2007-12-04

An Evaluation of Compatibility, Effectiveness, Utility, and Implementation of Plagiarism-Detection Software Operating in the Honor Code Environment at Brigham Young University

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AN EVALUATION OF COMPATIBILITY, EFFECTIVENESS, UTILITY,

AND IMPLEMENTATION OF PLAGIARISM-DETECTION SOFTWARE

OPERATING IN THE HONOR CODE ENVIRONMENT AT

BRIGHAM YOUNG UNIVERSITY

by

George L. Joeckel III

An evaluation report submitted to the faculty of

Brigham Young University

in partial fulfillment of the requirements for the degree of

Master of Science

Department of Instructional Psychology and Technology

Brigham Young University

July 25, 2007

BRIGHAM YOUNG UNIVERSITY

GRADUATE COMMITTEE APPROVAL

of a project submitted by

George L. Joeckel III

This project has been read by each member of the following graduate committee and by majority vote has been found to be satisfactory.

_____   _____
Date   Charles R. Graham

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Date   Larry Seawright

BRIGHAM YOUNG UNIVERSITY

As chair of the candidate's graduate committee, I have read the project of George L. Joeckel III in its final form and have found that (1) its format, citations, and bibliographical style are consistent and acceptable and fulfill university and department style requirements; (2) its illustrative materials including figures, tables, and charts are in place; and (3) the final manuscript is satisfactory to the graduate committee and is ready for submission to the university library.

_____   _____

Date   Charles R. Graham
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Accepted for the Department

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                                                                                        Department Chair

Accepted for the College

                                                                                        _____

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ABSTRACT

AN EVALUATIION OF COMPATIBILITY, EFFECTIVENESS, UTILITY, AND
IMPLEMENTATION OF PLAGIARISM-DETECTION SOFTWARE OPERATING IN
THE HONOR CODE ENVIRONMENT AT BRIGHAM YOUNG UNIVERSITY

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Master of Science

Turnitin plagiarism-detection software was operating as a pilot program conducted by the Center for Teaching and Learning in Winter 2007 on the Brigham Young University (BYU) campus. A sample of 6 instructors and 79 student users participated in this evaluation. The evaluation findings show that Turnitin is compatible with the academic honesty environment created by BYU's Honor Code. Turnitin has been effective at detecting intentional and inadvertent plagiarism at BYU. It has also addressed the problem of multiple submissions of the same material. Recommendations are made for promoting Turnitin at the campus and department level. Training tools are proposed for instructors: a FAQ page, an online tutorial, and a set of guidelines for introducing Turnitin to a class.

ACKNOWLEDGEMENTS

I acknowledge my Heavenly Father for giving me everything that I have. I acknowledge my parents George and Nancy for giving me life. I acknowledge my wife Hannah for providing the encouragement and support I needed to make it to this point.

I am grateful to the IP&T department for providing an excellent program of study and an environment in which to grow spiritually and academically. In particular, Dr. Charles Graham has been a source of knowledge, experience, and inspiration throughout my time as a Masters student.

I also wish to thank the Center for Teaching and Learning for the opportunity to conduct this evaluation. As my supervisor, Dr. Larry Seawright has generously shared his time and experience with me throughout this evaluation.

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Introduction

The spirit of the Honor Code at Brigham Young University (BYU) is embodied in

a quote from Karl G. Maeser, a prominent Utah educator who played a key role in the

founding of the university:

> I have been asked what I mean by word of honor. I will tell you. Place me
>
> behind prison walls-- walls of stone ever so high, ever so thick, reaching
>
> ever so far into the ground-- there is a possibility that in some way or
>
> another I may escape; but stand me on the floor and draw a chalk line
>
> around me and have me give my word of honor never to cross it. Can I get
>
> out of the circle? No. Never! I'd die first! (BYU, 2007c)

In an academic honesty environment created by an honor code that relies so heavily on

the responsibility of the individual, what is the effect of introducing a technology

designed to discover plagiarism in written assignments? This evaluation provides the

answer to this and other related questions as it judges the compatibility, the effectiveness,

the utility, and the implementation of the technology operating on the BYU campus.

Background and Context

The Center for Teaching and Learning (CTL) began an informal pilot

implementation of Turnitin® plagiarism-detection software during the Winter semester of

2007. Several instructors at BYU had been using the software for their courses, so CTL

decided to purchase a site license and make it available to any instructors that were

interested in using it. There was no formal announcement of the program's availability.

Information about the program spread by word-of-mouth and was concentrated in two

departments: History and Communication. Training was conducted on a one-on-one basis

with Turnitin's Product Manager in most cases. One instructor who had previously used Turnitin gave a group presentation and simple training at a department meeting.

Turnitin is integrated with BYU's course management system—Blackboard®. Instructors use Blackboard's "control panel" to create an assignment that will be submitted to Turnitin. From the student's view of Blackboard, there is no visual distinction between a Blackboard assignment link that will upload and store the electronic document and a Turnitin assignment link that will upload, store, and submit the electronic document to Turnitin.

When a student submits a written assignment, Turnitin creates "a unique, customized Originality Report which shows the results of comprehensive searches of Internet, student paper, and commercial databases in concise, unambiguous format" (Turnitin, 2007). Turnitin assigns the paper a "Similarity Index", which is the percentage of original material in the paper (a paper that had no matched information would receive 0%). The Originality Report gives the instructor the ability to exclude quotes and the bibliography from the text it seeks to match. Based on a user preference that the instructor chooses, a student may or may not be able to view the Originality Report for their assignment.

Turnitin must function in the environment created by the Honor Code at BYU. The Honor Code recognizes four major categories of academic dishonesty: cheating, fabrication or falsification, other academic misconduct, and plagiarism. Turnitin has the ability to detect academic dishonesty as it is defined in two of these categories: "intentional" and "inadvertent" plagiarism, and "submitting the same work for more than one class without disclosure and approval" listed under "other academic misconduct"

(BYU Honor Code, 2007a; BYU Honor Code, 2007b). This evaluation uses the term *written academic misconduct* to refer to these prohibited actions.

Evaluator Background

I became aware of Turnitin through Jon Mott, who at the time was the Director of CTL. Dr. Mott was one of my instructors in a project management class that I was taking. I had mentioned to him that I was looking for a project to fulfill the requirements for my Master's project. I was asked to meet with Dr. Mott and Larry Seawright, Quality Assurance (QA) manager for CTL, and we discussed the department's need for an evaluation of Turnitin. Dr. Mott and Dr. Seawright made the decision to hire me as an Evaluation Assistant, with my primary responsibility being to conduct the Turnitin evaluation.

Stakeholders

The sponsor of and client for this evaluation is the CTL at BYU. The management team at CTL requested the evaluation to inform an upcoming decision on the renewal of the Turnitin licensing agreement. During the course of the evaluation, an early decision to renew Turnitin's license was made to accommodate an administrative change at CTL. The focus of the evaluation shifted to informing the extended pilot program which would resume in the Fall 2007 semester.

The stakeholders of the evaluation are BYU, CTL, the Instructional Psychology & Technology (IP&T) department at BYU, the BYU instructors currently using Turnitin and their students, the BYU instructors that are potential users of Turnitin and their students, and the Lead Evaluator, me.

The main audience for the evaluation is the management team at CTL in charge of the extended pilot program for Turnitin—Larry Seawright, QA Manager; Bud Wood, Product Manager for the Office of the Academic Vice President; Jon Mott, Assistant to the Academic Vice President; and Russell Osguthorpe, Director.

Evaluand

The evaluand for this evaluation is Turnitin. On the BYU campus, Turnitin is integrated with the Blackboard course management system. Instructors use Blackboard's "control panel" to create assignments that will be reviewed by Turnitin, as well as view the results— Turnitin's "Originality Report". The Originality Report assigns an overall "Similarity Index", which is a percentage from 0 to 100. The originality report uses a split-screen display to show the original text on one side and the matching source on the other (see Figure 1). The text strings that were matched are highlighted in a color that is coded to the source. The matching sources could be a webpage on the Internet, a student paper previously submitted to Turnitin, or one of the information databases to which Turnitin has access.

Issues and Concerns

The decision to renew Turnitin's license agreement led to a shift in CTL's goals related to Turnitin. The management team was committed to continuing to use Turnitin in a pilot program context. It also planned to create formal implementation procedures that would increase the use and effectiveness of Turnitin. Larry Seawright and I agreed that the findings of the evaluation would be used to create recommendations for implementation practices.

There were several issues that the CTL management team wanted to address with this evaluation. Do students and instructors think that Turnitin is effective at discovering plagiarism in written assignments? What are student and instructor attitudes about Turnitin? What is the level of written academic misconduct at BYU? Does Turnitin have a deterrent effect on written academic plagiarism?
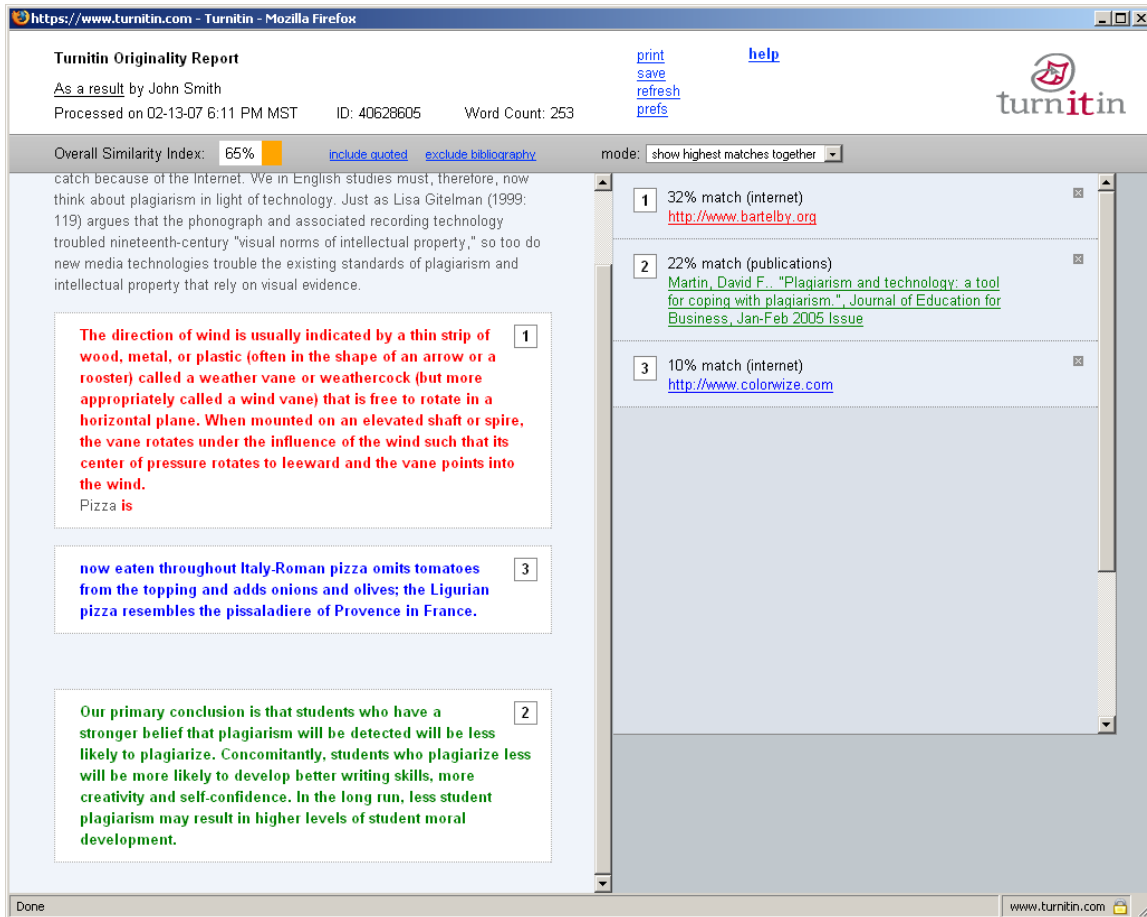
Figure 1. A screenshot of the Originality Report display.

The CTL management team's main concern was that Turnitin may be viewed by students and/or instructors as contrary to or not keeping with the spirit of the academic honesty environment created by BYU's Honor Code. Another concern was whether

Turnitin was providing a good return on the investment for the site license. A third

concern was whether a sufficient number of instructors would use the program if its

license were renewed.

Literature Review

There is an extensive body of literature dealing with academic honesty in education. One consistent theme in recent studies is the increasing rates of plagiarism and the use of new technologies to detect plagiarism. For the purposes of creating a research-based foundation for this evaluation, I will focus on three main areas: academic plagiarism in post-secondary education, post-secondary honor codes, and plagiarism-detection software.

Academic Plagiarism in Post-Secondary Education

Research has established many general themes that can form a foundation for understanding plagiarism in post-secondary environments. Most of these themes focus on the issue from the perspective of the student or the instructor. I frame my reporting of these themes by separating them into two general categories: student-centric and instructor-centric.

Among the student-centric themes that have been established in the literature which I reviewed, there has been an effort to categorize plagiarism into two main types, such as "poor scholarship or carelessness" and "deliberate intent" (Larkham & Manns, 2002). Other examples of classifying plagiarism into two main types have been reported in the literature: "casual" and "blatant" (Braumoeller & Gaines, 2001), "intentional" and "unintentional" (Sheridan, Alany, & Brake, 2005), and "planned" and "spontaneous" (Hard, Conway, & Moran, 2006). For the purposes of this report, I use the types suggested by the BYU Honor Code: "inadvertent" and "intentional" (BYU Honor Code, 2007). Other relevant student-centric themes that have been identified in the literature are (a) students do not understand plagiarism (Ashworth, Bannister, & Thorne, 1997;

Burnett, 2002; Jackson, 2006), (b) students lack the skills to avoid plagiarism (Ashworth, Bannister, & Thorne 1997; Roig, 1997; Jackson, 2006), (c) collaborative cheating on written assignments is increasing (McCabe, Trevino, & Butterfield, 2001), (d) students' perceptions of what plagiarism is are evolving (McCabe, Trevino, & Butterfield, 2001), and (e) students who believe that plagiarism will be detected may be less likely to plagiarize (Martin, 2005).

From an instructor point of view, plagiarism has distinguished itself from other forms of cheating by the amount of resources needed to pursue it and to provide evidence of its existence (Larkham & Manns, 2002). Instructors have also had to keep up with changes in policies and penalties that have changed in response to trends in plagiarism (Ashworth, Bannister, & Thorne 1997; Larkham & Manns, 2002). Other instructor-centric themes that have been reported are (a) the reluctance of instructors to report student misconduct through established procedures (McCabe, 1993), (b) the difficulty in distinguishing between inadvertent and intentional plagiarism (Larkham & Manns, 2002), (c) the lack of benefits associated with reporting academic dishonesty (Levy & Rakovski, 2006), and (d) the positive correlation between instructors' knowledge of misconduct policies and their prevention efforts (Hard, Conway, & Moran, 2006).

Post-Secondary Honor Codes

In the last decade, the adoption of academic honor codes on college campuses has been on the rise (McCabe, Trevino, & Butterfield, 2001). McCabe, Trevino, & Butterfield (2002) make the distinction between *traditional* and *modified* honor codes. They define a traditional honor code school as one that meets at least two (but typically three) of the four characteristics that were first observed by Melendez: unproctored

exams, the use of a pledge, a judiciary with a high level of student involvement, and a nontoleration policy. Schools which did not meet these criteria, but which demonstrated that academic integrity was an institutional priority and allowed their students to take an active role in developing and enforcing policies, were considered modified honor code schools. Because BYU's Honor Code meets only the characteristics of the use of a pledge and a nontoleration policy (the minimum two characteristics out of four needed to meet the definition for a traditional honor code), I would say that its classification as a traditional or modified honor code school is open to debate. Other themes related to honor codes which have been reported are (a) instructors are reluctant to use the procedures designated by campus policies (McCabe, 1993; McCabe, Trevino, & Butterfield, 2001), (b) a strong majority of both instructors and students at honor code institutions think students should be involved in the formal process to handle cheating incidents (McCabe, 1993; McCabe, Trevino, & Butterfield, 2001), (c) honor codes must be integrated into student culture and successfully implemented to function effectively (McCabe, Trevino, & Butterfield, 2001), (d) honor codes have the ability to effect the entire student population (Cummings & Romano, 2002), and (e) campus-wide honor codes are less likely to negatively effect students' perceptions of instructors (Cummings & Romano, 2002).

Plagiarism-detection Software

While there are many plagiarism-detection software products available, this report will focus on the distinct commercial leader in the field: Turnitin. Although these types of software have been available for years, their use appears to be on the rise. In at least one case, the standardization of the service campus-wide was a response to a doubling—over

a six-year period—of the number of cheating cases that were reported at a California state university (Young, 2001). Sheridan, Alany, & Brake (2005) describe how the plagiarism-detection software Turnitin functions:

> These programmes are able to scan through online text to see if a submitted piece of coursework contains strings of eight or more words which are identical to those found elsewhere in its database and other web pages. With each submitted piece of work, Turnitin produces a report with a plagiarism detection rate. (p. 242)

Two specific benefits identified with the use of Turnitin have been reported. A significant amount of time can be saved by using the program to perform searches (Royce, 2003; Martin 2005; Bolkan, 2006). Turnitin also maintains a database of student papers that have been submitted to the service, which allows the program to detect papers that have been inappropriately resubmitted (Royce, 2003; Martin, 2005; Bolkan, 2006; Vilano, 2006).

There were also concerns among the researchers studying Turnitin. Braumoeller & Gaines (2001) felt that the percentage plagiarized feature was misleading, and that the software should only be used to flag papers for further examination, an opinion shared by Royce (2003). Evans (2006) felt that some papers that were received a score of in the higher end of the "safe" band had problems that needed to be addressed. Researchers also felt that the use of plagiarism-detection software could create an atmosphere of distrust between instructors and students (Sheridan, Alany, & Brake, 2005; Evans 2006), although Evans (2006) found no evidence of this distrust in his study.

Sheridan, Alany, & Brake (2005) documented several changes in student beliefs and behaviors in their research conducted with students who had submitted papers to Turnitin in multiple classes, over the course of more than one term. A strong majority of the students (87%) felt that submitting papers to Turnitin was a good idea. About two-fifths of the students (42%) felt that Turnitin helped them have a better idea of what plagiarism is. Close to one-third of the students (29%) said they would prepare assignments differently if they knew they had to submit them to Turnitin.

Design

I worked closely with Larry Seawright to create the design for this evaluation. We discussed the impact which the decision to renew Turnitin's license had on the evaluation planning we had already completed. We reviewed the issues and concerns that CTL's management team had expressed. We discussed the results of the literature review and worked to create a research-based foundation for the evaluation. We developed evaluation criteria and standards, and created evaluation questions based on the criteria. We developed data instruments to collect the information necessary to answer the questions, evaluation activities which would utilize the data instruments, and data analysis procedures to organize and process the results. We also discussed the resources I would need to conduct the evaluation and took the necessary steps to make them available.

Evaluation Criteria and Standards

Turnitin was judged by four criteria in this evaluation:

1. Turnitin's compatibility with the academic honesty environment created by BYU's current Honor Code, as perceived by instructor and student users.

2. Turnitin's effectiveness in detecting written academic misconduct, as perceived by the instructor users.

3. Turnitin's utility, as shown by the opinions of instructor users.

4. Implementation practices will be developed which the CTL can use to increase the adoption and the effectiveness of Turnitin.

These criteria were based on the stakeholders' issues and concerns, the literature review, a meeting with Program Manager Aaron Robison, and multiple consultations

with Larry Seawright, who represented the opinions of CTL management team. Table 1

provides a list of the standards that Larry Seawright and I created for each evaluation

criterion.

Table 1

Criteria and Standards for Evaluating Turnitin

Criterion	Standard
1. Turnitin's compatibility with the academic honesty environment created by BYU's Honor Code, as perceived by instructor and student users	1. Instructor and student user attitudes of Turnitin's compatibility with the academic honesty environment created by BYU's Honor Code will be net positive
2. Turnitin's effectiveness in detecting written academic misconduct, as perceived by instructor users	2. A majority of the instructor users will "agree" or "strongly agree" that Turnitin is able to detect written academic misconduct
3. Turnitin's utility, as shown by the opinions of instructor users	3. The opinions of the instructor users will be net positive
4. Implementation practices will be developed which the CTL can use to increase the adoption and the effectiveness of Turnitin	4. The instructor focus group will generate suggestions for new instructor users which can be developed into implementation practices

These standards represent the minimum level that Turnitin must achieve in order to fulfill each criterion. This evaluation uses the term *net positive* to signify that there will be more positive attitudes or opinions than negative attitudes or opinions.

Evaluation Questions

The evaluation questions are listed in order of importance in Table 2, along with the criterion upon which each question was designed.

Data Collection

Two factors were a major influence in the way the data instruments were designed and utilized. The first factor was the need for CTL's internal evaluation team to gather student and instructor data before the end of the Winter 2007 semester. The second factor was the lack of formal promotion of the pilot program during the Winter 2007 semester, which meant that only a small pool of instructors were available for sampling. Based on the needs of CTL's internal evaluation team, Larry Seawright and I determined that it would be necessary to design and implement the online surveys before the focus group and interviews were conducted. It was also determined that due to the constraints on time and sample size, the surveys would not be piloted with a sample of students and instructors. An internal review of the surveys' usability was conducted by CTL management and student employees. Also, due to the limited number of instructors available, the designs for the focus group and the interviews were not piloted, but also received an internal review at CTL. See Table 3 for a list of the evaluation questions and the data instruments designed to answer them.

A sample of 11 instructors was drawn from the database of Turnitin usage data. Only instructors who had used Turnitin for more than two assignments during the Winter

Table 2

Evaluation Questions and Criteria

Criterion	Question
1. Turnitin's compatibility with the academic honesty environment created by BYU's Honor Code, as perceived by instructor and student users	1. Are the combined instructor and student perceptions of Turnitin's compatibility with the academic honesty environment created by BYU's current Honor Code net positive?
2. Turnitin's effectiveness in detecting written academic misconduct, as perceived by instructor users	2. Do a majority of the instructors currently using Turnitin agree that it is able to detect written academic misconduct?
3. Turnitin's utility, as shown by the opinions of instructor users	3. What are the opinions of the instructors currently using Turnitin?
4. The development of implementation practices which the CTL will use to increase in the adoption and the effectiveness of Turnitin	4. What suggestions would instructors currently using Turnitin have for new instructor users?

Table 3

Evaluation Questions and Data Instruments

Question	Data Instrument
1. Are the combined instructor and student perceptions of Turnitin's compatibility with the academic honesty environment created by BYU's current Honor Code "net positive"?	Student survey questions 1.1 and 3 Instructor survey questions 1.1 and 2
2. Do a majority of the instructors currently using Turnitin agree that it is able to detect written academic misconduct?	Instructor survey questions 1.2 and 3 Instructor focus group Instructor interviews
3. What are the opinions of the instructors currently using Turnitin?	Instructor survey questions 1.3, 1.4, 1.5, 1.6, and 4 Instructor focus group Instructor interviews Student survey questions 1.5 and 4
4. What implementation practices would instructors currently using Turnitin recommend to new instructor users?	Instructor focus group Instructor interviews

2007 semester were included in the sample. Students from each course in which one of the 11 instructors were using Turnitin were grouped to create a sample of 767 students. Instructors and students were sent an email inviting them to participate in the appropriate survey. The email contained a hyperlink to the survey. The survey data was collected by the Qualtrics software program, which also created a database of the results.

Volunteer agreements. Before participating in the online survey, instructors and students were asked to agree to an embedded volunteer agreement. A separate volunteer agreement, which explained the goal of the evaluation, the participants' rights, and the uses of the collected data, was created for the participants of the instructor focus group and the interviews (see Appendix A). I was responsible for all data collected and ensured the privacy of that information by employing procedures such as password-protected computer files, coding for the respondents, and destroying hard copies of the raw data and digital video and audio files after analysis**.**

Surveys. I created both surveys, with guidance from Charles Graham and Larry Seawright, and delivered them online using the site www.byu.qualtrics.com. Of the 767 students invited to participate in the survey, 79 completed surveys, for a response rate of 10%. Of the 11 instructors that were invited to participate in the survey, 6 completed surveys, for a response rate of 54%. The participants were not compensated for their participation in the survey.

The instructor and student surveys presented statements related to attitudes and opinions about Turnitin. For a reproduction of the survey instruments, see Appendices B and C. The participants chose from among four Likert-scale responses: "strongly agree", "agree", "disagree" and "strongly disagree". For a complete list of the opinion statements

and the number and percentages of students and instructors who agreed or disagreed with each statement, see Appendices D and E. These surveys also featured open-ended questions that gave participants an opportunity to provide more in-depth opinions. For a complete list of open-ended questions and tabulations of answers, see Appendices F and G.

Focus group. The sample of 11 instructors was invited by email to participate in a focus group. Instructors who did not respond to the email were given a follow-up phone message. Commitments to attend the focus group were made by 5 of the instructors, but due to complications, only 3 instructors were able to intend. All of the focus group participants had participated in the survey.

The focus group was scheduled for sixty minutes and it was conducted in the Usability Lab located in the Harold B. Lee Library at BYU. I led the focus group and a CTL employee assisted me in documenting the event. The focus group was recorded with an embedded video camera and microphone and a hand-held digital recorder.   A Power Point presentation was used to display a series of discussion questions/topics based on the results of the instructor survey (see Appendix D for the focus group protocol). The focus group began and ended on schedule, and the participants received a $25.00 gift certificate to the BYU bookstore for their participation.

Interviews. I was scheduled to conduct follow-up face-to-face interviews with a purposeful sample (representing attitudes about Turnitin ranging from negative to positive) of the instructors who participated in the focus group. Individuals would be selected based on their responses during the focus group and their willingness to participate. Each interview would be scheduled for thirty minutes and would be based on

a framework of discussion questions/topics designed from the results of the instructor survey and focus group. The interview would be recorded with a digital audio recorder. The participants would be compensated for their participation with a $25.00 gift certificate to the BYU bookstore.

After the focus group was conducted, Larry Seawright and I met to plan the follow-up interviews. In reviewing the results of the focus group, we determined that the information gathered was sufficient to answer evaluation questions 3 and 4. Two factors account for these results: the focus group size and the personalities of the participants. While five instructors had agreed to participate in the focus group, two were unable to attend, which left the three remaining participants with significantly more time to share their opinions. Also all three participants appeared comfortable in sharing their opinions in a group setting. All three were willing to participate in individual interviews, but also felt like they already had many opportunities to share their opinions. Based on these results, Larry Seawright and I felt that individual interviews would be redundant and an inappropriate use of resources, therefore we canceled them.

Data Analysis

I conducted all of the data analyses, with the guidance of Larry Seawright. In order to protect the privacy of the participants, a code was assigned to each respondent. Video and audio recordings from the focus group were kept in password-protected computer files.

Larry Seawright was responsible for archiving the raw data from the surveys and agreed to make the data—stripped of any identifying information—available to me for the purposes of this evaluation. For the Likert-scale responses on the instructor and

student attitude surveys, the four responses were combined into two groups: "positive" and "negative". Percentages of positive and negative responses were calculated for each opinion statement. The open-ended questions were examined for themes and reoccurring answers were tabulated and reported. Sentences and phrases that are representative of common answers are used as examples in this report.

I reviewed the video recording of the focus group and created a transcription of the proceedings. I analyzed the transcription to look for evidence that would support or refute the quantitative data that had been gathered from the instructor and student surveys. I documented the suggestions that the instructors had for future instructor users of Turnitin. Portions of the transcription are used as representational quotes in narrative sections of this report.

Resources

Conducting this evaluation was my sole responsibility as an Evaluation Assistant at CTL. CTL supplied my laptop and any needed software. CTL provided a user account for the Qualtrics survey program. CTL allowed me to conduct the focus group in the Usability Lab. I had access to a computer workstation and printing resources at CTL and the Graduate Lab at IP&T. I met regularly with Charles Graham and Larry Seawright for guidance in all aspects of the evaluation: the design and implementation of the data instruments, the analysis of the collected data, the findings, the recommendations, and the meta-evaluation. I met with the Project Manager from CTL in charge of the pilot implementation of Turnitin, Aaron Robison, for access to an instructor user account, information on user data, and answers to technical questions regarding the program. I had limited access to other CTL personnel as needed.

My general experience in evaluation comes from participating in a research study conducted on a group response system being piloted by the CTL. I also have experience from analyzing the results of course evaluations for a course I taught—IP&T 287—and working with the professor in charge of the course to identify and implement changes. I do not have any specific experience in evaluating plagiarism-detection software similar to Turnitin.

In order to control for potential bias, I adopted the following procedures:

1. Maintain complete records of all evaluation activities and resulting information.
2. Conduct regular review meetings with Larry Seawright.
3. Conduct review meetings with Charles Graham.

Reporting

Throughout the evaluation process, I have been in contact with Larry Seawright and Jon Mott from CTL and Charles Graham from IP&T. Status memos were sent as milestones in the evaluation were achieved. The findings and recommendations of the evaluation were compiled and published in this report. If requested, an oral presentation will be made to the appropriate personnel at BYU.

This report was provided to the management team at CTL on July 31, 2007. The report will be made available to any additional stakeholders that express an interest. In the process of conducting the literature review, it became evident to me that while there were many studies conducted on plagiarism-detection software and honor codes, there were no studies on plagiarism-detection software operating in an honor code

environment. I will work with CTL employees to create an article and submit it to an academic journal for publication.

A meta-evaluation of the evaluation has been conducted throughout the evaluation and the final meta-evaluation is included in this report. As a part of this process, the evaluator has documented the evaluation's limitations.

Findings

The results of the surveys and focus group showed a high degree of support for Turnitin among students and instructors on the BYU campus. For the responses to the open-ended questions that could be characterized as positive or negative, 58% were positive. The instructors who participated in the focus group were enthusiastic about Turnitin's performance in their classes and were forthcoming with their suggestions for new instructor users.

A list of the statements from the student survey, along with the number and percentages of students that agreed or disagreed with the statement, is available in Appendix E. A list of the open-ended questions from the student survey, and a tabulation of the responses, is available in Appendix F. A list of the statements from the instructor survey, along with the number and percentages of instructors that agreed or disagreed with the statement, is available in Appendix G. A list of the open-ended questions from the instructor survey, and a tabulation of the responses, is available in Appendix H. The summarized results are organized according to the four evaluation questions and are presented in the next four sections: compatibility, effectiveness, utility, and implementation.

Compatibility

Are the combined instructor and student perceptions of Turnitin's compatibility with the environment created by BYU's current Honor Code net positive?

When presented with the statement "Turnitin is compatible with the academic honesty environment created by BYU's Honor Code", 75 (95%) of the students who responded to the survey agreed (see Figure 2). Of the 79 students who participated in the
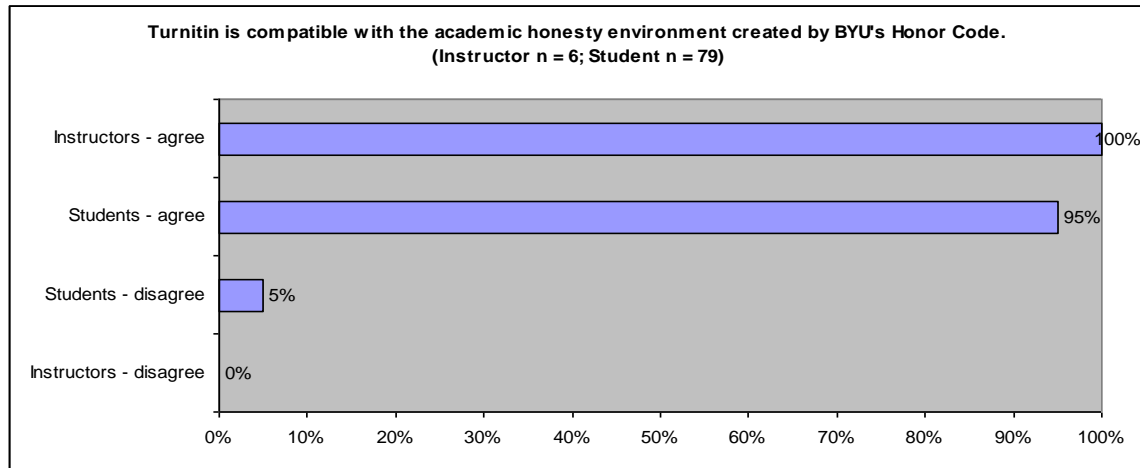
Figure 2. Turnitin's compatibility with the BYU Honor Code.

survey, 55 (70%) students chose to respond to the open-ended question, "Does Turnitin

have a positive effect, negative effect, or no effect on the academic honesty environment

created by BYU's Honor code?" A tabulation of the responses showed that 30 (55%)

students felt that Turnitin had a positive effect, 13 (24%) felt it had no effect, 3 (5%) felt

it had a negative effect, and 9 (16%) answers did not fit into any of the three categories

specified in the question. Student answers showed their perceptions that Turnitin has the

ability to positively affect the academic honesty environment by discovering intentional

plagiarism. One student commented, "I believe it has a positive effect on academic

honesty. Everyone tends to be little more careful, and it does help find those that are

cheating." Several student answers demonstrated how Turnitin is a positive influence by

addressing inadvertent plagiarism. One student said,

> It is clear and simple: it awakens people who were previously unaware of the
>
> issue. I was one of those people. I thought I would come up with a 0% plagiarism,
>
> and I was surprised when I had a few issues.

Of the students whose comments reflected an incompatibility between Turnitin and the Honor Code, many felt that Turnitin had a negative effect. One student response was, "I think it's a negative effect, considering that the Honor Code is in place as a trust mechanism." Most students who felt it had no effect doubted Turnitin's effectiveness. "I believe that it has no real effect on the academic honesty. If someone really wants to cheat, the will still find a way to do it. This will just catch lazy, stupid cheaters."

The six instructors who responded to the survey were unanimous in their agreement with the statement, "Turnitin is compatible with the academic honesty environment created by BYU's Honor Code." In responding to the open-ended question "Why is Turnitin compatible, or not compatible, with the academic environment created by BYU's Honor Code?", one instructor stated, "I think it makes clear BYU's commitment to academic integrity." Another instructor's comments showed how Turnitin could reinforce the honor code, address inadvertent plagiarism, and provide a deterrent effect:

> I think that the heavy majority of BYU students are honest, however there are some who don't seem to understand the connection between the honor code and plagiarism. I think that many students have been copying and pasting from sources on the Internet for years without thinking of it as plagiarism…. In the next semester, word got around about Turnitin.com and the number of students who engaged in plagiarism fell significantly. In other words, Turnitin.com taught students about the honor code and helped them to live it at a higher standard than they had been living it before.

Effectiveness

Do a majority of the instructors currently using Turnitin agree that it is able to detect written academic misconduct?

The instructors who participated in the survey and the focus group were extremely confident in Turnitin's ability to detect written academic misconduct. They were unanimous in their agreement with the statement, "Turnitin is able to detect plagiarism in written assignments", with 4 (67%) strongly agreeing, and 2 (33%) agreeing (see Figure 3). In response to the open-ended question "Why is Turnitin effective, or not effective, in helping you to detect plagiarism in written assignments", one instructor's comments showed that while Turnitin is very effective, it is not infallible: "Turnitin is effective at finding most plagiarism, however it still has a few blind spots. I teach news writing and Turnitin failed to identify a plagiarized article that had been taken from a local newspaper." The following exchange from the focus group shows Turnitin's effectiveness in dealing with cutting and pasting and papers purchased over the Internet:

> Participant 2: The blatant cases I've seen are in an eight-page paper, six pages are straight off the Internet. Or if they've purchased a paper from a site, I'll say "Did you really pay $87.00 for this?"

> Participant 1: Will Turnitin catch those papers that are bought off the Internet?

> Participant 2: Yeah.

Utility

What are the opinions of instructors currently using Turnitin?

Of the instructors who participated in the survey, 5 (87%) agreed with the statement, "Turnitin makes my job easier." The same percentage of instructors agreed

Turnitin is able to detect plagiarism in written assignments.
(n = 6)

Strongly agree	67%
Agree	33%
Strongly disagree	0%
Disagree	0%

0%   10%   20%   30%   40%   50%   60%   70%   80%   90%   100%
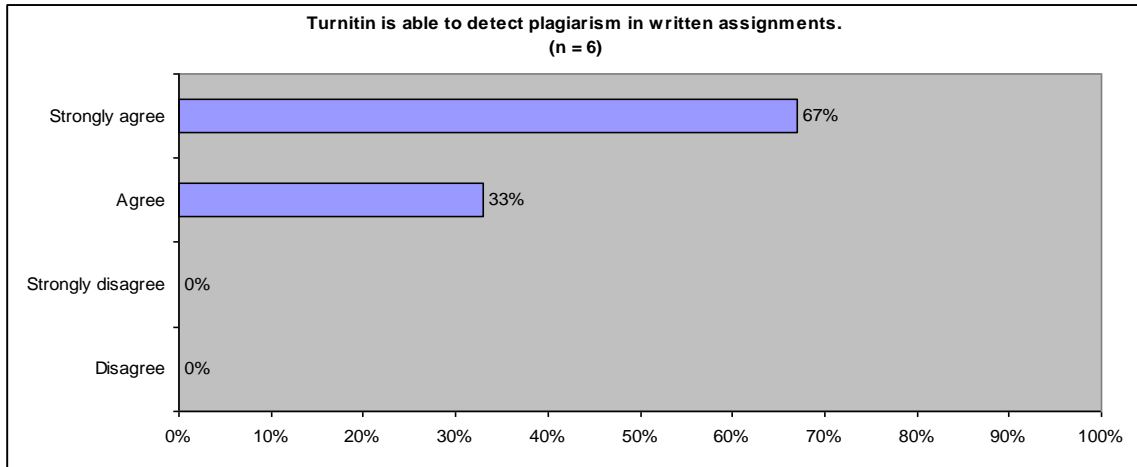
Figure 3. Instructor's opinions about Turnitin's effectiveness.

with the statement, "Turnitin saves me time." All of the instructors that participated in the

survey indicated that they would continue using Turnitin (see Figure 4).

87%	87%	100%
Turnitin makes my job easier.	Turnitin saves me time.	I plan to continue using Turntin.

(n = 6)
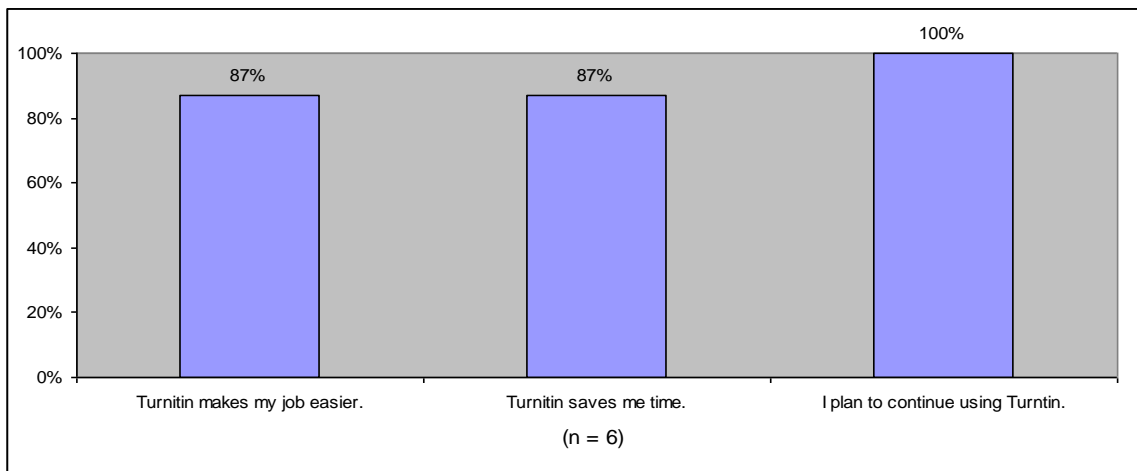
Figure 4. Instructor's opinions about Turnitin's utility.

All of the instructors agreed with a statement from the survey designed to address

a specific type of written academic misconduct that is defined in the BYU Honor Code:

"Turnitin is able to detect when students submit the same work for more than one class

without disclosure and approval." During the focus group, one instructor identified

Turnitin's database of student submissions as a solution to this problem:

> Every semester it's a uniform class so they have the same syllabus and the same
>
> essay questions that they have to write. So they're writing the same essays every
>
> semester, and I'm thinking "We've got to get the essays in the [Turnitin]
>
> database."

Another instructor reported a similar sentiment:

> One way it did help me was that I taught the same class three times in a row, and I
>
> felt confident using the same take-home essay questions because I knew the
>
> responses from previous semesters were in the [Turnitin] database.

In courses where design or convenience dictate that written assignments will be used

across multiple semesters, Turnitin can provide a deterrent to situations which one

instructor characterized as "such a temptation for plagiarism because your big brother

went through it two years ago. Borrow his essays and turn them in."

In responding to the open-ended question regarding the continuing use of

Turnitin, one professor highlighted the benefits that the program would provide to

students that were following the Honor Code:

> I also feel strongly that anti-plagiarism devices protect the honest students who
>
> put forth the time and effort to do their own work. When honest students have
>
> their honest work compared against the slick, professional, well-written
>
> plagiarized work of dishonest students, the honest students are at a disadvantage
>
> relative to the dishonest students.

Students showed a strong agreement with this opinion when 61 (77%) of the survey participants agreed with the statement, "Turnitin helps honest students by catching cheaters". Some students' comments to the open-ended questions were in agreement with this statement. One student said,

> The majority of BYU students follow the honor code, from my point of view, but there are a few who refuse to do so. I think action needs to be taken against those people, and Turnitin helps to do this.

> Another aspect of Turnitin that was appreciated by instructors was the way it deflected some of the student's negative feelings that typically accompany discussions about potential plagiarism. When a conversation about academic written misconduct was necessary, the instructor felt that "[Turnitin] also takes the burden off of me—I don't have to tell a student that I suspect plagiarism, I can clearly show them where they plagiarized and the 'bad guy' is the program, not me."

Implementation

What suggestions would instructors currently using Turnitin have for new instructor users?

The main suggestion that the instructors who participated in the focus group had for instructors beginning to use Turnitin was to focus on the deterrent and educational value of Turnitin, as opposed to using it as a punitive measure. In discussing his reasons for using Turnitin, one instructor commented that he decided to use it "not necessarily as a punitive measure, but as a teaching opportunity." This same instructor showed how this attitude manifested itself when he described the process for interviewing students whose papers Turnitin had flagged:

I don't say "I caught you" or "The computer caught you", I say "Tell me about the process you followed in conducting the research. How did you come up with the idea? How did you come up with the thesis? What books did you check out?" Another instructor chose to focus on Turnitin's deterrent effect. He said "I viewed it as a deterrent, rather than a punitive measure. People know what it is, so they know in the back of their minds 'Oh, I can't get away with it [plagiarism] now at all.'"

In the course of showing his students how Turnitin worked, one instructor's technical demonstration "developed into a pretty frank discussion on plagiarism." He suggested that other instructors could achieve the same results: "Explain exactly what it [Turnitin] does so that it leads to these better discussions on academic honesty." He encouraged instructors to be explicit with their reasons for using Turnitin: "I think that's why you need to be extra open, as honest as you can be about it. 'What are you intentions in using it?'"

All of the instructors in the focus group felt that new instructor users would need to be aware of their students' feelings. One instructor characterized a particular challenge with the following comment:

I think you have to be sensitive to the students too. You don't want a "Big Brother" mentality. They already feel overly scrutinized here at BYU and this is just one more "thing to prevent them from sinning" type of thing.

Conclusions and Recommendations

The conclusions and the recommendations are organized into three sections: conclusions, limitations, and recommendations. In the first section, the findings of the evaluation are summarized. In the next section, the limitations of the evaluation are discussed. In the final section, the recommendations for implementation practices are presented.

Conclusions

All four of the evaluation questions met the established standards. There is strong support for Turnitin among the instructors and students who used the program in the Winter 2007 semester and participated in this evaluation. The majority of these instructors and students felt that Turnitin was supportive of the academic honesty environment created by the BYU Honor Code. In fact, most of them felt that it could make a significant contribution to the academic honesty environment by focusing on Turnitin's deterrent effect on intentional and inadvertent plagiarism. There was also strong support for the use of Turnitin as an educational tool to address inadvertent plagiarism. Finally, instructor participants were confident in Turnitin's ability to address multiple submissions of the same material.

Limitations

As mentioned previously, Turnitin was in an informal pilot phase in the Winter 2007 semester and there were only 11 instructors who met the sampling criteria. There were no formal implementation procedures or guidelines in place, so there was no uniform usage among these instructors. All of the student and instructor participants were self-selected, which may have limited the types of opinions that were presented. No

information was gathered from instructors or students who had not used the program.

Also the student participation rate in the survey and the instructor participation rate in the

focus group were low, which may have also limited the types of opinions that were

presented. Due to constraints on time and sample size, the data instruments were never

piloted. Traditional tests for the reliability of the findings were not conducted.

Recommendations

A summative decision to renew Turnitin's license for an additional year was made

by the management team at CTL. They committed to expanding the integration and usage

of Turnitin on BYU campus, while maintaining its status as a pilot program. Formal

implementation practices will be created and adopted for the Fall 2007 semester. The

findings of this evaluation were used to create recommendations that will inform this

process. These recommendations were reviewed by CTL representative Larry Seawright.

The recommendations of this evaluation are limited to those that are: formative,

specific to the next academic year, appropriate to a user population that has increased

(but is far from campus wide), and achievable using CTL's employees and a modest

budget. I organized the recommendations into four sections. The first three sections refer

to the levels to which the various implementation practices would be directed—campus,

department, and instructor—and a fourth section covers future evaluation activities.

Campus. In order for CTL to achieve its goal of wider adoption for Turnitin,

promotional efforts will have to be made. A part of those promotional efforts should be

conducted on the campus-wide level. A campaign should be focused on achieving two

goals: promoting the positive attitudes of students who have already used Turnitin and

combating student misinformation and ignorance about Turnitin.

The results from the surveys show that students feel that Turnitin is a good fit on BYU campus. Three main findings from the evaluation should be highlighted:

1. Ninety-five percent of the students agreed with the statement "Turnitin is compatible with the academic honesty environment created by BYU's Honor Code."

2. Seventy-seven percent of the students agreed with the statement "Turnitin helps honest students by catching cheaters."

3. Twenty-three percent of the students agreed with the statement "I have first-hand knowledge (seen with my own eyes) academic dishonesty on a written assignment."

Out of the 156 student comments from the survey, 9 (9%) demonstrated misinformation or a lack knowledge about how Turnitin functions. Examples of the student comments are "I do not really know what it is and also I never got to see the results for when I did do Turnitin" and "Why be graded by a robot?". These opinions should be addressed with a Frequently Asked Questions (FAQ) page, which could be adapted from the instructor FAQ page (see FAQ page recommendations in the instructor section below) and promoted at the campus level.

Department. Department-level implementation activities will reach the greatest number of instructors. Buy-in from department heads and influential instructors may lead to a greater adoption of Turnitin. Two types of departments should be focused on in order to keep the efforts productive: departments that are already using Turnitin and departments that are good candidates for Turnitin.

An analysis of the data on Turnitin usage from Winter 2007 revealed two departments that already have a significant number of instructors using Turnitin: History and Communications. By proactively reaching out to these departments, CTL can receive valuable feedback and maintain or increase the amount of instructors from each department that are using Turnitin. Some suggested implementation activities to promote Turnitin in these departments include the following: a short presentation at a department meeting, group trainings that focus on the department's use cases, and a regularly scheduled block of time where a CTL employee visits the department to provide one-on-one training. Two main benefits that are documented in the literature and were validated by this evaluation are Turnitin's ability to save time by conducting automated searches and Turnitin's database of student papers.

Another recommendation for a department-level implementation practice is the creation of a list of departments that are good candidates for Turnitin. The primary requirement for candidates should be that at least a part of the instructors incorporate written assignments into their instruction. Other characteristics to look for are departments that require research papers and have courses that use the same assignments from one semester to the next. Once the candidates are identified, the implementation activities from the previous section should be used to promote Turnitin.

Instructor. When asked how the CTL could provide support for instructors, the focus group pointed to one resource that is precious above all others: time. With this in mind, three training tools that instructors can access at their convenience should be developed: a FAQ page, an online tutorial for setting up and using Turnitin, and a set of guidelines for introducing Turnitin.

A FAQ page should be created and made available on the Internet. An initial set of questions should be developed the Program Manager. Ownership of the FAQ page should be given to a CTL employee, and CTL employees who are involved with Turnitin should forward new questions to this person as they are made aware of them. Two questions from the focus group should be addressed:

1. How do I manually upload a paper?

2. What types of automated reports are available?

 The instructors in the focus group were unanimous in picking an online tutorial as the most desirable way to receive training when given the options of group training, one-on-one training, and an online tutorial. A basic online tutorial should be created which shows instructors how to use Turnitin. The tutorial should at least address the following topics:

1.   How to use the Blackboard Control Panel to create a Turnitin Assignment

2.   How to edit Assignment preferences

3.   How to read an Originality Report

4.   How to view Turnitin Assignments by Group

5.   Suggestions for discussing Turnitin's results with a student

Student comments such as "It could have a positive effect if students knew what it actually did before turning in assignments", and the instructor comment "It probably didn't help me as much as it could have because I didn't explain in detail to the students what it was" suggest the need to develop some basic guidelines for instructors on how to introduce Turnitin to a class. As mentioned in the results, an open discussion on how Turnitin works can increase its educational and deterrent effects, as well as lead to a

better understanding of the Honor Code. My recommendation is to create a one-page document that can be posted online, sent attached to an email and printed as a handout. Some of the findings from this evaluation that should be considered when creating this document include the following:

1. The need to respect student feelings.
2. The suggestion that instructors are open about Turnitin and explicitly state their intentions for its use.
3. The way that Turnitin helps honest students by catching cheaters.
4. The value of Turnitin as an educational tool.

Future evaluation activities. The software license for using Turnitin at BYU has been renewed for one year. I recommend that a formal summative evaluation be conducted by CTL to inform that decision. This evaluation should serve as a foundation for that evaluation, with modifications being made as needed.

Because of CTL's commitment to expand the usage of Turnitin during its extended pilot phase, a larger group of users will be available to provide feedback to inform the ongoing support of the program. I recommend that an informal formative evaluation be conducted for each of the activities listed above that are put into practice. These evaluations should be completed in time to inform the modification of these activities before they are conducted again in the Winter 2008 semester.

Metaevaluation

This metaevaluation was conducted following the "Program Evaluations Metaevaluation Checklist" created by Daniel L. Stufflebeam (Stufflebeam, 1999). There are 30 standards in four areas: utility, feasibility, propriety, and accuracy. Each standard is received a score of according to the following scale: 0-1 Poor, 2-3 Fair, 4 Good, 5 Very Good, 6 Excellent. Each area is given a score, and then these four scores are combined to create an overall score.

Utility

U1 stakeholder identification. I worked closely with Larry Seawright of CTL management to define the evaluation's client and to identify the evaluation's stakeholders. I met with Larry on an ongoing basis to involve stakeholders throughout the evaluation. I did not meet with the entire management team at CTL. The evaluation received a score of 5 out of 6 on this standard.

U2 evaluator credibility. I had no formal evaluation experience prior to this evaluation. I worked closely with Larry Seawright, head of the Evaluation Team at CTL, and the evaluation benefited greatly from Larry's general evaluation experience, as well as his specific experience working for CTL. Larry was able to help me identify and address potential stakeholder concerns, as well as attend to stakeholders' criticisms and suggestions. The evaluation received a score of 4 out of 6 on this standard.

U3 information scope and selection. I conducted a literature review to inform the evaluation. I worked with Larry Seawright to create evaluation questions, prioritize them, and ensure that the questions would gather sufficient information to assess Turnitin's merit and worth. The scope of the evaluation questions was limited due to the timeline

available. The evaluation team's flexibility was demonstrated when an early summative evaluation led to a revision of the original evaluation questions, and the addition of a fourth question. The evaluation received a score of 5 out of 6 on this standard.

U4 values identification. Stakeholder values were the basis for the evaluation questions. The evaluation focused on the relevant values of CTL management, but also took other stakeholder values into consideration, such as the academic honesty environment created by BYU's Honor Code. Larry Seawright and I made the valuational interpretations. Involving the entire management team at CTL in the process may have led to more valid valuational interpretations. The evaluation received a score of 5 out of 6 on this standard.

U5 report clarity. A main report will be distributed to the appropriate stakeholders. Special formats such as an executive summary and/or an oral presentation will be delivered if requested by CTL management. No special needs for the report audience were identified. No commitment was made to make the report available via public media, such as the Internet, which may have been more effective at informing different audiences. The evaluation received a score of 5 out of 6 on this standard.

U6 report timelines and dissemination. The final report will be delivered to CTL by July 31, 2007, in time for implementing recommendations for the Fall 2007 semester. Instructors who have used or are considering using Turnitin will have access to the final report. No provisions were made to make the final report available to students or the public. The evaluation received a score of 4 out of 6 on this standard.

U7 evaluation impact. Information gathered from the evaluation was used to make a summative decision to renew the software license for Turnitin. The

recommendations of the evaluation will directly inform the future implementation

activities associated with Turnitin, including user training, promotion of the program, and

future evaluation activities. I met with Larry Seawright, who acted as a liaison to CTL

management, throughout the evaluation process. Feedback sessions with the entire CTL

management team may have lead to the evaluation having a greater impact. The

evaluation received a score of 5 out of 6 on this standard.

The overall Utility Score is 5.43.

Feasibility

F1 practical procedures. The evaluation was designed to minimize the disruption

to the environment. The data collection procedures were chosen based on resource

constraints and client needs. For example, the survey was conducted before the focus

group and the scheduled interviews in order to accommodate the needs of the internal

evaluation team at CTL. All evaluation team members are BYU employees, faculty, and

students. The schedule allows enough time to accommodate participant schedules. Due to

poor execution, the online surveys were delivered at a busy time at the end of the Winter

2007 semester; this may have been inconvenient for students and instructors. The

evaluation received a score of 4 out of 6 on this standard.

F2 political viability. No resistance to the evaluation was encountered. No

resources were devoted to seeking out interest groups on the BYU campus that may have

been opposed to Turnitin's adoption. The evaluation received a score of 4 out of 6 on this

standard.

F3 cost effectiveness. The lead evaluator is a student employee. The project

prospectus contained a detailed budget, and the evaluation was completed under budget.

The results of the evaluation will be used to increase BYU's return on its investment into Turnitin. No in-kind services were used in the evaluation. See Appendix J for the projected and actual budgets. The evaluation received a score of 5 out of 6 on this standard.

The overall Feasibility Score is 4.33.

Propriety

P1 service orientation. The results of the evaluation will be used to inform the services CTL provides to support Turnitin users. The opinions of the instructor and students were analyzed to identify the strengths and the weaknesses of the current implementation practices associated with Turnitin. No resources were devoted to assessing program outcomes against nontargeted customers' assessed needs. Recommendations were made for future implementation activities. The evaluation received a score of 5 out of 6 on this standard.

P2 formal agreements. An evaluation prospectus was created that provided information on the evaluation's goals and questions, audience, procedures, resources, schedule, and budget. This prospectus was reviewed and approved by my Masters Project Committee: Dr. Charles Graham, Dr. Larry Seawright, and Dr. David Williams. Larry Seawright accepted the evaluation prospectus on behalf of the CTL management team. It may have been more effective to have the entire CTL management team meet to sign off on the evaluation prospectus. The evaluation received a score of 5 out of 6 on this standard.

P3 rights of human subjects. The surveys were conducted under CTL's evaluation protocols for gathering data to be used internally, which were approved by BYU's

Internal Review Board. BYU's Internal Review Board reviewed and approved this evaluation's protocols. No resources were allocated to locate special needs populations among the participants and none were identified. The evaluation received a score of 5 out of 6 on this standard.

P4 human interactions. Larry Seawright and I collaborated to design the focus group. Additional CTL personnel directly involved in the evaluation were given an orientation related to privacy policies and diversity of values and cultural differences (where applicable). The focus group started and ended as scheduled. No resources were allocated to identify participants' diversity of values and cultural differences. The evaluation received a score of 5 out of 6 on this standard.

P5 complete and fair assessment. This report contains detailed information on the strengths and weaknesses of the current implementation practices associated with Turnitin, and shows how the strengths can be used to overcome the weaknesses. An evaluation based on a larger sample, and with higher participation rates, may have discovered additional strengths and weaknesses. This metaevaluation and the limitations section of the report acknowledge the final report's limitations. The evaluation received a score of 5 out of 6 on this standard.

P6 disclosure of findings. All relevant findings were reported in writing to the main audience. Both the strengths and the weaknesses of Turnitin's implementation to date were discussed. I will work with Larry Seawright and CTL management to define other right-to-know audiences. No commitment was made to disclose the findings to these secondary audiences. The evaluation received a score of 5 out of 6 on this standard.

P7 conflict of interest. I was hired by CTL to conduct this evaluation. Although I have been an employee of CTL throughout the course of this evaluation, I have had no personal involvement with the implementation of Turnitin prior to this time. This evaluation was conducted under the direction of my Masters Project Committee, and two of its members—Dr. Charles Graham and Dr. David Williams—have no direct involvement with CTL's implementation of Turnitin. I maintained records of meetings, interviews, consultations, and other activities relevant to the evaluation. No independent review of these records was scheduled. The evaluation received a score of 5 out of 6 on this standard.

P8 fiscal responsibility. The evaluation proposal included a detailed budget. This report presents a comparison of the projected and actual cost of all evaluation activities. CTL maintained personnel records associated with the evaluation. The majority of the evaluation was conducted by a BYU student employee, and other BYU student employees were utilized when possible. The proposed and actual budgets are presented in Appendix J. No provisions were made for making the budget available to the public. The evaluation received a score of 5 out of 6 on this standard.

The overall Propriety Score is 5.00.

Accuracy

A1 program documentation. I interviewed Aaron Robison, Turnitin's Program Manager, to document the program's intentions. Information on how the program actually operated was gathered from surveys and a focus group. No plans were made to produce a technical report as a part of this evaluation's activities. The evaluation received a score of 5 out of 6 on this standard.

A2 context analysis. The evaluation is firmly based on an understanding of the unique context created by BYU's Honor Code. An extensive literature review of the research concerning honor codes was conducted. The academic honesty environment created by the Honor Code framed all the evaluation questions. The evaluation received a score of 5 out of 6 on this standard.

A3 described purposes and procedures. Changes to the evaluation's purpose were documented, and the evaluation's design was modified to accommodate those changes. The evaluation's purposes and procedures were reported in the final report, along with the effectiveness of their execution. No independent evaluator was engaged to monitor and evaluate the evaluation's purposes and procedures. The evaluation received a score of 5 out of 6 on this standard.

A4 defensible information sources. Previously collected data on Turnitin usage was used in the evaluation. Two types of data collection instruments were employed: two surveys and a focus group. All data collection instruments were included in the final report. Biased features in the obtained information were documented and reported. The evaluation received a score of 5 out of 6 on this standard.

A5 valid information. The evaluation focused on four key questions that were developed to represent the stakeholder's values. Scoring, analysis, and interpretation activities were documented and reported. The comprehensiveness of the information gathered to answer the evaluation questions was assessed and reported. Recurrent themes from the qualitative information gathered were established and reported. The evaluation received a score of 5 out of 6 on this standard.

A6 reliable information. Factors that will influence the reliability of the results obtained, such as participant characteristics, data collection conditions, and the evaluators' biases, will be assessed and reported. The consistency of the scoring, categorization, and coding was checked and reported. Due to time constraints and a limited sample size of instructors, data collection instruments were not formally piloted, but were subjected to an internal review by CTL personnel. None of the traditional tests for reliability were conducted. The reliability of the instruments will be tested during future evaluation activities. The evaluation received a score of 3 out of 6 on this standard.

A7 systematic information. All data tables and data entry were proofread and verified. Protocols were established to control access to and storage of the evaluation information. Data providers were not required to verify the data they reported. The evaluation received a score of 4 out of 6 on this standard.

A8 analysis of quantitative information. Simple analyses of the quantitative data were conducted and reported. No significant outliers were identified. Multiple analytic procedures were not employed. The evaluation received a score of 4 out of 6 on this standard.

A9 analysis of qualitative information. A set of categories that will document, illuminate, and respond to the evaluation questions were designed. Confirmatory evidence was sought from CTL representative Larry Seawright in order to verify the accuracy of the findings. Gathering confirmatory evidence from additional stakeholders may have been more effective. Recommendations were derived and reported. Limitations were reported. The evaluation received a score of 5 out of 6 on this standard.

A10 justified conclusions. Conclusions were limited to Turnitin's performance at BYU during the Winter 2007 semester. Alternative conclusions were sought, and where found, reasons for their rejection were reported. Each conclusion was linked to information obtained by the evaluation, and that information was cited in the final report. No resources were directly allocated to identifying side effects of the program, but they were reported where found. The evaluation received a score of 5 out of 6 on this standard.

A11 impartial reporting. I worked with Larry Seawright to ensure fair and impartial reporting. Meeting with the entire CTL management team may have been more effective. Diverse stakeholder views were sought and reported as appropriate and feasible. Procedures to control for bias were included in the evaluation prospectus and were modified or added to as necessary. The evaluation received a score of 5 out of 6 on this standard.

A12 metaevaluation. Appropriate resources to conduct a metaevaluation were provided for in the budget contained in the evaluation proposal. All important aspects of the evaluation were evaluated. An independent metaevaluation was not deemed appropriate due to the available time and resources. Results of the metaevaluation were included in the final report to CTL. No provisions were made to report the metaevaluation to secondary right-to-know audiences. Score: 5 out of 6.

The overall Accuracy Score is 4.67. The metaevaluation Overall Score is 4.86.

Strengths

A strength of the evaluation design was using a BYU graduate student as the Lead Evaluator. When I was admitted to BYU, I read and signed the Honor Code. I have experienced first-hand the academic honesty environment at BYU. I was able to build on

this personal experience through research into the available literature. This allowed me to understand and to represent the unique context in which Turnitin must function on the BYU campus and to incorporate that context into the evaluation design.

Another strength of this evaluation was its research-based foundation. Due to CTL's commitment to conduct and publish academic research, I was granted the time necessary to conduct a full literature review. This process allowed me to benefit from the studies that have previously been conducted on plagiarism-detection software and to build their results into the evaluation design. I was also able to see how BYU's Honor Code fit into the larger perspective of post-secondary honor codes, and this helped me to create an evaluation design which would more accurately reflect the academic honesty environment in which Turnitin operates.

Weaknesses

A weakness of the evaluation was the limited timeframe in which I had to conduct the evaluation. The urgency for results can be seen in CTL's making a summative decision while the evaluation was still in the proposal stage. This decision directly influenced the proposed schedule, which resulted in the focus group being conducted many weeks after the Winter 2007 semester had concluded.

Another weakness of the evaluation was the timing of the online survey delivery. There was an optimal window for conducting the surveys: after students had sufficient experience with Turnitin, but before the rush of activity that accompanies the end of a semester. Due to poor execution on my part, the surveys were not made available until after regular classes had ended. The timing of the survey's distribution most likely resulted in low participation rates.

A third weakness was evaluating Turnitin while it was being offered through an informal pilot program. Because there had been no formal promotion of the program's availability, the instructor user population was more than likely a small percentage of the BYU instructors who may have used Turnitin had they been aware of it. The limited number of instructors, and consequently the limited number of students, using the program translated into small sample sizes from which to gather data.

Schedule

A comparison between the projected and actual start/finish dates for the evaluation activities is presented in Appendix I. Because this was the first formal evaluation that I have conducted, the time estimates for each activity were made on rough calculations. During the gathering of the internal data for CTL, both the student and instructor surveys were conducted late. Another influence on the accuracy of the schedule was a shift in the evaluation's focus from a summative to a formative evaluation. An announcement that CTL had made a summative decision to renew Turnitin's license came on the same morning that the committee overseeing my Masters Project was meeting to review the evaluation proposal. This decision necessitated a repurposing of the proposal, which meant that the proposal and subsequent activities were completed late. In spite of the setbacks due to inexperience and unforeseen circumstances, this final report is on schedule for delivery to the CTL management team by the July 31, 2007 deadline.

Budget

A comparison between the projected and actual cost for this evaluation is presented in Appendix J. The total projected budget for the evaluation was $3394.65, and the actual budget was $2327.20—a discrepancy of $1067.45. More than half of this

amount— $627.70—can be attributed to the decision to cancel the instructor interviews. The balance is due to my rough calculations based on a lack of formal evaluation experience.

Conclusion

Conducting this evaluation was a significant learning experience for me. It allowed me to bring to bear the disparate skills and knowledge I have been acquiring in my Masters program. The opportunity to conduct a formal evaluation was rewarding, and at times frustrating. When a summative decision to renew Turnitin's license was made ahead of schedule—which I learned during the meeting to defend my summative evaluation prospectus—I felt like the floor had dropped out from under me. Although redesigning the evaluation to reflect the stakeholders' new focus did require extra work, it was an excellent opportunity to deeply experience the linkage between summative and formative evaluations.

Turnitin is finding a place at BYU. It compliments the Honor Code by helping to maintain a strong standard of absolute academic honesty in written assignments. The support for Turnitin, reflected in a majority of the opinions received from the students that participated in this evaluation, is a strong testimony to the maturity and the integrity of the student body at BYU. The opinions of the instructor participants show that they have emphasized Turnitin's deterrent effect, as opposed to focusing on it solely as a punitive device. They have also embraced its value as an educational tool. I feel confident that as CTL puts into practice the recommendations of this evaluation, the support for and usage of Turnitin as a deterrent to written academic misconduct, and as an education tool, will continue to grow and develop.

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Appendix A

Consent to be a Research Subject

Introduction
This research study is being conducted by Dr. Larry Seawright and George Joeckel at Brigham Young University to evaluate Turnitin plagiarism-detection software. You were selected to participate because you used Turnitin during the Winter 2007 semester.

Procedures
You have been asked to participate in a focus group. The focus group will last for approximately 60 minutes and consist an interviewer asking the group questions, and the group responding. It will be tape-recorded and then transcribed. You may be invited at a later date to participate in a 30-minute follow-up interview.

Risks/Discomforts
There are minimal risks for participation in this study. However, you may feel emotional discomfort when answering questions about personal beliefs. When participating in the focus group, it is possible that you may feel embarrassed when talking in front of others. The moderator will be sensitive to those who may become uncomfortable.

Benefits
The opportunity to share your opinions about Turnitin may be a benefit for you. The information you share will be used to inform the continued implementation of Turnitin at BYU, and will benefit the instructors and students which use Turnitin in the future.

Confidentiality
All information provided will remain confidential and will only be reported as group data with no identifying information. All data, including tapes/transcriptions from the focus group, will be kept in a locked storage cabinet and/or password-protected computer files, and only those directly involved with the research will have access to them. After the research is completed, the questionnaires and tapes will be destroyed.

Compensation
Participants will receive a $25.00 gift certificate to the BYU Bookstore.

Participation
Participation in this research study is voluntary. You have the right to withdraw at anytime or refuse to participate entirely without jeopardy to your class status, grade or standing with the university.

Questions about the Research
If you have questions regarding this study, you may contact Dr. Larry Seawright at 422-8151 or larry_seawright@byu.edu.

Questions about your Rights as Research Participants
If you have questions you do not feel comfortable asking the researcher, you may contact Dr. Renea Beckstrand, IRB Chair, 422-3873, 422 SWKT, renea_beckstrand@byu.edu.

I have read, understood, and received a copy of the above consent and desire of my own free will to participate in this study.

Signature: Date:

Appendix B

BYU

BRIGHAM YOUNG
UNIVERSITY

Thank you for your willingness to participate in this survey to help us better understand the use of Turnitin on BYU's campus. All individual responses will be kept confidential. By completing the survey you consent to participate in the study.

Please respond to the following statements about Turnitin.

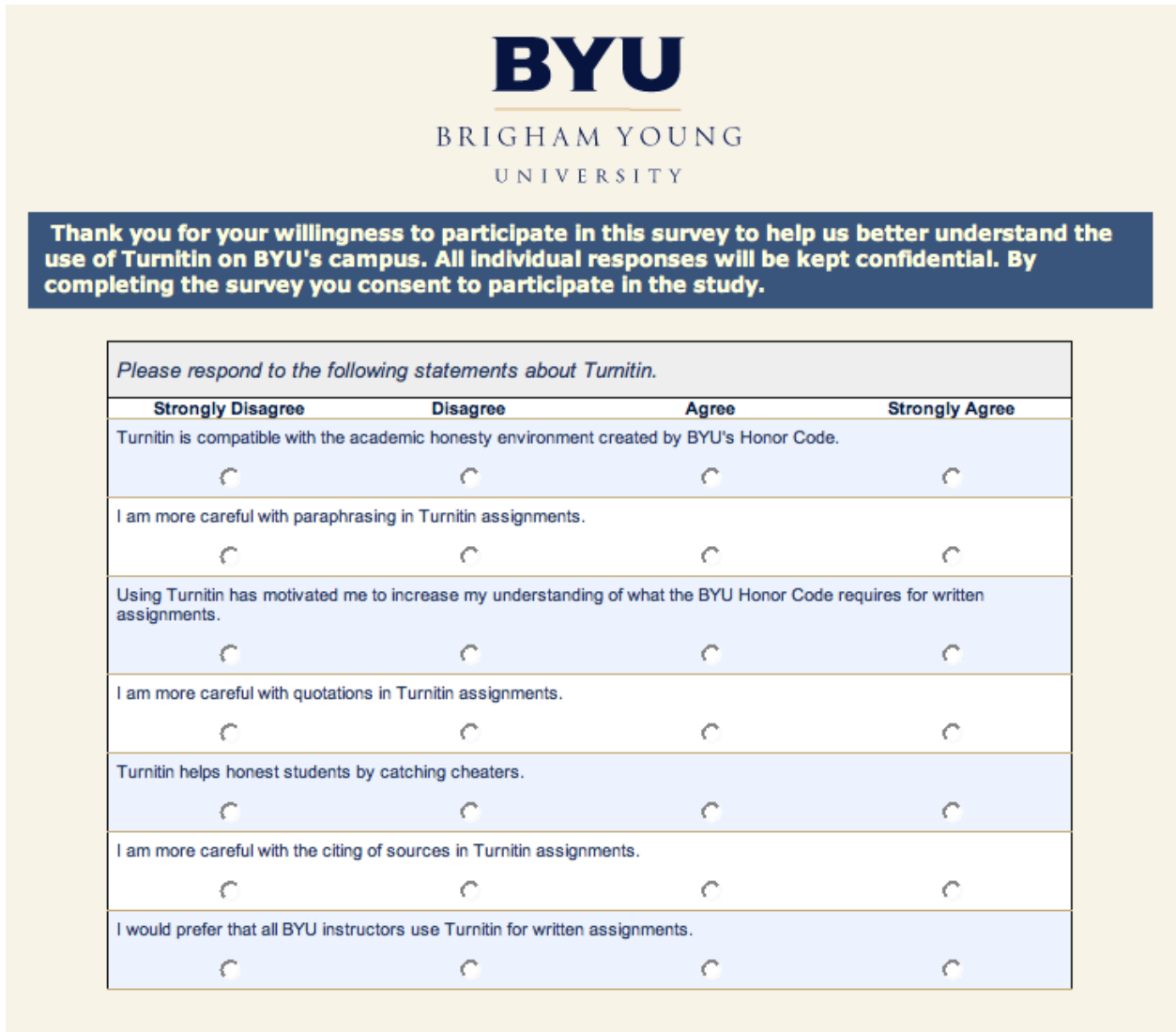|	Strongly Disagree	Disagree	Agree	Strongly Agree
Turnitin is compatible with the academic honesty environment created by BYU's Honor Code.	○	○	○	○
I am more careful with paraphrasing in Turnitin assignments.	○	○	○	○
Using Turnitin has motivated me to increase my understanding of what the BYU Honor Code requires for written assignments.	○	○	○	○
I am more careful with quotations in Turnitin assignments.	○	○	○	○
Turnitin helps honest students by catching cheaters.	○	○	○	○
I am more careful with the citing of sources in Turnitin assignments.	○	○	○	○
I would prefer that all BYU instructors use Turnitin for written assignments.	○	○	○	○

Figure 5. Student online survey- screenshot #1.

Has Turnitin affected the way you complete written assignments? If so, how?

Does Turnitin have a positive effect, negative effect, or no effect on the academic honesty environment created by BYU's Honor Code? Why?

Please share your opinions about your instructor's use of Turnitin.

Figure 6. Student online survey- screenshot #2.

Please answer the following questions about academic dishonesty in written assignments at BYU.

Strongly Disagree	Disagree	Agree	Strongly Agree
I have first-hand knowledge (seen with my own eyes) of academic dishonesty on a written assignment.			
○	○	○	○
I know the proper way to cite sources from printed materials.			
○	○	○	○
BYU should do more to educate students about plagiarism.			
○	○	○	○
I know the proper way to cite sources from the Internet.			
○	○	○	○
BYU should do more to detect plagiarism.			
○	○	○	○

Please share your opinions about academic dishonesty in **written assignments** at BYU.

Please click on the button to the right to complete the survey.   >>

Figure 7. Student online survey- screenshot #3.

Appendix C

Figure 8. Instructor online survey- screenshot #1.

Why is Turnitin compatible, or not compatible, with the academic environment created by BYU's Honor Code?

Why is Turnitin effective, or not effective, in helping you to detect plagiarism in written assignments?

What are you major reasons for continuing, or discontinuing, your use of Turnitin?

Figure 9. Instructor online survey- screenshot #2.

Appendix D

Table 4

Student Survey Opinion Statements and Responses

Statement	Agree	Disagree
1.1 Turnitin is compatible with the academic honesty environment created by BYU's Honor Code.	75 (95%)	4 (5%)
1.2 I am more careful with paraphrasing in Turnitin assignments.	38 (48%)	41 (52%)
1.3 Using Turnitin has motivated me to increase my understanding of what the BYU Honor Code requires for written assignments.	30 (38%)	49 (62%)
1.4 I am more careful with quotations in Turnitin assignments.	40 (51%)	39 (49%)
1.5 Turnitin helps honest students by catching cheaters.	61 (77%)	18 (23%)
1.6 I am more careful with the citing of sources in Turnitin assignments.	38 (48%)	41 (52%)
1.7 I would prefer that all BYU instructors use Turnitin for written assignments.	36 (46%)	43 (54%)
5.1 I have first-hand knowledge (seen with my own eyes) of academic dishonesty on a written assignment.	18 (23%)	61 (77%)
5.2 I know the proper way to cite sources from printed materials.	76 (96%)	3 (4%)
5.3 BYU should do more to educate students about plagiarism.	47 (60%)	32 (40%)
5.4 I know the proper way to cite sources from the Internet.	68 (86%)	11 (14%)
5.5 BYU should do more to detect plagiarism.	45 (57%)	34 (43%)

Appendix E

Table 5

Instructor Survey Opinion Statements and Responses

Statement	Agree	Disagree
1.1 Turnitin is compatible with the academic honesty environment created by BYU's Honor Code.	6 (100%)	0
1.2 Turnitin is able to detect plagiarism in written assignments.	6 (100%)	0
1.3 Turnitin makes my job easier.	5 (83%)	1 (17%)
1.4 Turnitin is able to detect when students submit the same work for more than one class without disclosure and approval.	6 (100%)	0
1.5 Turnitin saves me time.	5 (83%)	1 (17%)
1.6 I plan to continue using Turnitin.	6 (100%)	0

Appendix F

Table 6

Student Survey Open-ended Questions and Responses

Question	Responses
2. Has Turnitin affected the way you complete written assignments? If so, how?	54 total: 36 (67%) no,13 (24%) yes, 5 (9%) unclassified
3. Does Turnitin have a positive effect, negative effect, or no effect on the academic honesty environment created by BYU's Honor Code? Why?	55 total: 30 (24%) positive effect, 13 (24%) no effect, 9 (16%) unclassified, 3 (5%) negative effect
4. Please share your opinions about your instructor's use of Turnitin.	47 total: 29 (62%) positive, 9 (19%) negative, 5 (11%) neutral, 4 (8%) unclassified
6. Please share your opinions about academic dishonesty in written assignments at BYU.	48 total—top 5 tabulated: 10 (21%) "I haven't seen any." 5 (10%) "I have seen some." 4 (8%) "I haven't seen any, but I know it exists." 3 (6%) "I have heard about it." 3 (6%) "Cheaters cheat themselves."

Appendix G

Table 7

Instructor Survey Open-ended Questions and Responses

Question	Responses
2. Why is Turnitin compatible, or not compatible, with the academic environment created by BYU's Honor Code?	3 total: 3 (100%) compatible
3. Why is Turnitin effective, or not effective, in helping you to detect plagiarism in written assignments?	2 total: 2 (100%) effective
4. What are your major reasons for continuing, or discontinuing, your use of Turnitin?	3 total: 2 (67%) continue, 1 (33%) undecided

Appendix H

Turnitin Focus Group Protocol

Purpose of the Focus Group: Using the instructor survey results as a foundation, gather instructors' opinions regarding their Winter 2007 usage of Turnitin and their recommendations for future use.

Protocol Steps:

I.   Introduction (2-5 minutes)
   A. Thank them for coming
   B. Read the Focus Group purpose
   C. Review the Focus Group timeline
   D. Talk about CTL's decision to pilot the program for an additional year
   E. Sign the consent form

II.   Q & A (40 minutes)- *Questions will be displayed in a Power Point presentation*
   A. Please describe your overall experience with Turnitin.
   B. How did Turnitin help you in Winter 2007? (Please share a specific anecdote)
   C. How did you use Turnitin as a deterrent to academic dishonesty?
   D. How did you use Turnitin as an educational tool?
   E. What is your understanding of your obligation to report plagiarism detected by Turnitin to the Honor Code Office?
   F. What advice would you offer an instructor using Turnitin for the first time?
   G. What types of support for Turnitin should CTL offer instructors?
   H. What technical problems did you encounter while using Turnitin?
   I. Is there anything else you would like to share about Turnitin?

III.   Conclusion (1 minute)
   A. Thank the group for their participation
   B. Mention individual follow on interviews—if interested, please remain.
   C. Hand out the gift certificates

Appendix I

Table 8

Projected vs. Actual Evaluation Schedule

Activity	Projected Start/Finish	Actual Start/Finish
Literature Review	Feb 15 / Mar 15	Feb 15 / Mar 15
Evaluation Proposal	Feb 20 / May 15	Feb 20 / June 6
Design Student Survey	Mar 15 / Mar 18	Mar 20 / April 14
Design Instructor Survey	Mar 18 / Mar 20	Mar 21 / May 5
Design Focus Group	May 10 / May 25	June 15 / June 22
Design Interview Format	May 10 / May 25	June 16 / -
IRB Approval	Mar 10 / May 20	Feb 12 / Jun 11
Implement Online Surveys	Apr 20 / May 10	April 19 / May 22
Conduct Focus Group	May 25 / May 28	July 4 / July 9
Conduct Interviews	May 29 / June 15	-
Data Analysis	May 25 / July 7	May 23 / July 18
Write Report	June 20 / July 20	July 3 / July 20
Meta-Evaluation	July 15 / July 25	July 20 / July 21
Final Report	July 20 / July 30	July 21 / July 25

Appendix J

Table 9

Projected vs. Actual Evaluation Budget

Activity	Projected	Actual
Literature Review	$594.00	$594.00
Evaluation Proposal	$297.00	$371.25
Design Student Survey	$54.90	$54.90
Design Instructor Survey	$54.90	$54.90
Survey Implementations	$54.90	$54.90
Survey Data Analysis	$118.80	$74.25
Design Focus Group	$54.90	$54.90
Conduct Focus Group	$44.55	$44.55
Design Instructor Interview Format	$54.90	$14.85
Conduct Instructor Interviews	$54.90	-
Focus Group Data Analysis	$222.75	$148.50
Interview Data Analysis	$222.75	-
IRB process	$118.80	$118.80
Write Report	$222.75	$222.75
Meta-Evaluate	$148.50	$59.40
Finalize Report	$74.25	$74.25
Oral Reporting	$44.55	-
CTL personnel	$500.00	$300.00
Incentives	$375.00	$75.00
Printing	$10.00	$10.00
Total	$3394.65	$2327.20