td></td>
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<td>F</td>
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Figure 5.1: Self-efficacy survey question
The most natural way to fill out a question like this is to start with the belief that you are “highly certain” that you can achieve at least an F; however, to do this, the respondent had to start at the bottom right of the matrix, which is not intuitive. By the time the problem was discovered some people had already responded to the question. In SurveyMonkey it is not possible to change the order of a matrix question after people have responded without throwing out their data. To avoid losing the existing data, the students that had already filled in the question were emailed a link to the how-to video and further clarification [70]. The email was automated and sent from SurveyMonkey to all the respondents regardless if they had filled it out correctly or not so that the researchers did not know who had filled in the survey. The students could then go back and update the question if they had misinterpreted it.

The researchers initially planned on examining the relationship between writing self-regulation and self-efficacy. However, due to the problems we experienced with measuring self-efficacy for grade achievement, this part of the analysis was not completed. In the future, it would be interesting to examine the relationship between self-regulation and self-efficacy, and to examine whether changes in self-regulation result in changes in self-efficacy. A closer examination of the contributions of each of the self-regulation processes to one’s self-efficacy would also be interesting. If we are able to isolate the contributions of the self-regulatory processes to self-efficacy then efforts could be focused on methods of increasing self-regulation in those areas.

The second research question examined whether we could teach students writing self-regulation strategies through video instruction in an online environment. It will be discussed next.

**RQ2: Can we teach students to be self-regulated writers through video instruction in an online environment?**
Our results showed that the overall self-regulation scores increased for the students in the treatment group and slightly decreased for students in the control group, but the results were not significant. It’s possible that this result was not significant due to the small sample size. Further analysis revealed interesting trends that deserve further attention in future research.

Personal SR didn’t increase significantly, though many of the individual components of personal SR increased. It’s possible that due to the few components that decreased, the overall personal self-regulation score did not show a statistically significant increase. Further examination of the data showed many interesting trends. First, time planning and management decreased in both groups between the pre- and post-surveys. As mentioned in the Results and Discussion, this may have been due to the fact that there was another assignment due shortly before the 3rd blogging assignment which didn’t leave students much time to plan their third blog. Another possibility is that as students acquire more expertise in a given domain, in this case blog writing, they feel that they do not need to plan and manage their time as carefully because they have a better idea of how long they will need to complete parts of the endeavor. Another possibility is that because the size of the assignment was relatively small, both with respect to time required to complete it and organizational complexity, students didn’t need to plan and organize their time in order to successfully complete it. If the assignment were larger, there may not have been the same drop in time planning and management. Prior research has suggested that one reason students may not self-regulate is that many assigned tasks require little self-regulation [43]. Further examination of the effect of expertise and perceived task difficulty and size on time planning and management is needed.

A second component of personal SR was goal setting which increased significantly in the treatment group relative to the control group. The intervention video emphasized the importance
of goal setting, and the checklist scaffolded goal setting by providing students with some fill-in-the-blanks goals such as blog post length, and number of sections. It’s unknown whether the increase was due to the video, the checklist, or a combination of both. In future research it’s important to distinguish between these factors.

There was a statistically significant increase in environmental self-regulation after the intervention. It’s possible that this was because environmental regulation involves doing things that take little cognitive effort. For example, shutting off your TV or going to a quiet place don’t require much time or effort to accomplish. It’s possible that students were more likely to try these strategies after watching the intervention because they perceived them to require little effort but have potentially large returns. In the future, it would be beneficial to ask students why they changed certain behaviors and not others.

Further analysis could be completed on the self-regulation data to examine if the level of expertise determined who viewed the video and/or experienced an increase in self-regulation. Experts in any field possess highly developed self-regulation strategies and metacognitive skills that they employ when completing domain-specific tasks [43]. Judging students level of expertise by the grades they accomplished in the previous tasks, we could look for relationships between level of expertise and self-regulatory strategy use, or post-intervention increases in self-regulation.

Learning self-regulation skills takes time and practice. The intervention showed students many self-regulation strategies they could use while writing. It is possible that teaching so many skills at once was overwhelming for some of the students, and so they chose to try only the ones that were perceived to be the easiest, namely, environmental self-regulation and goal setting. In the
future, developing a series of videos that teach self-regulation strategies with one or two
strategies per video might give students the time to learn and integrate the strategies into their
habits.

This leads to discussion of the third research question which examined how students perceive
instructional video scribed animation.

**RQ3: How do students perceive instructional video scribed animations?**

The researchers asked students both open-ended questions about their perceptions of the video,
and also Likert-scale questions about four properties of the video: educational value, engagement
(ability to grab and sustain attention), length, and entertainment. Students indicated that they
found the video to be a valuable educational resource, engaging, entertaining, and neither too
long or too short. Further work should be done to verify that these properties are important when
using video for teaching and learning. Future research should also examine the effects of each of
these video properties on students’ learning.

### 5.1 Concluding thoughts

One factor that has not yet been discussed is the cost associated with producing video scribed
animations. To create video scribed animation, expertise is needed in a number of areas: the
subject, scripting, filming, drawing, and post-production video editing. Professional companies
that offer video scribing services charge approximately $3,000 USD for the first 30 seconds of
animation, and $500 for each additional 30 seconds [71]. Using these prices, the video used in
the intervention would have cost approximately $16,000 to produce. On the surface, that seems
like a huge cost. However, the video content will not go stale, and can be used year after year,
class after class. If the cost of producing the videos is distributed among a number of institutions,
the cost per institution per use becomes much smaller. That being said, alternate forms of video cost less to produce. For example, the Khan Academy makes their videos with a simple tablet and some video editing software. The cost per video is almost nothing. It’s hard to imagine teaching something like self-regulation skills with another form of video and maintaining the same level of interest and engagement, but this warrants further investigation. Finally, the cost of producing text is also far below the cost of video scribed animation. A possible future research direction is to compare the effects of different methods of content delivery on self-regulation and self-efficacy. This would provide a basis for cost-value comparisons of the different techniques.
References


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Appendices

Appendix A  Video script

Part 1: Setting the stage for success – developing the motivation to write

Overview of video

Hey, I’m Jonathan. I’m going to show you how I write a blog and show you some strategies that you can use to improve your writing.

Writing is a skill that can be learned.

Before we begin, I want to emphasize something really, fundamentally important to becoming a better writer: writing is a skill, and therefore it can be improved. It’s a common misconception that writing is a gift, and it’s easy to see why: usually, we only see the finished product: a great blog, a brilliant novel; we don’t see the hours and hours of effort that were put into them.

Good writers use strategies that help them achieve success. I’ll show you a number of useful strategies, but it’s up to you to make use of them. Like any skill, improving your writing takes time and practice. As much as I’d love for you to watch this video and be magically transformed into a brilliant writer, it’s not going to happen. But, the good news is, if you put in the effort and believe in yourself, with patience and persistence, you will improve your writing.

<0:51 seconds>

Writing has value

And that really is great news, because writing is such a valuable skill. Regardless of what career you choose to pursue, writing is a primary form of communication with your coworkers, bosses, clients…. I mean, I was a programmer- not a job usually associated with writing - and I was constantly writing -- design plans, test plans, bug reports, professional emails... Taking the time to develop your writing skills is time well spent. Great writing can help you win awards, get jobs, and advance your career.

<1:22>

Part 2: Setting up your environment – environmental process

Get comfortable & reduce distractions

Great, so now we’ve established two things: writing is a skill that can be improved, and there is value in writing.

This particular assignment is to write a blog, but the strategies I’m going to share with you are applicable to all sorts of writing and other activities, so let’s do it.
Before I start working, I always do two things: get comfortable, and reduce distractions. Writing is a slow process that requires concentration so I change into my comfiest clothes, go to a quiet place where I won’t get interrupted, and shut off anything that might distract me. TVs and phones are productivity- and quality-writing killers. Instead of getting my head into what I’m writing, I’m constantly texting and emailing, Facebooking, Tweeting, glancing at the TV. So I just shut them all off, and mentally prepare to write. Research shows that students have the lowest confidence in their ability to concentrate when there are distractions around.

Part 3: Planning

Planning

Okay; I’m comfortable, I’m in a quiet place without distractions… it’s go time. Step 1: plan my writing. Amateur writers often skip this step, which is a big mistake! Researchers have found that the quality of writing assignments is determined more by the amount of planning done than by the number of revisions completed. Planning involves three things: making a timeline, selecting a topic, and creating an outline for my blog.

Making a Timeline

To make a timeline, I break apart the task of writing a blog into four stages: planning, research, writing, and revision. There are a lot of tools that you can use to help you create your timeline, but I like to keep it simple. I use a calendar and a text document. The calendar helps me visualize my deadlines. The text document helps me set my goals and monitor my progress. The tools aren’t the important part here; it’s the act of writing it down and planning your work that matters.

So, first, I write down the due date. Next, I know I need a day to revise my draft, so I set the previous day as the due date for my final draft. I always give myself a minimum of one night’s sleep after finishing my draft to revise it. Next, I need to set myself deadlines for the other stages. So planning - I’ll do it all today.

Research is where I find my sources and make my notes, and start to fill in my outline. Research always takes me longer than I think it will so I’ll start today, and aim to have most of my research done by the end of tomorrow.
The third stage of writing my blog is writing a draft, which is the longest stage. I'll aim to have a draft completed by the end of the next day.

At this point, I’ve got a rough timeline. I’m going to do my best to stick to it, or even to get ahead of schedule. When you first start planning, it’s hard to make accurate estimates - people tend to always underestimate how long things take. I’m going to write down my progress as I go so that I can make better estimates going forward.

<3:58>

**Goal Setting**

The next thing I do is I write down goals for my writing. DO THIS. The goals I set are going to be short term, concrete, and challenging.

It’s important to set goals that are difficult but achievable – if I select goals that are too easy, then I’m not motivated to work toward them, and I won’t improve. But on the other hand, if my goals are unrealistic, I’m setting myself up for failure, or I will feel overwhelmed I won’t even try.

Ok, I’m going to set goals for each stage. For planning, I’m going to:

- Select a topic that I find interesting, and
- Create an outline for my paper before I start writing

For research, I’m going to:

- Find five high-quality sources, and
- Take notes while reading, putting them in the appropriate sections of my outline

For writing, I’m going to:

- Write an engaging introduction
- Have at least 3 sub-sections, and
- Write a strong concluding paragraph that ties together my blog entry

Setting goals and writing them down is essential, because it gives me something to work toward, and allows me to monitor your progress.

Ok take a minute, pause the video, and set your own goals.

<5:06>

**Topic selection**
Okay, I’m comfortable, I’m in a good working space, I have a timeline, and I’ve written down my goals – now it’s time to pick a topic. Because you can pick your own topic, you have an opportunity here to explore something that you’re actually interested in – so take advantage! Writing is so much more than just knowledge-telling, where you talk about what you already know. It’s about research and learning, sharing thoughts and ideas. If you’re passionate about your topic, it’s going to come across in your writing.

Brainstorming time! Before I start, I do something really, really important: under my planning goal, I write down my starting time.

<5:44>

I’ll focus on my interests and the themes in the course, and try to find ways to connect them.

I’m interested in music, cycling, and politics. For course themes, I’ll go through the textbook and course website, and find ones that interest me: privacy, freedom of speech, and intellectual property.

Okay, how can I connect these?

Let’s start with music…

- I stream music online using Grooveshark … I have tons of questions about intellectual property like: how is this legal? How do the bands get paid? Do they collect royalties? How do the songs get uploaded? As an artist, can I take my songs down? What are my rights as a listener, or as an artist? What effect are sites like this having on the music industry?

Basically, I brainstorm until I’ve got a topic that I’m interested in that’s related to the course, and is contemporary. Grooveshark and intellectual property fits the bill, but if it didn’t, I’d keep brainstorming until I got a topic that works for me.

<6:40>

Another strategy I use sometimes is to read the news and see if there are topics related to the course that I could write about. For example, before the election there was tons of news coverage about the digital platforms of the different political parties; or I could learn more about Wikileaks, it’s always in the headlines. Using the news as a starting point, I’d brainstorm the same way I did above.

<7:01>

After I’ve got my topic, I update my timesheet.

For now, I’ll take these ideas and make a rough outline for my post.
Make an outline

The outline is what guides my research and my blog: the better my outline, the better my blog will be. Research shows that students who have formalized, organized outlines produce the highest quality work.

First, I’ll write down the topic: “Grooveshark and Intellectual Property”. This isn’t going to be the title of my blog, I’ll come up with that later. But for now, remembering my goal of having at least 3 sub-headings in my post, I refer to my brainstorming session and come up with these possible headings: (visual)

- What is Grooveshark?
- How is Grooveshark legal
- Who’s on Grooveshark
- How artists get paid
- How Grooveshark affects the music industry
  - The Grooveshark Effect: Internet killed the Radio star
  - Taking a bite out of the old boys

Now, this list didn’t just magically appear: what you didn’t see is the humming and hawing, writing, and revising I did off camera. There was no magic, just persistent effort. But... that effort paid off, and now I have a rough sketch of my post! It’s probably going to get updated as I go, but it’ll guide my research, which is the next step in the process.

Notice that I haven’t said anything about my introduction or conclusion yet. How can I write my introduction when I don’t even know what my finished paper is going to look like? It’s usually the last thing that I write.

Before I start my research, I’m going to go back to my timesheet, and write down my progress.

Writing down when I worked and what I worked on is one of the best ways to get things done because it holds me accountable. I also write down distractions like texting and YouTube as well as my work environment so that I can realize how I work in different conditions.

Part 4: Research

Finding sources

Okay, on to the research. I’m not going to bore you and make you watch me do my research, but I’ll give you some pointers.
You can start at Wikipedia, but don’t try to write a Wikipedia article. Wikipedia is for knowledge-telling; in your blog, you should try and synthesize information and give your own thoughts on what you’ve researched. Also, don’t repeatedly link to Wikipedia, it’s a common mistake and shows a lack of research depth.

Head to the source: for me, I’ll go to the Grooveshark website and dig around there for information; later, if I need to know about copyright law in Canada, I’ll just look up the bill.

Google it.

Make sure your sources are credible and of high quality. A good question to ask yourself is “does the content of this site pass by an editor before I read it?” If so, then it’s probably a high-quality source. If not, how can you establish that the author has any credibility? Are they a professional? Are they respected in their field?

Take good notes! As I research, I’m making notes in the various sections of my outline (including the source of the information).

I also update my outline as necessary because as I get more information, I get more ideas and more questions and the focus of my blog becomes sharper.

Part 5: Writing a draft

Ok, I’ve finished a large chunk of my research. I got my sources, I’ve made detailed notes under each section and I’ve been monitoring my progress toward my goals. Next I have to write my draft. Like I said before, I’m going to fill in the bulk of my post before I write my introduction and conclusion because I need to know what my post is about before I can write them. So, section by section I write my draft. Again, to prevent extreme boredom, I’m not going to make you watch me write my draft, but I’ll tell you roughly what I do:

I start by setting goals for each section:
  o Have a topic sentence that introduces the main idea of the section
  o Have a concluding sentence that transitions into the next section smoothly
  o Have a descriptive / interesting /
    o When I state a fact, I back it up with a link to one of my sources

Next, I read over all the notes I have in each section, and I start to re-arrange them, and write sentences

Often, I have a hard time making sentences flow – when this happens, I just force myself to write something down, because I know this is only a draft and I’m going to come back and revise it later.

Now you might think I’m crazy but the whole time I’m doing this, I’m talking to myself out loud, asking myself questions, and giving myself encouragement.
  o “Does this make sense?”
“Is this a good order?”
“Just keep going, you’re doing great.”
“Ohhhh I can’t do this… wait, yes I can, writing just takes time, and I’m making great progress.”

We can convince ourselves of anything, and you should choose to convince yourself that “you can” instead of “you can’t”. That might be the most important thing in this entire video.

- Finally, while I’m writing, I’m constantly monitoring my progress! I write down the time and what I worked on, time I spent off task, distractions and positive evaluations of my progress.

After I write the draft of the sections, I go back and I write the introduction and conclusion.

<11:19>

Part 6: Revision

Many hours later, my first draft is complete! After finishing my draft, I’m way too attached to it to make any objective revisions to it, so I’m going to sleep on it.

The next day, with a fresh mind, I revise my blog. Revision is much more than just proof-reading! In fact, proof-reading is the last step of the revision process.

<11:39>

I start by looking at my post as a whole: does the order make sense? If not, I re-arrange chunks of my text. Once I’m satisfied with the order, I start looking at each of the sections more carefully. There are good guidelines you can use to make sure your sections are in good shape, like TREE and DARE

- <show visuals>
  - TREE (topic sentence, reasons, examine, ending)
  - DARE (develop a topic sentence, add supporting ideas, reject arguments from other side, end with conclusion)

I don’t have time to discuss them in depth here, but they’re useful to make sure that each section is structurally sound.

Finally, I drill down into the paragraphs and sentences, diagnosing problems and operating on the ones that aren’t up to snuff.

- Diagnose:
  - This doesn’t sound right
  - I’m getting away from the main point
  - People may not understand this part
People may not buy this part (not convincing)
This is good

Once I’ve identified a problem, I can then choose the appropriate course of action:

- Operate
  - Leave this part out
  - Say more
  - Say it differently
  - Leave it the same

After I’m done all of this, I go back through and add any supporting materials like picture, charts, diagrams, and movies to add value to my post. I never add things just to add things, they have to add value.

The final step in the process is proof-reading. I carefully re-read my post to make sure I’ve crossed my t’s and dotted my i’s. After I’m done, I get a friend to read it over and give me critical feedback. Once I’ve integrated their feedback, I go through and self-mark my blog against the rubric and make any final revisions. And that’s it, that’s how I write a blog.

I really hope you’ve found this video helpful, and that you take away some useful strategies that you can incorporate into your writing process. Work hard and have fun!

<13:13>
Appendix B  Video Checklist

Writing process checklist

☑ When you’ve completed items, simply check them off by clicking on the box. Customize this document to suit your needs!

Setting up your writing environment

☐ Comfortable clothes

☐ Space without many distractions

☐ TV off

☐ Phone off

☐ Other (you specify what you need to do!)

Planning

☐ Made a timeline

☐ Chose an interesting topic

☐ Made an outline

☐ Set challenging goals (e.g. “My post will be 1000 words”, or “My post will have 3 sections”)

Research

☐ Specified number of sources to aim for = _____

☐ Put notes in outline while researching

Writing & Revision

☐ Number of sections (not including intro/conclusion) = _____

☐ Continually monitored my progress toward my goals

☐ Made positive self-evaluations of my progress

☐ Have no spelling & grammatical errors (proof-read thoroughly)

☐ Got a friend / peer to review my post before I submitted it
☐ Self-marked my post against the rubric

**Introduction**

☐ Engages the reader

☐ Makes clear what the post will be about

☐ Introduces concepts

**Conclusion**

☐ Summarizes main ideas

☐ Gives reader something to think about

**Each section**

☐ Checked with TREE or DARE

☐ Descriptive / interesting section heading

☐ Topic sentence introduces main idea of section

☐ Smooth transitions between sections

☐ Facts are backed up by linking to credible sources

☐ Have pictures / charts to clarify concepts if they add value to the post
Appendix C  Self-regulation scale Cronbach’s Alpha values

Prior to conducting the self-regulation analysis, the reliability of the SR scale was assessed. The Cronbach’s alpha for the entire self-regulation scale on the pre-survey was .904 (32 items), indicating high consistency between the items.

Next, self-regulation questions were grouped into the three processes of self-regulation: personal, environmental, and behavioral. The Cronbach’s alpha values for the three processes, indicating consistency between the questions used in a single factor are given below.

<table>
<thead>
<tr>
<th>SR Process</th>
<th>Number of questions</th>
<th>Cronbach’s alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>32</td>
<td>.904</td>
</tr>
<tr>
<td>Personal</td>
<td>23</td>
<td>.894</td>
</tr>
<tr>
<td>Environmental</td>
<td>4</td>
<td>.754</td>
</tr>
<tr>
<td>Behavioral</td>
<td>5</td>
<td>.690</td>
</tr>
</tbody>
</table>

All Cronbach’s alpha values were acceptable (> .65), indicating that the questions were all asking about the same factor.

Finally, the self-regulation questions were grouped into the sub-sections of the SR process and reliability analysis was performed on any of the groups with more than one question representing that factor (see below). The reliability coefficients were all above .65 and therefore the factors can all be considered reliable.

<table>
<thead>
<tr>
<th>SR Process</th>
<th>SR sub-process</th>
<th>Number of questions</th>
<th>Cronbach’s alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal</td>
<td>Time planning &amp; management</td>
<td>4</td>
<td>.692</td>
</tr>
<tr>
<td>Personal</td>
<td>Goal setting</td>
<td>7</td>
<td>.724</td>
</tr>
<tr>
<td>Personal</td>
<td>Self-evaluating standards</td>
<td>1</td>
<td>n/a</td>
</tr>
<tr>
<td>Personal</td>
<td>Cognitive strategies</td>
<td>11</td>
<td>.872</td>
</tr>
<tr>
<td>Environmental</td>
<td>Selecting, organizing, and creating effective writing settings</td>
<td>4</td>
<td>.761</td>
</tr>
<tr>
<td>Behavioral</td>
<td>Self-monitoring</td>
<td>3</td>
<td>.929</td>
</tr>
<tr>
<td>Behavioral</td>
<td>Self-verbalization</td>
<td>1</td>
<td>n/a</td>
</tr>
</tbody>
</table>
Appendix D  Blog rubric

URL:

1. Write your comments in this space:

2. List specific spelling and grammar errors below (up to 4 errors):

<table>
<thead>
<tr>
<th>Chapter 1</th>
<th>Note: half points are acceptable, e.g., 8.5</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Objectives</th>
<th>0-9 points</th>
<th>10-13 points</th>
<th>14-17 points</th>
<th>18-20 points</th>
<th>Earned Points</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Focus &amp; structure</strong></td>
<td>- issue/topic is vague, unclear or absent</td>
<td>- adequately explains the issue/topic, but may lack detail</td>
<td>- the blog progresses logically and smoothly from topic to topic</td>
<td>- well-developed topic that engages the reader and creates interest</td>
<td>/20</td>
</tr>
<tr>
<td></td>
<td>- there is no obvious point to the blog; the details are a random collection of information, unclear, and/or not related to the course</td>
<td>- there is a point to the blog, but it is not clearly stated</td>
<td>- the point of the blog is clearly stated</td>
<td>- point of the blog is clearly and effectively established</td>
<td>/20</td>
</tr>
<tr>
<td></td>
<td>- many points seem irrelevant to the topic</td>
<td>- some points are relevant to main topic of the blog</td>
<td>- most points brought up are relevant to the topic</td>
<td>- each claim, point, or argument is clearly relevant to the topic</td>
<td>/20</td>
</tr>
<tr>
<td><strong>Insight &amp; quality of discussion</strong></td>
<td>- the topic is discussed in a superficial way / no attempt to move beyond the obvious</td>
<td>- a somewhat superficial treatment of the topic</td>
<td>- solid insight into the topic</td>
<td>- mature insight into the topic</td>
<td>/20</td>
</tr>
<tr>
<td></td>
<td>- insights are not backed up by evidence</td>
<td>- insights not often substantiated</td>
<td>- insights mostly backed up by concrete claims, relevant facts, convincing arguments</td>
<td>- insights backed by concrete claims, relevant facts, convincing arguments</td>
<td>/20</td>
</tr>
<tr>
<td></td>
<td>- arguments non-existent or illogical</td>
<td>- arguments are not convincing</td>
<td>- some intelligent and convincing arguments made about the topic</td>
<td>- intelligent and convincing arguments about the topic; it educates and makes you think about your conceptions</td>
<td>/20</td>
</tr>
<tr>
<td>Objectives (continued)</td>
<td>0-4 points</td>
<td>5-6 points</td>
<td>7-8 points</td>
<td>9-10 points</td>
<td>Earned Points</td>
</tr>
<tr>
<td>------------------------</td>
<td>------------</td>
<td>------------</td>
<td>------------</td>
<td>-------------</td>
<td>---------------</td>
</tr>
<tr>
<td><strong>Personal</strong></td>
<td>- reads like a computer wrote it or was lifted from Wikipedia</td>
<td>- reads like an essay; very little personality shows through</td>
<td>- reads like blogger has a vested interest</td>
<td>- you can see where they are coming from and are drawn into their world</td>
<td>/10</td>
</tr>
<tr>
<td><strong>Linking</strong></td>
<td>- isolated blog with no links</td>
<td>- some links, but it would be much better with a few more, or there are too many links</td>
<td>- appropriate number of links but the blog forces you to leave the page to follow-up on some aspect of the blog</td>
<td>- perfect number of links, i.e., not overwhelmed, but sufficient that you don’t need to Google for more links</td>
<td>/10</td>
</tr>
<tr>
<td></td>
<td>- links are broken and/or link to only one source, e.g., Wikipedia</td>
<td>- links to the blog are of questionable reputation/value and to at least two different sources</td>
<td>- links are to relevant to material and from reputable sources, and to at least two different sources</td>
<td>- links are to a variety of high quality sources that strongly enhance the blog</td>
<td>/10</td>
</tr>
<tr>
<td></td>
<td>- full URL is used a link, e.g., <a href="http://google.com">http://google.com</a> and it is to the wrong location</td>
<td>- full URL is used a link, e.g., <a href="http://google.com">http://google.com</a></td>
<td>- URLs are embedded</td>
<td>- linked URLs are embedded in appropriate text, e.g., not from a whole sentence, and correspond to the linking text in the blog</td>
<td>/10</td>
</tr>
<tr>
<td><strong>Visual Appeal</strong></td>
<td>- text is one big block and lacks contrast with background</td>
<td>- text divided, but has little visual appeal, but has appropriate contrast with the background</td>
<td>- good use of white space to divide text and uses appropriate headings</td>
<td>- text looks elegant due to the way it is subdivided and has appropriate headings</td>
<td>/10</td>
</tr>
<tr>
<td></td>
<td>- graphics &amp; videos detract from the visual appeal</td>
<td>- if graphics &amp; videos used: they don’t add much to the visual appeal</td>
<td>- if graphics &amp; video used: they are appropriately placed and used to enhance visual appeal</td>
<td>- if graphics &amp; videos used: they are remarkably good and enhance the reader’s experience/understanding</td>
<td>/10</td>
</tr>
<tr>
<td></td>
<td>- unprofessional look and feel</td>
<td>- amateurish look and feel</td>
<td>- semi-professional look and feel</td>
<td>- professional in look and feel</td>
<td>/10</td>
</tr>
<tr>
<td><strong>Relevance to chapters covered to date</strong></td>
<td>- repeats what can be found in the textbook but adds little or no value and/or has no relevance to the courses</td>
<td>- complements the topics but is poorly supported by outside material</td>
<td>- provides additional insight into the topic(s) covered in the textbook by drawing from other sources</td>
<td>- goes above and beyond the textbook and shows evidence of critically thinking about the topic(s)</td>
<td>/10</td>
</tr>
<tr>
<td><strong>Sentence flow, variety &amp; diction</strong></td>
<td>- writing is confusing, hard to follow</td>
<td>- writing is mostly clear but has opaque passages</td>
<td>- writing is clear</td>
<td>- writing is smooth, skillful, coherent</td>
<td>/10</td>
</tr>
<tr>
<td></td>
<td>- contains fragments and/or run-on sentences</td>
<td>- sentences may lack variety</td>
<td>- sentences have varied structure</td>
<td>- sentences are strong and expressive with varied structure</td>
<td>/10</td>
</tr>
<tr>
<td></td>
<td>- inappropriate diction</td>
<td>- diction is appropriate</td>
<td>- diction is consistent.</td>
<td>- diction is consistent and words well chosen</td>
<td>/10</td>
</tr>
<tr>
<td><strong>Spelling, punctuation &amp; grammar</strong></td>
<td>- distracting errors in punctuation, spelling, capitalization and grammar</td>
<td>- more than a few errors in punctuation, spelling, capitalization or grammar</td>
<td>- punctuation, spelling, capitalization, grammar are generally correct, with just a few errors (0-2).</td>
<td>- there are very few errors (0-2) in punctuation, spelling, capitalization, grammar</td>
<td>/10</td>
</tr>
<tr>
<td><strong>Total Points:</strong></td>
<td>/100</td>
<td>/100</td>
<td>/100</td>
<td>/100</td>
<td>/100</td>
</tr>
</tbody>
</table>
Appendix E      Pre-survey email
The following email was sent to all students in CIS*2050*DE on July 6th, 2011 announcing the pre-survey.

Subject: CIS*2050 Survey

Hi [FirstName],

As part of a research project on writing in online learning environments, we have constructed a short survey. The results of the survey will be used to improve the state of online learning. Please fill it out between now and this Sunday, July 10th.

Here is a link to the survey:
[SurveyLink]

This link is uniquely tied to this survey and your email address. Please do not forward this message.

Thanks for your participation!

Cheers, Blair

PS: the note below was put in by SurveyMonkey - please ignore. Thanks.

Please note: If you do not wish to receive further emails from us, please click the link below, and you will be automatically removed from our mailing list.
[RemoveLink]
Appendix F  Surveys
There were a total of three surveys used in this experiment: one pre-survey sent to all students, one post-survey for the control group, and one post-survey for the treatment group. The post-surveys contained all of the questions from the pre-survey. The treatment group post-survey contained additional questions about the students’ perceptions and use of the video and checklist. All surveys contain a subset of the questions in the treatment group post-survey, which is included here.

Please answer the survey questions as accurately as possible. There are no right or wrong answers to the statements, and your answers will in no way affect your grades. Please take your time and try to be as honest as possible. Thank you.

1. You were sent a link to a video scribed animation of Jonathan modeling how to write a blog. Did you watch it before you wrote your third blog?
   - Yes
   - No

1. Why did you not watch the video before blog 3?

1. How did you watch the video?
   - I skimmed it once.
   - I watched it once, but was multi-tasking.
   - I watched it once, giving it my full attention.
   - I watched it multiple times (but never gave it my full attention).
   - I watched it multiple times (with at least one of those times having watched it with my full attention).

2. Did you take notes while watching the video?
   - Yes
   - No
1. How many times did you watch the video?

- 1
- 2
- 3
- 4
- 5
- 6+

2. When did you first watch the video?

- When I first received the link.
- When I received the reminder about the link via email.
- 5+ days before blog 3 was due
- 4 days before blog 3 was due
- 3 days before blog 3 was due
- 2 days before blog 3 was due
- 1 day before blog 3 was due
- The day blog 3 was due.

3. Please enter your degree of agreement with each of the following statements.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>Neutral</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The video caught my attention.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The video was too long.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I found the video entertaining.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The video was too short.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The video improved the quality of my blog.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The video sustained my attention.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. Any other comments about the video would be appreciated. Thank you.

1. Did you use the writing process checklist that accompanied the video?

- Yes
- No
1. If there were another blogging assignment, for each of the following grades please indicate how certain you are that you could get "at least" that grade. For example, you should be "highly certain" you are capable of getting at least an F (not that you will get an F, but you are "highly certain" you CAN get an F).

Start at the bottom right (with F being "highly certain", meaning "I'm highly certain I can get AT LEAST an F").

Please see the email you were sent for an example.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Highly Certain</th>
<th>Moderately Certain</th>
<th>Highly Certain</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B+</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C+</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D+</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2. Please indicate how satisfied you would be if you got each of the following grades on blog 3 (the blog you just completed).

<table>
<thead>
<tr>
<th>Grade</th>
<th>Highly Dissatisfied</th>
<th>Moderately Satisfied</th>
<th>Highly Satisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>A</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>A-</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>B+</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>B</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>B-</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>C+</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>C</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>C-</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>D+</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>D</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>D-</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>F</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

3. If there were another blogging assignment, what grade would you be striving for on it?

- ○ A+
- ○ A
- ○ A
- ○ B+
- ○ B
- ○ B
- ○ C+
- ○ C
- ○ C
- ○ D+
- ○ D
- ○ D
- ○ F
1. Please rate how important you believe each of the following factors to be in being a good writer.

<table>
<thead>
<tr>
<th></th>
<th>Very unimportant</th>
<th>Neutral</th>
<th>Very important</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Effort</strong></td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td><strong>Ability (general intelligence)</strong></td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td><strong>Enjoyment</strong></td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td><strong>Luck</strong></td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td><strong>Task difficulty</strong></td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td><strong>Teacher help</strong></td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

2. Please indicate how strongly you agree or disagree with each statement.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>Neutral</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I avoid writing.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I enjoy writing.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Discussing my writing with others is an enjoyable experience.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Writing is a lot of fun.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

1. Approximately how many hours did you spend working on blog 3? This is the total time including planning, research, writing, and editing.

- ○ ≤1
- ○ 1-2
- ○ 2-4
- ○ 4-10
- ○ 10-20
- ○ 20+

2. Over how many days did you work on your previous blog post? For example, if you did it in one day, answer "1"; if you did it over the course of two days, answer "2", etc.

- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5
- ○ 6
- ○ 7+
Please indicate the degree to which each of the following statements applies to you during your PREVIOUS blogging assignment (blog 3). Again, there are no right or wrong answers to these statements, and in no way will your answers affect your grades. Take your time and try to be as honest as possible. Thank you.

1. Below are a series of statements about the environment in which you worked on blog 3.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Neutral</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I avoided watching television.</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>I avoided using my cell phone.</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>I isolated myself in a quiet place.</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>I changed into comfortable clothes.</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

2. Below are a series of statements about your preferred working environment.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Neutral</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I can work on writing assignments efficiently when I am working in a quiet environment.</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>I can work on writing assignments efficiently when I am listening to music.</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>I can work on writing assignments efficiently while talking to my friends.</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>I can work on writing assignments efficiently when there are distractions (tv on, phone on, etc.).</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

3. Below are a series of statements about your behavior while writing your previous blog post.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Neutral</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I wrote down the times when I worked on the assignment.</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>I wrote down what I did during each period I worked.</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>I wrote down the environmental conditions I worked in (location, noise level, distractions, etc.)</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>I reflected on my progress to learn more about my strengths and weaknesses in my writing process.</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>I talked to myself out loud during the writing process.</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>
4. Below are a series of statements about how you managed time while writing your previous blog post.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Neutral</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I created a timeline to help me plan out when I was working on my blog.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I recorded my self-made blog-related deadlines in a calendar.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I used a checklist of the tasks I needed to accomplish to complete my blog.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I kept a daily log of what I accomplished.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. Below are a series of statements about how you planned your previous blog post.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Neutral</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I created challenging goals for my blog post.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I created short-term goals for my post (e.g. “I will do this today.”)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I created concrete goals for my post (e.g. “I will have 3 sections”)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I created an outline for my post before I started writing.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I showed myself to be resourceful in my writing.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I had a certain length in mind for my post before I wrote it.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I aimed to create a paper with no spelling or grammatical errors.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6. Below are a series of statements about the process you used to write your previous blog post.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>Neutral</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I picked a topic I'm interested in.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I brainstormed ideas before I wrote.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I evaluated my post with the rubric before I submitted.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I created a draft before writing the final paper.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I modified my work when I wasn't content with it.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I proofread my post.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I asked a peer to edit my post.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I used a word processor to check for spelling and grammar errors.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I reread my post several times to find errors in my writing.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I checked my post on the general level and then on the sentence level.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I know and used the writing approach of planning, organizing, writing, editing, and revising.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I took into considerations comments from others about my writing.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
Appendix G   Email sent to treatment group students with video link

The following email was sent to students in the treatment group on July 14th, 2011 informing them about the video & checklist. The checklist was attached to this email.

Subject: CIS*2050- Blog Writing Video and Checklist

Hi [Firstname],

I made a video that might help you with your next blog:

http://www.youtube.com/watch?v=V1pnpL8295E

It's a video-scribed animation (like the RSA Animate videos).

I also created a checklist that accompanies the video that will help you manage your blog writing process. It's attached to this email.

If you've got any questions/comments about the video or checklist, please email me directly. Please don't share this video with anybody until the course is over.

Thanks, have a great day,
Jonathan

PS: This is not a public video, so you won't be able to access it without the link (i.e. it won't show up in search results).
Appendix H  Reminder email sent to treatment group students
The following email was sent to students in the treatment group on July 21st, 2011 reminding them that their blog was due and about the video. An identical email was sent to the control group students without the video reminder.

Hi everybody,

Just a reminder that blog 3 is due tonight. I didn't send this earlier as I didn't want to distract you from your Wikipedia assignment; hope it went well! :)

Also, remember to watch the video I sent you earlier (it might help you with your blog):

http://www.youtube.com/watch?v=V1pnpL8295E

Cheers,
Jonathan
Appendix I Email sent to all students re: the post-survey

The following email was sent to students all students on July 22\textsuperscript{nd}, 2011 informing them of the post-survey. SurveyMonkey auto-generated the link to the survey based on the experimental groupings.

Subject: CIS*2050 Survey 2

Hi [Firstname],

As part of the research project on writing in online learning environments, we have constructed a short follow-up survey. The results of the survey will be used to improve the state of online learning. Please fill it out between now and Wednesday, July 27th.

You'll notice that the questions are similar to the first survey. This is intentional: please fill out the entire survey. We're interested in the differences in responses between the previous survey and this survey. Please fill out the survey based on the current point in time.

A number of students filled out the first question on the last survey incorrectly (regarding confidence to achieve grades). That question is asked again in this survey. Here is the video Jonathan made for Survey 1 showing how to fill it out correctly (ignore what he says about the due date). Please note that in this survey, we're asking about IF there was another blog (which there's not), how confident you would be to achieve the grades:

http://www.youtube.com/watch?v=YgO_VhV-a_E

Here is a link to the survey:
[SurveyLink]

This link is uniquely tied to this survey and your email address. Please do not forward this message.

Thanks for your participation!

Cheers, Blair

PS: the note below was put in by SurveyMonkey - please ignore. Thanks.

Please note: If you do not wish to receive further emails from us, please click the link below, and you will be automatically removed from our mailing list.
https://www.surveymonkey.com/optout.aspx?sm=iKP_2fjQ2rM6fY1xPEkVsBOA_3d_3d
Appendix J Reminder email sent to all students re: the post-survey
The following email was sent to students in CIS*2050*DE on July 26th, 2011 reminding them to fill in the post-survey.

Subject: CIS*2050 Survey 2 - reminder

Hi [Firstname],

A quick reminder to fill to fill out the second CIS*2050 survey. It will take approximately 10 minutes. People that fill out the entire survey will receive a 0.5% bonus on their final mark. The survey will close tomorrow.

You'll notice that the questions are similar to the first survey. This is intentional: please fill out the entire survey. We're interested in the differences in responses between the previous survey and this survey. Please fill out the survey based on the current point in time.

A number of students filled out the first question on the last survey incorrectly (regarding confidence to achieve grades). That question is asked again in this survey. Here is the video I made for Survey 1 showing how to fill it out correctly (ignore what he says about the due date). Please note that in this survey, we're asking about IF there was another blog (which there's not), how confident you would be to achieve the grades:

http://www.youtube.com/watch?v=YgO_VhV-a_E

Here is a link to the survey:
[SurveyLink]

This link is uniquely tied to this survey and your email address. Please do not forward this message.

Thanks for your participation!

Cheers,
Jonathan

PS: the note below was put in by SurveyMonkey - please ignore. Thanks.

Please note: If you do not wish to receive further emails from us, please click the link below, and you will be automatically removed from our mailing list.
[SurveyMonkeyLink]
Appendix K  Self-efficacy data screening and reduction

Two things were done to the self-efficacy data before the analysis was completed: corrections were made to the data, and students that did not properly interpret the question were removed from the analysis.

The following corrections were made to the self-efficacy data (on both the pre- and post-surveys):

- Students who gave a self-efficacy response for all but one of the grades had that grade filled in if the grades on both sides were the same, or that grade was at one of the scale and the other grades were at the highest or lowest values (i.e. “highly confident” of getting a D-, but didn’t give a value for F) (N=4)
- Students who filled in self-efficacy question as expected but did not fill in the value for F as “highly certain” (each student should be “highly certain” of their ability to get an F) had their value for F changed (N=1)

Students were removed from the analysis if:

- They did not enter a level of confidence for each grade (that is, they entered only one confidence assessment for one grade, or they skipped the question all together) (N=6)
- They entered anything but “highly certain” in the column indicating certainty of their ability to get an “F” (as everybody in the class could get an F, even if they didn’t hand it in.)
  - 39 people answered as “highly uncertain”
    - Most of these people looked as though they were answering the question “Indicate the probability that you will get the following on your next assignment” and therefore the value(s) of highest certainty fall around the mark that they believe they will get
    - 2 people answered just above “highly uncertain” – then did a distribution as the others that answered incorrectly (i.e. same as above, but with F being almost highly certain)
    - 3 people answered all the middle value (throughout the survey)
    - 1 person answered all just above “highly uncertain” (then highly certain for A+)
- They had clearly misinterpreted the question (N=1)
  - Somebody entered “highly certain” for F, but then all other grades looked like a probability distribution (like the other people who answered incorrectly above)
- They did not enter a level of confidence for each grade (that is, they entered only one confidence assessment for one grade, or they skipped the question all together) (N=7)
- They answered the satisfaction question incorrectly (like a probability distribution) (N=1)

Unfortunately, of the 13 treatment group people that were removed for not answering the SE question correctly, 10 of them watched the intervention video.
Appendix L Video Comments
The following table contains all comments provided by students that watched the video in response to the statement “Any other comments about the video would be appreciated.”

<table>
<thead>
<tr>
<th>Comment</th>
<th>Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>With the support of video I could write my blogs more efficiently and easily</td>
<td>Positive, educational</td>
</tr>
<tr>
<td>Was a good video to watch as it was informative and entertaining at the same time.</td>
<td>Positive, educational, entertaining</td>
</tr>
<tr>
<td>Very neat how you drew everything out- great for visual learners!</td>
<td>Positive, educational</td>
</tr>
<tr>
<td>Very creative.</td>
<td>Positive, entertaining</td>
</tr>
<tr>
<td>The video has a lot of information. I had trouble following because the information, it was spoken very fast.</td>
<td>Neutral</td>
</tr>
<tr>
<td>The video focused on ways to produce meaningful blogs. It made a good point on student grudges.</td>
<td>Positive, educational</td>
</tr>
<tr>
<td>Thank you very much for what Johnath did for us</td>
<td>Positive</td>
</tr>
<tr>
<td>It was fun to watch, and entertaining to the viewer.</td>
<td>Positive, entertaining</td>
</tr>
<tr>
<td>It was decent</td>
<td>Positive</td>
</tr>
<tr>
<td>It was awesome. I've seen similar videos, I think City TV's Idea series of talks, and it was at least at that quality, if not better. Kudos.</td>
<td>Positive, entertaining, high quality</td>
</tr>
<tr>
<td>Impressive video</td>
<td>Positive, high quality</td>
</tr>
<tr>
<td>I was very impressed with the quality of the video. It definitely made my blog writing experience much more enjoyable. Thank you for the hard work you put into it!</td>
<td>Positive, high quality, educational</td>
</tr>
<tr>
<td>I really liked the drawings.</td>
<td>Positive, high quality</td>
</tr>
<tr>
<td>I really enjoyed it -- very creative</td>
<td>Positive, entertaining</td>
</tr>
<tr>
<td>I found the video informative, yet funny.</td>
<td>Positive, educational, entertaining</td>
</tr>
<tr>
<td>I am blown away by the video, it was excellent.</td>
<td>Positive, high quality</td>
</tr>
<tr>
<td>Great work with the video. Loved the art work/drawing and fast forward the drawing part was just too good. Also it was very well organized and gave me a through output of what i needed to do before I could write my blog.</td>
<td>Positive, high quality, educational</td>
</tr>
<tr>
<td>Great video, the drawing on whiteboard definitely made it fun to watch. The advice on writing was a great help!</td>
<td>Positive, high quality, educational, entertaining</td>
</tr>
<tr>
<td>Could be shortened a little. Especially the introduction.</td>
<td>Neutral</td>
</tr>
<tr>
<td>awesome video! very easy to understand helped me to enhance my ability to blog write. I really liked how you drew all of those pictures out i thought it was cool</td>
<td>Positive, high quality, entertaining, educational</td>
</tr>
</tbody>
</table>
**Appendix M  Checklist comments**

The following table contains all of the comments provided by students when asked how they used the checklist.

<table>
<thead>
<tr>
<th>Comment</th>
<th>Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>write my ideas down. looked in the news and tried to connect the textbook along with my personal life. It was alright. But English is just not my strong suit despite saying it's a skill that can be acquired like what the video said.</td>
<td>Brainstorming</td>
</tr>
<tr>
<td>Just wrote down what to do during the brainstorming session, it was my fault on poor time management. If I had used the video earlier, I would've certainly got a better mark and provided more insight into my topic.</td>
<td>Brainstorming</td>
</tr>
<tr>
<td>It was effective because it allowed me to be more organized and allowed for a smoother writing style.</td>
<td>Reference</td>
</tr>
<tr>
<td>It was alright</td>
<td></td>
</tr>
<tr>
<td>i used the brainstorming then making points, researching and then writing a draft</td>
<td>Brainstorming, Research, Draft</td>
</tr>
<tr>
<td>I try to use all the parts. The video was very helpful. On my other blogs I didn't go through all the parts of the writing process. Using the checklist made my work quite easy.</td>
<td>Reference</td>
</tr>
<tr>
<td>I scheduled my time on the calendar, wrote out ideas, and then made a few drafts before doing my final copy</td>
<td>Timeline, Brainstorming, Draft</td>
</tr>
<tr>
<td>I liked the part about the writing environment and being comfortable and remember not to have the TV on. I also utilized the revision process a lot more carefully this time, I checked my work more carefully than I had previously done.</td>
<td>Writing Environment, Revision</td>
</tr>
<tr>
<td>I just went through it, might not have been quite as effective as I anticipated it to be.</td>
<td>Reference</td>
</tr>
<tr>
<td>i just referred to it as i was going along with writing my bog</td>
<td>Reference</td>
</tr>
<tr>
<td>I just looked over and tried to use the tips provided.</td>
<td>Reference</td>
</tr>
<tr>
<td>I felt the checklist made the blog process easier.</td>
<td>Reference</td>
</tr>
<tr>
<td>I did my research, looked a reputable sources, grabbed information from several places and wrote them in my words. I firstly came up with what i really wanted to write about and how will I categorize it. What information will go under each category.</td>
<td>Brainstorming, Research, Outline</td>
</tr>
<tr>
<td>I began to follow specific parts of the checklist to help with the organization and research process of my blog creation. I attempted to utilize each step to my advantage, in order to increase my mark for blog 3.</td>
<td>Outline, Research</td>
</tr>
<tr>
<td>Copied it to a clipboard and used stickers as a marker for milestones.</td>
<td>Reference</td>
</tr>
<tr>
<td>- I made sure to make a comfortable writing environment before I started writing, something I hadn't really thought about before I used the checklist - I used the checklist and it helped me stick to a timeline and provided me with reminders on what to do next - It was</td>
<td>Writing Environment, Timeline, Reference</td>
</tr>
</tbody>
</table>
effective with keeping me on track, and reminded me of next steps
### Appendix N  Reasons for not watching video

The following table contains all of the comments received from students that did not watch the video in response to the question “Why did you not watch the video?”

<table>
<thead>
<tr>
<th>Reason given</th>
<th>Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>I did not believe a video would improve my blog.</td>
<td>Already satisfied</td>
</tr>
<tr>
<td>Because I felt I already had my own structured method of creating my blog.</td>
<td>Already satisfied</td>
</tr>
<tr>
<td>I had to work and did not have the time to watch it</td>
<td>Too busy</td>
</tr>
<tr>
<td>I did not get confused by the previous survey.</td>
<td>n/a</td>
</tr>
<tr>
<td>too lazy</td>
<td>Not interested</td>
</tr>
<tr>
<td>I was unaware of the video blog. Probably because I did not read Professor's instructions.</td>
<td>Not interested</td>
</tr>
<tr>
<td>Was not interested</td>
<td>Not interested</td>
</tr>
<tr>
<td>Did not have enough time to and the email was a bit fishy since I think it said it was only sent to me. Also, it said not to tell anyone else about it.</td>
<td>Too busy</td>
</tr>
<tr>
<td>Unable to complete 3rd blog due to heavy course and workload this summer.</td>
<td>Too busy</td>
</tr>
<tr>
<td>No time. Decent marks on blog already.</td>
<td>Too busy, Already satisfied</td>
</tr>
<tr>
<td>Af first I didn't think its content was applicable to me and then (when I got over my pride) I didn't make time to watch it.</td>
<td>Not interested, Too busy</td>
</tr>
<tr>
<td>Didn't have time. Working multple jobs this summer - one of which includes mandatory volunteer time. I am often working 15 hour days. My homework time fits in on my lunch or dinner break but then I don't get to eat sometimes. :(</td>
<td>Too busy</td>
</tr>
<tr>
<td>I had already figured out how to embed a video into my blog.</td>
<td>N/a</td>
</tr>
<tr>
<td>Lack of time.</td>
<td>Too busy</td>
</tr>
<tr>
<td>I have to admitt I got busy and forgot about the video.</td>
<td>Too busy</td>
</tr>
<tr>
<td>Because I didn't have enough time, and was not well prepared</td>
<td>Too busy</td>
</tr>
<tr>
<td>I began watching it, but it was way too long to be effective for me. If it was shorter, then I would most likely have watched the whole thing.</td>
<td>Not interested</td>
</tr>
<tr>
<td>I write my blogs while I'm at work. My company blocks YouTube.</td>
<td>Not interested</td>
</tr>
</tbody>
</table>
Appendix O  Numeric to Alphabetic Grade Conversion

The following table shows the map used to translate numeric grades into alphabet grades for the analysis.

<table>
<thead>
<tr>
<th>Numeric grade</th>
<th>Alphabet Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>90 - 100</td>
<td>A+</td>
</tr>
<tr>
<td>85 - 90</td>
<td>A</td>
</tr>
<tr>
<td>80 - 85</td>
<td>A-</td>
</tr>
<tr>
<td>75 - 80</td>
<td>B+</td>
</tr>
<tr>
<td>70 - 75</td>
<td>B</td>
</tr>
<tr>
<td>65 - 70</td>
<td>B-</td>
</tr>
<tr>
<td>60 - 65</td>
<td>C+</td>
</tr>
<tr>
<td>55 - 60</td>
<td>C</td>
</tr>
<tr>
<td>55 - 60</td>
<td>C-</td>
</tr>
<tr>
<td>50 - 55</td>
<td>D+</td>
</tr>
<tr>
<td>50 - 55</td>
<td>D</td>
</tr>
<tr>
<td>50 - 55</td>
<td>D-</td>
</tr>
<tr>
<td>&lt;50</td>
<td>F</td>
</tr>
</tbody>
</table>

Note: To keep the grade conversion simple, the grade groupings were in 5% chunks from A to C. The grades from 50-55 were grouped into a single bucket, D. There was nobody that was striving for a grade below a C, so this does not affect the analysis. There is only one failing grade (F), which is everything below a 50.