ATHABASCA UNIVERSITY

# BARRIERS TO FACULTY ADOPTION OF PLAGIARISM DETECTION SOFTWARE AT A CANADIAN UNIVERSITY

BY

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A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF EDUCATION IN DISTANCE EDUCATION

FACULTY OF HUMANITIES AND SOCIAL SCIENCES

ATHABASCA, ALBERTA

AUGUST, 2021

Athabasca University
FACULTY OF GRADUATE STUDIES



**Approval of Thesis**

The undersigned certify that they have read the thesis entitled

**BARRIERS TO FACULTY ADOPTION OF PLAGIARISM DETECTION SOFTWARE AT A CANADIAN UNIVERSITY**

Submitted by

**Colin Sim**

In partial fulfillment of the requirements for the degree of

**Master of Education in Distance Education**

The thesis examination committee certifies that the thesis
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## Dedication

This thesis is dedicated to my family and friends for all their support and encouragement.

I would like to express my sincere thanks and appreciation to my committee – Dr. Cynthia Blodgett-Griffin and Dr. Martha Cleveland-Innes -- for their invaluable feedback throughout the authoring process. My special appreciation to Cynthia as my thesis supervisor cannot be overstated. Her guidance and feedback were invaluable to the evolution of my thesis. Without her support and encouragement, this thesis would not have been possible.

Everyone's continued support of me during the thesis process has meant everything. I cannot adequately find the words to express what it has meant personally and for my thesis journey.

To my mother and father, who left this world much too soon. Thank you for instilling in me the persistence to achieve my goals with a strong work ethic and a sense of humor to handle difficult or frustrating moments.

## Acknowledgments

To my friends and family, I thank you for believing in me and my ability to pursue and obtain a master's degree. Your words of encouragement helped me get through this process.

I would like to thank Athabasca University and the Faculty of Graduate Studies for the opportunity to pursue a master's degree through the Center for Distance Education. I am also grateful to the AU Library staff who assisted me with my research and the university staff who took the time and interest to participate in my study.

This thesis would never have come to be without the inspiration from the MDDE601: Introduction to Distance Education and Training (https://www.athabascau.ca/syllabi/mdde/mdde601.php ) course and the thought-provoking remarks made by Simonson, Smaldino, and Zvacke concerning student plagiarism (2015, p. 160).

Dr. Cynthia Blodgett-Griffin has been my supervisor and mentor, guiding me along my journey, and kindly sharing her wisdom and research expertise. Tremendously helpful feedback, insightful suggestions, a few lively discussions, and personal encouragement helped in shaping and evolving this thesis manuscript.

Dr. Martha Cleveland-Innes offered new insights and extremely helpful critique, inspiring me to adapt my thesis and its research methods for which I am very grateful.

The completion of this mixed methods study required a tremendous amount of time, effort and support from numerous individuals. My thanks to my committee

members, peers and master's cohort for pilot testing my web survey and subsequent interview questions and their respective platforms.

## Abstract

Current literature reveals that university students plagiarize, but many instructors do not use plagiarism detection software (PDS). A mixed methods case (MMCSR) study design explored barriers to the use of PDS reported by faculty at a Canadian university. While there are policies and procedures regarding plagiarism, an anonymous online survey with in-depth interviews reported that lack of training and resources; policy procedures that dissuade reporting; and legal and ethical concerns regarding student privacy, copyright, and intellectual ownership, are barriers. Plagiarism examples include errors in attribution, ghostwriting, use of paper mills and course aggregators. Faculty often ignored or issued minimal or no penalties or approached plagiarism as teaching or learning opportunities. Negative experiences included lack of compensation for additional time required for documentation and meetings, student appeals, and finding that reports are dismissed. While the university provides PDS for faculty, barriers to PDS use and student plagiarism, remain.

*Keywords:* plagiarism detection software, adoption barriers, university student plagiarism

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# Chapter 1: Introduction

## First Plagiarists

In the 1st century, the Roman poet Martial (40 AD to 104 AD), pioneered the use of the word plagiarius [Latin for kidnapper] when referring to someone who had stolen his verses. Martial was, perhaps, the first historical account where his literary work was copied and recited by others, without attribution (Bailey, 2011; Etymology of Plagiarism [Google sites], n.d.). Subsequently, Ben Johnson in 1601 (i.e., Jacobean era), made use of the English word plagiary, a derivative of plagiarus, to refer to a person guilty of literary theft. By 1620, the derivative of the word we recognize today as plagiarism was introduced. Nearly one century later, the world's first copyright law, the Statute of Anne, was enacted by British parliament in 1709. The term first appeared in dictionaries in 1755 (Bailey, 2011).

What is important to note here is the overriding importance placed on the originality of the literary work, not on its theft or misappropriation, during this Age of Enlightenment (Bailey, 2011).

## Statement of the Problem

In more recent times, plagiarism continues to be a concern within higher education, including distance education. If plagiarism and academic misconduct takes place within distance education (DE) programs offered by Canadian academic institutions, this should be of significant concern to institutions, instructors, and students.

Most universities have well established academic integrity policies and academic misconduct procedures; however, few offer explicit guidelines regarding penalties (Neufeld & Dianda, 2007). Not all institutions have the same robust reporting or documentation mechanisms; for example, a university may "record the information as an alert (i.e., free form text) and then

put "… the info on the student's transcript for a period of 2 years" (R. MacLeod personal [email] communication, 15 Oct 2018). Data stored in this fashion is unstructured and not readily reportable, so an institution's subsequent tracking or reporting mechanisms are lacking.

An objective of this research study was to provide within-case evidence of adoption barriers to the use of PDS, and thus add to knowledge of this important subject in distance education "for the possible benefit of policy makers, scholars, and other citizens" (Denzin & Lincoln, 2011, p. 346).

**A Canadian University Lens**

According to the 2019 Canadian National Online and Digital Education Survey, there are 234 post-secondary institutions, including 82 universities, offering online learning (Johnson, 2019, p. 56). Citing this report, Bates (2019) concluded that over 75% of these institutions offered online credit courses where enrolments have grown by about 10% annually. So, the issues of plagiarism, academic misconduct, and reporting mechanisms are not merely relevant to only one institution. Refer to Appendix A for a graphical view of the distribution of DE institutions within Canada.

Unfortunately, there is no universally accepted or applied definition of plagiarism. Most scholarly published journal articles, theses or dissertations, resort to quoting dictionary definitions to define the term 'plagiarism'. Jocoy and DiBiase (2006), Ercegovac and Richardson (2004), among other researchers, based their definitions on a variety of subjective or objective criteria. As Konstantinidis et al., (2013) pointed out: "plagiarism definitions tend to be abstract and out of context in education …. [definitions] seek to be as concise and succinct as possible, yet this possibly sacrifices comprehensibility" (p. 2).

Ison (2014) identified the variability in definitions or 'categorizations' of plagiarism (p. 273). Factoring in aspects such as ethics or intent, or even manipulating the use of English to find pseudonyms for 'theft' or 'stealing' that are perhaps more politically neutral, there is no universally agreed and robust working definition for 'plagiarism'. Undeniably, the one central theme that has persisted since the 1st century is the concept of theft where a person authors a new or original idea, but it has actually been stolen from an existing source (p. 273).

**Why This Definition of Plagiarism?**

The following definition of plagiarism offered by McKay (2014) provided precise details regarding what constitutes plagiarism and provides the foundation for understanding of plagiarism for this research study:

> Plagiarism is a form of intellectual dishonesty or intellectual theft. Intellectual dishonesty occurs when a person presents the ideas, words or results of another person as their own, without giving correct acknowledgement to the original author. It includes using sentences or paragraphs verbatim without quotation marks and/or suitable acknowledgement. The violation of fair usage practices with respect to direct quotes, including the extensive use of direct quotations even with acknowledgement is also considered to be plagiarism. (pp. 1316-1317)

The key components of plagiarism highlighted by McKay included:

- The action of theft
- The committing of an ethical breach or willful dishonesty
- The failure to give proper attribution
- The improper quoting or paraphrasing of sources or other technical violations
- The recognition of self-plagiarism

- The failure to adhere to APA or other citation standards
- The creating of faked or fraudulent citations

McKay (2014) indicated that minor forms of plagiarism "are usually related to the use of incorrect citation methods; incorrect or incomplete reference lists; accidental omission of some citations; or failing to use quotation marks correctly…. [and] can be easily resolved" with minor corrections. McKay (2014) further stated "that major plagiarism violations include the cutting and pasting of text from websites and other sources (with or without acknowledgement); persistent failure to adopt proper academic citation procedures; and the complete omission of citations…. beyond mere technical mistakes, but rather speak to a conceptual misunderstanding of the author's responsibilities towards the proper acknowledgment and use of sources" (pp. 1316-1317**).**

The concepts McKay are dealing with here are two-pronged. The first is where we have copy-and-paste by a student with no attribution, which is clear plagiarism. The second is where we also have copy-and-paste by the student, but with a failed attempt at proper citation practices, thus making it also a case of plagiarism.

A novel approach to plagiarism noted by McKay involves "the deliberate copying of texts from sources in other languages so as to avoid plagiarism detection tools" (pp. 1316-1317).

Anney and Mosha (2015) also provide useful definitions of contemporary plagiarism-related terms such as 'clone', 'remix', 'recycle', 'hybrid', and 'aggregator' (pp.205-206). The latter term, aggregator, includes papers with proper citations, but the paper contains almost no original work. One example of such an 'aggregator' known to academic institutions and instructors is Course Hero (i.e., http://www.coursehero.com).

**Plagiarism Detection**

While PDS or services are readily available, not all institutions nor instructors utilize this resource. At the same time, institutions may have clear policies regarding academic integrity and plagiarism, yet McCabe (Christensen-Hughes & McCabe, 2006) and other leading researchers present ample evidence that students do plagiarize. This creates a paradoxical contradiction: students plagiarize while enrolled in distance education courses, but instructors do not avail themselves to utilize PDS resources, even when they are available at Canadian universities.

Simonson et al., (2015) provided an insightful segue to the topic of 'plagiarism detection' relevant to teaching and learning at a distance (p. 160). Recent and frequent news headlines regarding ‘paper mills’ similar to those described by Simonson et al., such as Butler (2019) and Campbell (2018), affirm the issue of academic misconduct, plagiarism, and the use of paper mills by university graduates, is an ongoing challenge.

**PDS: The Sword and Shield**

The use of PDS has been used both as a detection tool (Ballard, 2013; Ison, 2012; McCabe et al., 2006; Scott, 2015; Wray et al., 2015) and as a tool to improve writing skills, including paraphrasing and, thus, citations (Brennan, 2015; Biggam & McCann, 2010; Lofstrom et al., 2017).

The concepts of the sword (i.e., military offensive weapon) and the shield (i.e., military defensive device), provides a useful analogy when considering the use of PDS within the setting of an academic institution offering distance education.

Any instructor or institution can choose to integrate or leverage PDS into teaching or courseware itself, as many studies have illustrated. The use of PDS can be an aid to improving

student writing skills and in particular paraphrasing, and thus reduce plagiarism. The improved writing skills achieved by the students, to continue the metaphor, acts like a 'shield wall' making students less vulnerable to academic misconduct, errors in attribution, or forms of plagiarism.

Similarly, any instructor or institution can choose to integrate or leverage PDS into courses, also as many studies have illustrated. The use of PDS in this context is quite different as it acts like a cleaving sword, in a bid to uncover where academic misconduct, errors in attribution, or plagiarism have occurred.

A review of existing scholarly literature suggested that PDS as a defensive shield was ineffective or mildly effective (Ballard, 2013; Biggam & McCann, 2010). A similar review of literature as PDS as an offensive weapon either produces mixed results or is inconclusive (Ballard, 2013; Biggam & McCann, 2010).

In spite of any disparity that may exist with reports on the viability and practical use of PDS as a detection tool (i.e., a sword as an offensive weapon), it is unclear why some instructors and institutions should choose to (continuing the metaphor), sheath their sword and have no meaningful deployment of either a sword or shield, leaving students open to [metaphorical] attack by the forces of academic misconduct and plagiarism.

It is the underpinning of this apparent contradiction: students plagiarize, but instructors do not take advantage of PDS, principally to detect errors in attribution, was the basis of this study.

**Purpose Statement and Research Question**

The purpose of this mixed methods [case] study was to explore or investigate the apparent paradoxical contradiction: graduate students plagiarize while enrolled in distance

education courses, but instructors do not avail themselves to utilize PDS resources, even when they are available at Canadian universities. By investigating quantitative survey data and qualitative interview data, the intent was to understand what some of the barriers were to instructor use of PDS applications, given the assumption that students plagiarize, illustrated by Figure 1.

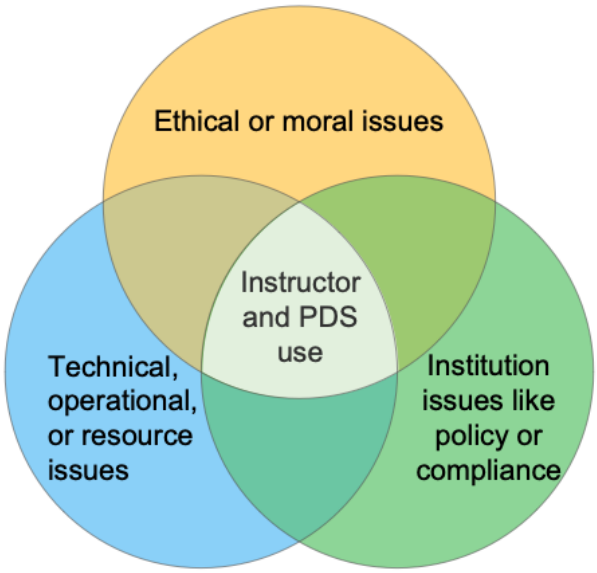
The primary research question was "What are some of the barriers that inform the use of PDS applications by distance education course instructors at a Canadian university?"

The trio of corresponding sub-questions were as follows:

1. What are the technical issues, operational or resource constraints preventing instructors from using PDS?
2. What are the institutional or policy issues preventing instructors from using PDS?
3. What are the ethical or moral reasons preventing instructors from utilizing PDS?

**Figure 1**

*Venn Diagram of PDS Usage Lines of Inquiry*



## Limitations

Limitations for this research study, not under the control of the researcher, included:

- Recruiting survey participants
- Special institutional permissions
- Recruiting interview volunteers

### *Recruiting Survey Participants*

Approval from the Associate Vice-President of Student and Academic Services was required to invite university instructors to participate in the web survey. An invitational email (refer to Appendix B) was sent to 195 full-time and part-time instructors by the institution on behalf of the researcher.

### *Interview Volunteers*

With the sequential mixed-methods research design, the pool of potential interview participants was not available until all of the quantitative data had been secured. Potential subjects had to volunteer to be interviewed by completing the corresponding section of the online survey. While the researcher had no control of the number of participants involved with the survey, the study had a goal to achieve saturation with the qualitative data.

## Delimitations

Delimitations for this research study, under the control of the researcher, included:

- Research design
- Nature and size of population
- Interview process
- Validity and credibility

### *Research Design*

The research design for this study was a convergent mixed methods model based on a quantitative (survey) – qualitative (interview) sequential design within a case study framework (MMCSR).

### *Nature and Size of Population*

Given the case study framework for this research and selecting a single Canadian university, the ultimate nature and size of the population was a delimitation. The participant population was 195, consisting of full and part-time instructors. Individuals identified by the institution as 'tutors' and contract faculty were considered outside the scope for this case study.

### *Interview Process*

The process of recruiting participants, designing and testing interview questions, choosing the interview platform, and consideration of anonymity and confidentiality of data, were all under the researcher's control.

## Validity and Credibility

This study strived to establish validity and credibility. Improved validity was achieved using precise measurement levels (i.e., Likert scales in survey) and preliminary inquiry for both survey and interview questions.

Creswell and Plano Clark (2018) agree that conducting a peer review or audit (i.e., of survey instruments) and triangulating data from several sources or individuals were suitable validation strategies to employ in a study (p. 212). For example, use of semi-structured interviews with peer reviewed interview questions ensured consistency with qualitative data collection. Study subjects that were full or part-time who directly taught students, aided with reliable and dependable accounting of PDS use.

With anonymous survey and confidential interviews, the research produced valid results as the study participants shared their respective experience and views of PDS.

Representative reliability was also achieved with similar results across different participant demographics (e.g., age, sex, etc.).

Improved validity was achieved using construct validity and measuring PDS aspects related to thesis questions using multiple indicators. Convergent validity was achieved when the quantitative survey and qualitative interview data on PDS were either related or convergent (adapted after Newman, 2014, pp. 211-221). Internal validity was achieved by using descriptive statistics for the Mixed Methods Case Study(MMCSR)-based research.

**Definitions**

There are four vitally important terms or definitions that are necessary for Chapter 2 (i.e., literature review) to be understood by its readers: academic misconduct, plagiarism, plagiarism detection service/software (PDS), and software as a service (SaaS). Refer to Appendix I for additional term definitions.

- Academic misconduct or dishonesty represents an ethical breach by a student against the academic institution with which they are enrolled. Most institutions have specific policies that students must conform to or comply with. When these policies have been breached, there are typically procedures available to deal with academic offenses. Plagiarism is typically one specific form of academic misconduct.
- Plagiarism is a form of academic misconduct where original materials are used without permission or attribution and are misrepresented as being a product of another individual.

- Software as a Service, known in the industry as SaaS, provides the use of software (such as Turnitin) through a subscription-based or delivery model.
- Plagiarism detection software/service, abbreviated as PDS, the acronym can either refer to plagiarism detection service or plagiarism detection software equally as well. For the purposes and scope of this thesis, the software that is primarily discussed here is considered the leading software in this field and is called Turnitin (i.e., https://www.turnitin.com commercially owned by iParadigms, LCC and its parent company). It should be noted, however, that Turnitin might be better characterized as a text-matching SaaS rather than a PDS because it operationally matches text and provides a similarity score based on its own internal database of stored papers.

Given the third literature review theme involved ethics, morality, and legality, these terms also needed to be operationally defined.

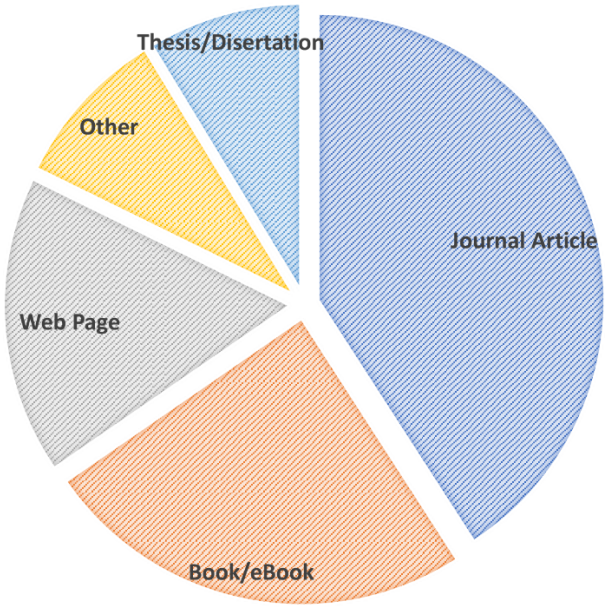
- Ethics is defined as the "moral principles that control or influence a person's behavior." (Oxford; https://www.oxfordlearnersdictionaries.com/definition/american_english/ethic)
- Morality is defined as the "principles concerning right and wrong or good and bad behavior." (Oxford; https://www.oxfordlearnersdictionaries.com/definition/english/morality)
- Legality generally refers to a person or action that either is compliant with or contrary to a law.

## Chapter 2: Literature Review

A literature search was conducted for topic-related scholarly reviewed academic journal articles (generally 2010 or later). Primary search sources included the [online] Athabasca University Library, Library of Congress, ProQuest [search] for thesis or dissertations as well as the Athabasca University – Digital Thesis Room.

**Figure 2**

*Pie Chart of Literature Search Reference Types*




*Note:* (Created by Colin Sim, Dec 2019, data derived from Endnote citation manager)

Approximately 60 scholarly resources were included in this thesis as a literature review with a focus on North American research participants that were published after 2010.

### Combat Ready: Is Plagiarism a Problem?

Using a metaphor of the sword or a shield, the use of PDS can be applied to understanding reviewed literature to determine if plagiarism is indeed a problem. The same metaphor applies if PDS is likely to provide a measure of efficacy or combat readiness against student errors in attribution.

Brinkman (2013) provides a spectacular synopsis of the on-going controversy to PDS use as follows:

> Plagiarism detection services are a powerful tool to help encourage academic integrity. Adoption of these services has proven to be controversial due to ethical concerns about students' rights. Central to these concerns is the fact that most such systems make permanent archives of student work to be re-used in plagiarism detection. This computerization and automation of plagiarism detection is changing the relationships of trust and responsibility between students, educators, educational institutions, and private corporations. Educators must respect student privacy rights when implementing such systems… (p. 1255*)*

Ballard (2013) recognized McCabe (1944-2016) as a "pioneer in the studies of academic misconduct" (p. 1). Further, Ballard quoted findings from additional seminal studies (McCabe, 2006; McCabe, Trevino, & Butterfield, 2001; Jocoy & DiBiase, 2006; among others) citing 25% undergraduate in unauthorized collaboration in addition to 62% undergraduate and 59% graduate plagiarism rates. In her own Southeastern undergraduate university study (i.e., Mississippi State University), she did not attempt to quantify plagiarism rates, but examined Turnitin [similarity] scores corresponding to plagiarism rates for groups of students who either did or did not receive academic integrity training. Ballard's study demonstrated academic integrity training had no "statistically significant" impact on plagiarism rates. Interestingly, Walker (2009) reported mixed findings, indicative of many scholarly articles or research studies. Over 500 New Zealand and international university students had business assignments assessed for plagiarism using Turnitin in his study. The study found 25% of submitted assignments contained plagiarism, supporting McCabe's earlier findings; it also substantiated findings from other studies where training or

Turnitin use does not reduce plagiarism. Along with the mixed findings were contradictory findings reported when comparing Dee and Jacob (2012) and their 41% reduction in plagiarism with training intervention with others like Walker (2009) and Youmans (2011).

Ison (2012) affirmed that plagiarism at universities was a problem, but recognized issues relying on self-reporting-based data. Ison's descriptive study quantified plagiarism in dissertations (via online academic institution). Turnitin [similarity] scores were as follows:

- 46% for low level of plagiarism
- 11% for medium level of plagiarism
- 3% for high level of plagiarism

The levels were related to the PDS's similarity score and unfortunately cannot be directly compared with other PDS studies that have not relied on Turnitin. Interestingly, 72% of the dissertations had at least one case of improper paraphrasing and citation (i.e., verbatim text accompanied by a citation) and 46 % had verbatim text without any citation. The paper concluded with a recommendation that faculty, dissertation committee members, university administrators, and accrediting bodies must reduce plagiarism at the doctoral level. Exactly how this reduction in plagiarism was to be accomplished was unclear.

Ison (2014) examined plagiarism levels between brick-and-mortar and online doctoral dissertations. Study results indicated that online students were more likely to plagiarize. His paper continued prior studies conducted a few years earlier.

Minarcik and Bridges (2015) conducted a qualitative study into academic misconduct [violations] and provided recommendations on prevention. The study found violations were infrequent (8%) and relatively minor, such as using notes during an assignment. In the study, violations were found to be the result of inadequate preparation, task difficulty, and external

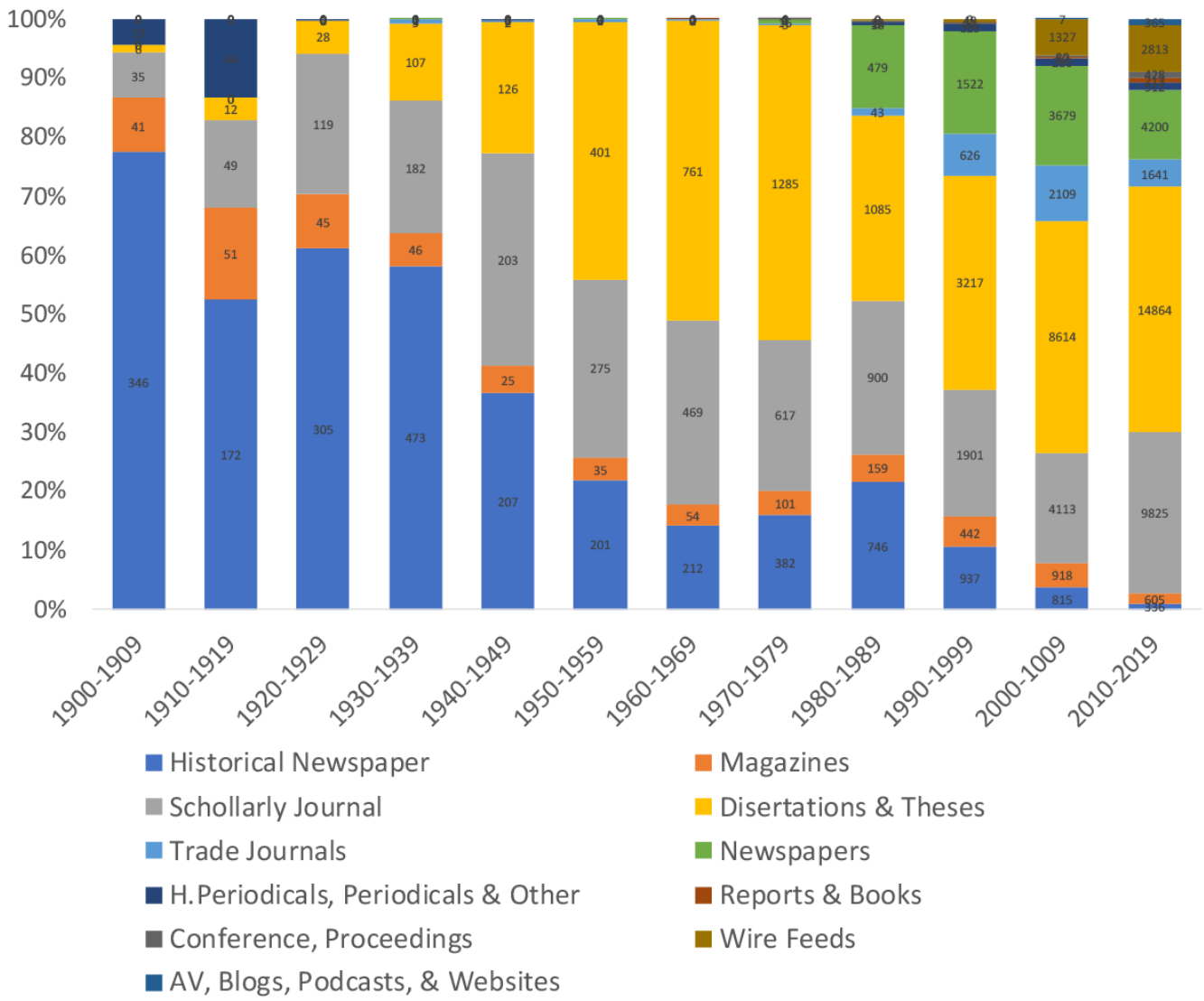
factors such as health. Interestingly enough, 81% of violations resulted in no negative consequences and 41% of students indicated they would be repeat violators. Suggested recommendations on prevention strategies included: improved dissemination of integrity policies, greater oversight of students, harsher punishments, and most noticeably consistent reporting as a prevention strategy.

Ewing et al., (2015) published a historical summary with a focus on addressing plagiarism by implementing academic 'foundations'. The theme was to achieve high academic standards and best practices by implementing better management processes to reduce plagiarism. The paper outlined specific points-in-time, over the last century, that are of significance with respect to plagiarism (by citing other scholarly papers by Bennett; Chao, Wilhelm and Neureuther; Park; and then McCabe, Trevino and Butterfield); specifically: 23-25% in the 1940's, 59% in the 1960's, 60-67% in the 1990's. Of course, it was 1991 when the internet (as we know it today) became publicly available.

ProQuest-based searches provided quantitative data regarding media types versus year on the subject (i.e., keyword of plagiarism). Data was then aggregated by decade from 1900 to present and then extrapolated over the next few decades. Figure 3 illustrates the decline in the use of newspaper as a media type where plagiarism has been reported, but it also shows the explosive increase in published theses and dissertations on the subject of plagiarism since the 1940s.

**Figure 3**

*Distribution of Literature Types on Plagiarism Over the Past Century*




*Note.* (Created by Colin Sim using Excel and data collected from ProQuest searches)

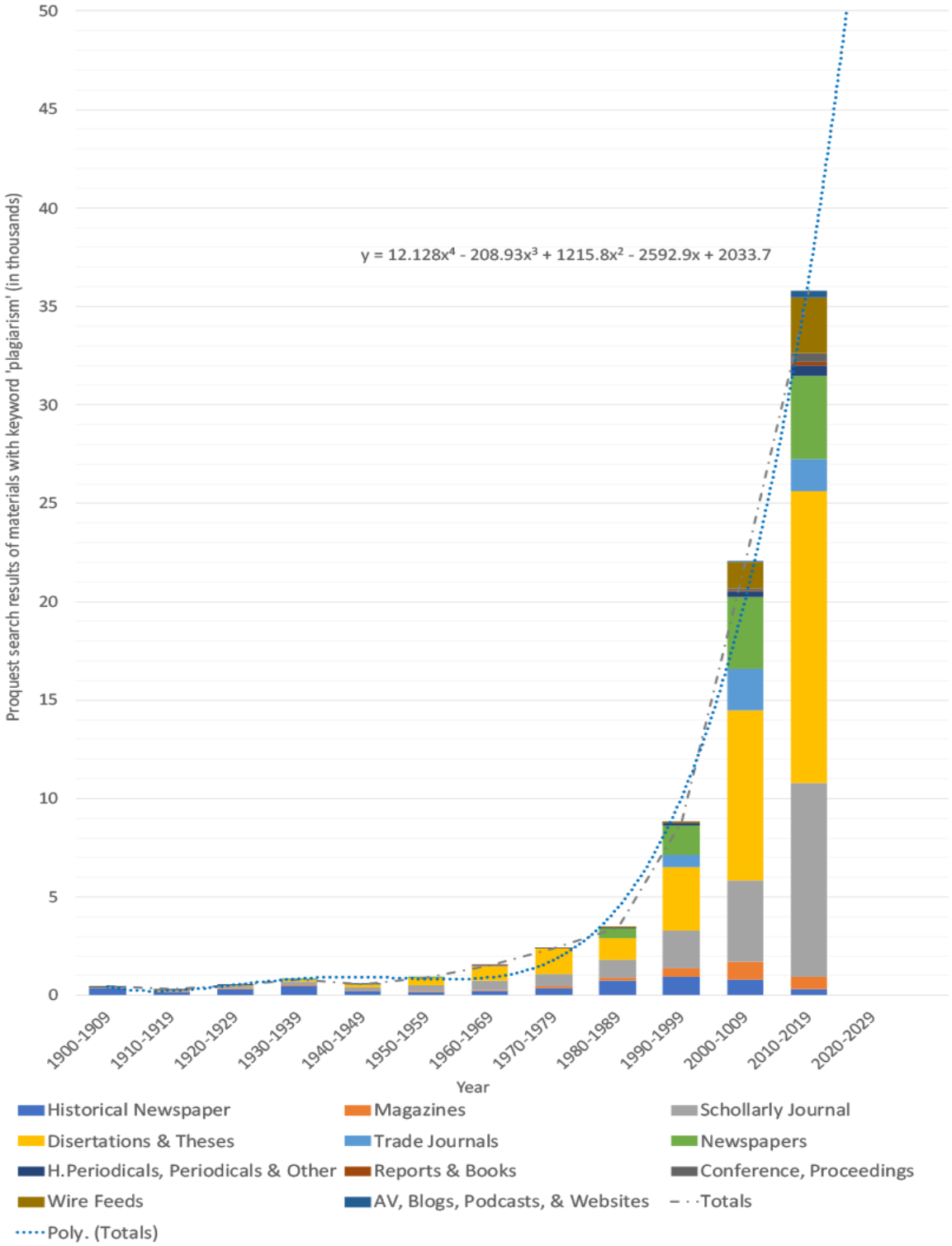
*SOURCE: https://0-search-proquest-com.aupac.lib.athabascau.ca/recentsearches?accountid=8408#*

The same ProQuest data was also used as the basis for Figure 4, a compound bar chart with a superimposed extrapolation curve as to the likely growth in published media on the subject of plagiarism. Exactly as expected, there was a massive inflection around 1991 – the year that the internet became available. The underlying purpose in providing the ProQuest-derived figures was to illustrate the trend of increasing publications – including theses and dissertations – on the broad subject of plagiarism, that underlined the continuing (and growing) trend for academic misconduct to occur with students and the need to study and report on this trend.

Of significance is the paper reporting on a qualitative study of 4285 college students where McCabe et al., (2001) found 75% of students admitted to some form of plagiarism. More recently, Owunwanne et al., (2010) surveyed 5331 students at 32 graduate schools in the United States and found 47%–56% self-reported cheating and plagiarizing. As with many other papers, these authors claim that opportunities to plagiarize have increased because of information available via the internet. They concluded that to successfully manage plagiarism, a well-structured and documented process should be instituted that categorizes the degree of plagiarism and specifies remediation and penalties. This gives rise to the institutional involvement and/or to have a clear and concise baseline from which to deal with student plagiarism.

**Figure 4**

*The Distribution of Literature Types on Plagiarism Over the Past Century*




*Note.* (Created by Colin Sim using Excel and data collected from ProQuest searches)
*SOURCE: https://0-search-proquest-com.aupac.lib.athabascau.ca/recentsearches?accountid=8408#*

Dias and Bastos (2014) explored student and teacher perceptions on plagiarism; their study was related to the GENIUS (plaGiarism or crEativigy: teachiNg Innovation versUs Stealing) project. The study area included seven EU countries and hundreds of teachers and students, thus providing a broad geographic area, multiple languages, and various cultures. The study identified the causality of student plagiarism as: a lack of student writing skills, pressure to get good grades, poor time/resource management [skills], and an expectation to not be caught. When errors in attribution were detected, punitive actions included the following: warning 40%, mark deduction 31%, and nothing done 16%. The study did identify limitations with sample size and stratification.

Scott (2015) in his recently published paper, investigated student learning and the impact of plagiarism on poor performance or training outcomes. Academic integrity was the central theme, the paper concluded that dishonest cognitive shortcuts hindered student learning or improvement. It was thought that by adopting honor codes or strengthening academic integrity policies, student learning would be more effective.

Simha et al., (2012) investigated endemic dishonesty and probed attitudes and behaviors of 225 business students at a university school of business in Canada/United States. Findings suggested that some students cheat more than others, linked to student attitudes.

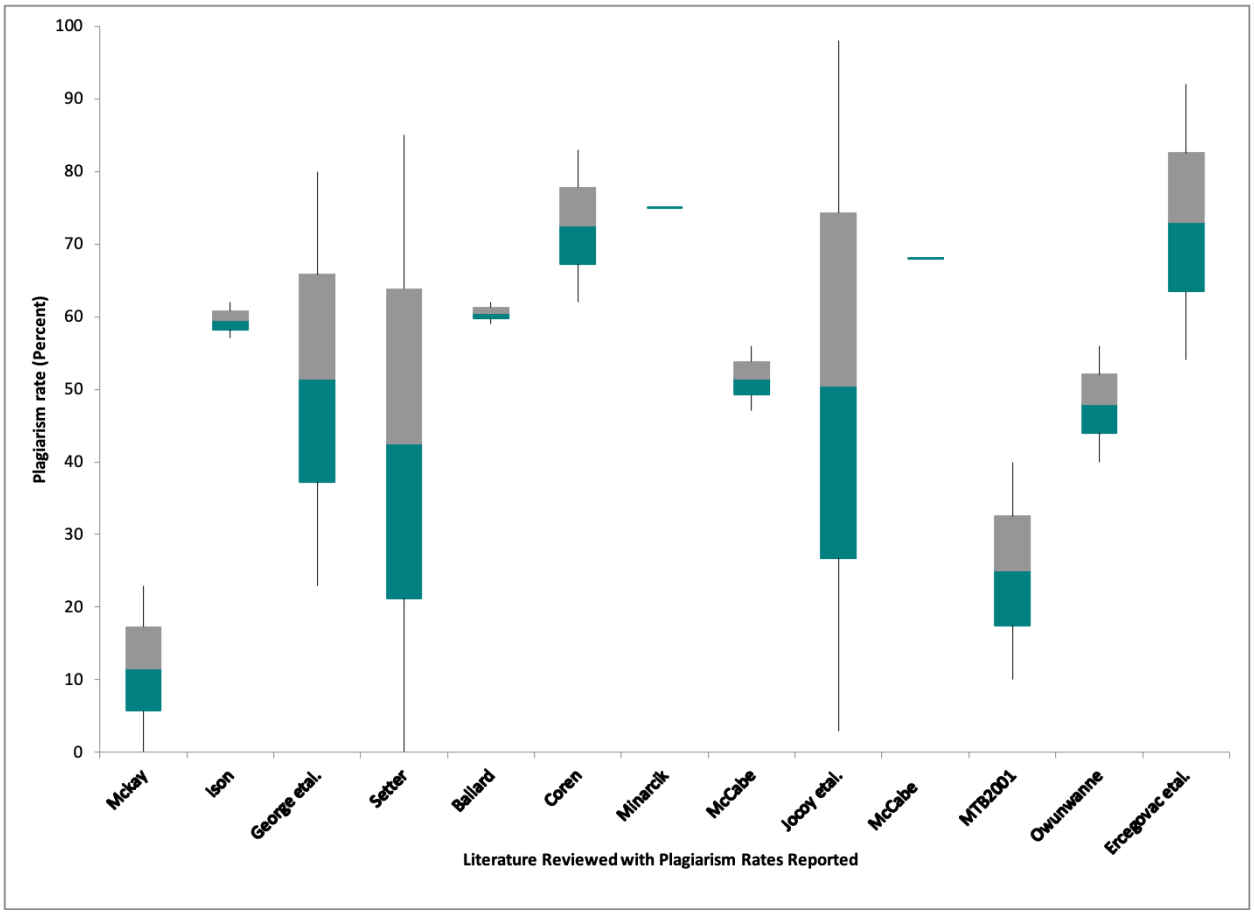
Wray et al., (2015) investigated how common academic dishonesty was among students. The study attempted to establish prediction rules to determine the likelihood of dishonesty. It was found that a student's moral character—whether they believed cheating was acceptable—was found to be the most important factor in determining the propensity for academic dishonesty.

**The Answer To: Is Plagiarism a Problem?**

So, to answer the original question regarding whether plagiarism was indeed a problem, particularly for institutions offering distance education, the answer is yes. Reports of the level of plagiarism incidence is highly variable. From the reviewed articles, rates were reported at 3% (Jocoy & DiBiase, 2006; McKay, 2014; Sattler et al., 2015) on the low side to 97% (Jocoy & DiBiase, 2006) on the high side. Figure 5 illustrates the variation in reported plagiarism rates from selected papers (i.e., reviewed papers that published plagiarism rates).

**Figure 5**

*Box Plot of Plagiarism Prevalence Rates (Percent), From Reviewed Papers*




*Note.* (Created by Colin Sim 2020, using Excel and data from reviewed papers with plagiarism rates). The two colors in the box plot illustrate the median data values.

**Plagiarism Detection: The Shield**

Ballard (2013) was one of the many authors who studied the effect of academic integrity by evaluating plagiarism with students who had or had not undergone integrity training. Although more research was indicated, the study suggested that the lack of academic integrity training resulted in higher levels of misconduct. This paper concluded that Turnitin or other forms of academic training or intervention did not lower rates of plagiarism.

Biggam and McCann (2010) also investigated Turnitin as a learning tool, used to combat plagiarism and enhance writing for undergraduate students. The implication of this study pointed out that utilization and effectiveness of PDS required academic staff and student 'buy-in'. The author also identified that "the effort needed to find evidence of plagiarism was extremely onerous and time-consuming, to such an extent that it would not be surprising if some staff preferred not to look for plagiarism in a student's dissertation" (p. 46). This critical view was one that I explored for the non-use of PDS by instructors. Ultimately, Turnitin was found to have "little effect on the final outcome" and it did not result in an improvement in student authored papers.

Brennan (2015) explored PDS in detecting and preventing plagiarism. The effect on faculty was investigated as a comparison of Turnitin use versus non-use, and factors including behavior, trust, plagiarism rates. His study, in contrast to many other published results, demonstrated a decrease in plagiarism rates when PDS was employed.

Chao et al., (2009) also sought to utilize a pedagogical approach to reduce plagiarism rates, thus using PDS as a form of shield.

Chew et al., (2013) focused on the changing attitudes of PDS for the purposes of learning – using it as a shield rather than as a sword. Their findings suggest that Turnitin enabled students

to conduct self-service and independent learning through the pedagogical use of the originality report. The paper stated that Turnitin should not be used as a 'plagiarism detection' tool, but instead as a self-assessment and self-learning aid to inform writing enhancement (p. 454).

Other studies such as the one by Biggam and McCann (2010) found that "Turnitin 'similarity scores' were reduced but student use of Turnitin did not significantly enhance the quality of their writing" (p. 44). This led to the question of the efficacy of PDS as a shield.

McKay (2014) dealt with teaching as an intervention – using a community of practice approach – to plagiarism. What was especially useful and applicable in this article was that authors both defined plagiarism and performed an analysis of the problem; Turnitin was also used in their analysis. This paper also provided a considerable discussion and recommendation section, and then culminated in a conclusion suggesting an intervention-based teaching approach could greatly reduce the occurrence of plagiarism.

Penketh and Beaumont (2013) argued that PDS could be used as an aid or tool to improve writing by asking if PDS made a contribution to the development of student writing. The study found that different levels of staff confidence and some emerging enclaves of practice particularly in respect of the ways in which the software was being used to provide electronic feedback on students' work. Penketh and Beaumont raised an issue not frequently reported in literature, regarding the issue of safeguarding a university against malpractice (i.e., improper or negligent professional activity).

George et al., (2013) at the University of Bradford [UK] Library studied efforts aimed at reducing student plagiarism. The paper's theme dealt with two themes: [plagiarism] identification-detection and [plagiarism] reduction or prevention. The authors mentioned that

initial work was in the area of remediation, however, the scope of their activities had subsequently broadened to include new students.

Heckler et al., (2013) relied on Turnitin as a means of teaching students to test their own work-product for originality, and thereby reducing plagiarism. In the same way that soldiers would avoid a trap by knowing of its existence, students would learn that their workmanship was not original (i.e., plagiarism is present), so that may be the first important step in combating it or avoiding errors in attribution, is to use PDS as a shield.

Remenyi and Singh (2016) reviewed the current situation regarding plagiarism and ghostwriting, a topic mentioned by Simonson et al., (2015, p. 160). The paper suggested an upsurge in plagiarism levels and perhaps one of the greatest challenges facing institutions. Plagiarism and ghostwriting were undermining the integrity of university degrees. The authors suggested that with the internet in the 21st century, that opportunities for academic misconduct have 'exploded'. The remark that "[c]heating is endogenous to the current university education system and needs to be addressed in terms of not only prevention and detection but also how people who are found to engage in such misconduct are treated" (p. 1).

Velliaris (2017) also provided the latest scholarly material on the implementation of policies and practices to inhibit cheating behaviors in academic settings, highlighting emerging pedagogies, empirical-based evidence, and future directions.

Vie (2013) argued for a pedagogy of resistance to plagiarism detection technologies. The argument was that if people are forced into the "circular logic of avoiding plagiarism/catching plagiarists/punishing plagiarism and prizing singular authorship above all other forms, then we risk failing to find the ability to break free and move beyond to more challenging modes of writing that rely on community" (p. 3). Vie also argued that "the potential time-saving benefits

of plagiarism detection services—that is, the ease of discovering potential plagiarism—may unfortunately lull us into compliance and cause us to forget that there are larger issues regarding copyright law and ownership of ideas still up for debate" (p. 3). It is this latter point that opens into the larger scale subject related to PDS and ethics.

**Plagiarism Detection: The Sword**

Heberling (2002) discussed plagiarism detection and combatting it, given the assumption that it is more prevalent in online studies, than with conventional classroom situations. The position of the authors made it clear that the aim was to identify [plagiarism] and minimize it, rather than eradicate it completely.

Jocoy and DiBiase (2006) revealed that Turnitin testing detected four-times the amount of plagiarism, relative to manual detection techniques. Given this metric, it leads to the probative question: why would instructors choose to not utilize PDS if it is more effective at detecting student errors in attribution? The non-use of PDS by instructors or institutions gives rise to the concept of a sheathed sword and where the combatants had neither an offensive nor defensive strategy with respect to plagiarism.

Razı (2015) identified that a [Turnitin] similarity score indicated plagiarism was not sufficient in-of-itself and that an instructor must approach the issue of plagiarism and the assessing of any score with due caution. Multiple studies provided evidence for the effectiveness of PDS to prevent and detect plagiarism (i.e., 39 independently published studies). Tools like Turnitin are only capable of reporting against similarities when the source files are in their own database. Some critics have recognized this as an issue with Turnitin, or any other PDS tool that requires a database to compare student papers against. Where journals are not open-sourced, PDS cannot offer a similarity score. There were similar criticisms regarding similarity scores or

reports and how they are evaluated by instructors. Admittedly, PDS may save instructors time and even enhance detection levels, but caution was indicated because these tools may not catch genuine plagiarism. Arguments were made that fighting plagiarism requires a systematic strategy. One could, therefore, characterize PDS as a 'double-edged sword' in that it may be a useful offensive weapon, but it must be used with due care with respect to how it is wielded.

**Plagiarism Detection: A Sheathed Sword**

Continuing the metaphor of a sword and shield as an offensive or defensive tool to combat plagiarism, there is also the case of a sheathed sword. Where instructors and/or institutions chose to take neither an offensive nor defensive posture, with respect to student plagiarism, it is similar to metaphorical non-combatants who are capable of using their sword but choose to have their sword sheathed and their shield stowed.

Brown et al., (2010) associated the internet to an increase in plagiarism and suggested that PDS (i.e., Turnitin) could assist instructors in detecting plagiarism. What was generally accepted was that plagiarism and other forms of academic misconduct were occurring. Their study identified the strengths and weakness of PDS, which contributed to the use or non-use of the service. As reported, less than 10% of faculty members utilized PDS, so there was a suggestion that low adoption rates could be attributed to the lack of knowledge about the availability of the software or how to use the technology. Similarly, the various moral or ethical questions related to the use of PDS were also considered and contributed to its non-use.

Bruton and Childers (2015) recognized that PDS (Turnitin) usage had increased by university instructors, However, Brown et al. identified that less than 10% of faculty members utilized PDS. Brown et al. examined the strengths and weakness of PDS, which contributed to the use or non-use of the service. There was a suggestion that low adoption rates could be

attributed to the lack of knowledge about the availability of the software or how to use the technology. Similarly, the various moral or ethical questions related to the use of PDS were also considered and contributed to its non-use.

Coren (2011) was concerned with 40% of faculty members who ignored plagiarism. This appeared to be the result of prior bad experiences, so Coren investigated instructor beliefs and attitudes, noting that cheating was self-reported in the range of 62-83%, however, 15%-51% of instructors ignored cheating with 40% ignoring on multiple occasions. An interesting phrase from the article (centered around the mixed-messages or institutional ethics and non-enforcement) was as follows: "[t]he discrepancy between faculty attitudes and their actual behaviors to control cheating in the classroom may be sending conflicting messages to students, which may ultimately influence the rates of student cheating" (p. 292).

Sattler et al., (2015) pursued two major aims: first, mapping the frequency with which faculty of four German universities used 10 different methods of preventing and detecting academic dishonesty and, second, investigated five potential factors that influence the non-use of these methods. This study identified instructors that failed to take sufficient actions to check for plagiarism, or, when methods were used, that they were inconsistent. Comparisons illustrated responses of faculty who seek to prevent plagiarism to PDS:

- UK: 80% of faculty used relatively inefficient detection means
- Australia: 33% of faculty failed to control for plagiarism entirely
- Germany, USA: 71% of instructors did not discuss plagiarism for more than 30 minutes in their courses
- Other studies: <10% of faculty used search engines to help detect plagiarism

This paper concluded with a statement that limited detection and prevention of plagiarism was a good reason for the widespread prevalence of plagiarism at universities.

Stowe (2017) discussed instructor willingness to address plagiarism and explored inconsistent detection and reporting by faculty, growing use of contract-based instructors, and the demands of online learning. Stowe identified the following points:

- Extra burden or work for faculty
- Concerns over possible legal action
- Institutional policy too harsh
- Willingness for faculty to report plagiarism
- Intentional versus accidental; definitions etc.
- Internet contribution
- A lack of standardized documenting mechanisms were also reported as a barrier to plagiarism reporting
- Administration involved in responding to plagiarism
- Academic integrity policies did/did-not take into account faculty members' views and the complexity of the plagiarism issue
- Faculty members viewed their roles in these policies as inconsistent with their teaching roles. Defending the value of integrity value while also upholding their commitment to teaching students and allowing students to explore and learn (i.e., tort and due care)
- Faculty members bear the initial burden of deciding how and whether to respond when violations were discovered

(Compiled and adapted from Stowe, 2017)

Thomas (2017) stated that student plagiarism was on the rise despite introduced measures by universities to detect its occurrence and to institute actions to prevent and address this practice. The author suggested what may contribute to this problem was the reluctance of faculty to report student plagiarism. Underlying causes may include psychological discomfort, opportunity costs, lack of procedural clarity, administrative bureaucracy and a prevailing culture of managerialism.

## Plagiarism Detection: Ethics of the Sword and the Shield

After examining the use of PDS either as a sword to help detect where students have made errors in attribution, or as a shield to help students to improve their writing and paraphrasing skills, there is the overarching consideration of 'ethics' as it pertains to the use of PDS, whether instructors should use it, use it as a sword, use it as a shield, or the ethics involved in reporting or dealing with students when plagiarism has occurred. A considerable volume of scholarly literature has been published on the broad topic of 'ethics' as it relates to student plagiarism and more importantly, instructor ethics. In this context, I am using the term 'ethics' here as a broader term to encompass ethics, morality, and legality (as previously defined).

### *Legal Framework for Plagiarism Detection*

Continuing the metaphor of the sword and shield was the [legal] right to bear arms (e.g., sword or shield). Unlike the United States of America Constitution and its Second Amendment right to bear arms in time of militia, Justice Cory of the Supreme Court of Canada wrote that "Canadians, unlike Americans do not have a constitutional right to bear arms" (R. v. Hasselwander, 1993). Similarly, Justice Charron of the Supreme Court of Canada stated that,

"possession and use of firearms is not a right or freedom guaranteed under the Charter, but a privilege" (R. v. Wiles, 2005).

Concurrently, university community members may be afforded various protections under their respective university charters and/or policies such as justice, concern for welfare, and respect for persons. At the same time, however, community members are expected to uphold ethical conduct and deal with incidents of plagiarism.

**Literature Theme of Ethics and PDS**

This particular literature theme creates a series of ethical, moral, and legal paradoxes. On the one hand the Canadian Charter of Rights and Freedoms has no rights to 'bear arms', yet it affords numerous protections under Section 7 to 'life, liberty and security of the person' or Section 8 to 'search and seizure' or Section 11 (including 11(d)) the 'presumption of innocence'.

Brown and Rubin (2011) examined instructor ethics in the use of Turnitin. Instructors 'believed' that PDS aided in maintaining academic integrity. Other instructors expressed concerns over the inference of guilt associated with PDS use. Notably, few studies have been conducted regarding the ethical considerations of PDS use, such as Turnitin.

Choo and Paull (2013) provided a concise list of student reasons for intentionally plagiarizing and staff perceptions and understandings of plagiarism, policy and detection. The theme here was that active education was the best counteragent to plagiarism, however, the argument to appeal to the morality of students was not sufficient.

Brinkman (2013) dealt with a number of salient cornerstones of plagiarism and plagiarism detection. Use of PDS was a challenge for instructors when faced with concerns over student rights. This also related to privacy rights of students and the retentioning of personal metadata even personal identifiable information (Pii) by the PDS. This could easily be one of the

reasons behind non-use of PDS by instructors, centered around ‘ethics or ‘morality’. It is quite the landscape of moral and ethical issues for the instructor to deal with.

Farisi (2013) recognized the challenge of universities to educate morality and integrity within the academic setting. This paper explored academic dishonesty behaviors in distance education with a focus on moral education. It also looked at behaviors and practices that contribute to academic misconduct.

Leonard (2018) dealt with professors and how they decided to approach student plagiarism with a focus on the risks and challenges. Fortunately, the university studied here was supportive and respectful of faculty decisions dealing with student plagiarism, given the institutions well-designed plagiarism policy. This paper explored the threat and dignity of faculty when faced with having to deal with student plagiarism. Poor pedagogy and/or suppression of faculty judgement was of interest here, as it pertained to why instructors chose not to utilize PDS. This paper identified that reporting plagiarism was a lengthy and stressful process leading to the moral paradox as to whether instructors report plagiarism incidents.

Ison and Szathmary (n.d.) looked at the incidence rate and severity of plagiarism within graduate capstone courses. The empirical evidence provided by this study identified the adequacy and effectiveness of institutional policies and procedures, implying that no adjustments to current polices were required.

Kiriakidis (2013) investigated the effect of mandatory use of PDS (i.e., Turnitin) at a graduate level from an online university. The underlying problem was the lack of empirical research-based findings with respect to plagiarism levels. The suggestion was that the mandatory use of Turnitin deterred plagiarism and represented a new method of teaching students how to track their own use—or lack thereof—of citations and research material.

Hu and Sun (2017) acknowledged many studies that focused on either student attitudes (including knowledge of and engagement) or instructor attitudes towards plagiarism. Hu and Sun examined the plagiarism policies made publicly available by eight major universities of foreign studies in China. This paper completed my triad (i.e., refer to Figure 1) by filling a gap discussing institutional attitudes in relation to instructors and students. Both the structure and content of these universities' policy documents were analyzed to identify institutional understandings of attitudes toward, and sanctions on plagiarism. The study discovered the moral and regulatory underpinnings of institutional policy, concluding that such institutional approaches would not be effective because the policies were not linked to academic literacy and corresponding practices.

Neufeld and Dianda (2007) authored a report for a pair of Ontario universities, and it identified two studies by the University of Guelph and one from McCabe at Rutgers University. The scope of the paper was admittedly narrow, but it did report on current policies regarding undergraduate academic misconduct at all member institutions and highlights the five following issues:

- Definitions of plagiarism in policies governing student behavior
- Penalties for academic dishonesty: cheating and plagiarism
- Being proactive
- Transcript notation and public reporting requirements
- Collaborative learning and the internet: adjusting to diverse student attitude

Of interest is that "Guelph is one of the few universities to offer explicit guidelines for assigning penalties" (p. 8). Additionally, “[on]line Ontario institutions already require an annual report on cases of academic dishonesty to their Senate or equivalent body … Locating them,

however, is not an easy task for the uninitiated. Of the eleven institutions that do not require an annual report, one or two nevertheless provide one on an ad hoc basis" (Neufeld & Dianda, 2007, p. 19).

Sharon (2010) examined relinquished student rights when they submit papers into Turnitin. This paper was loaded with legal jargon, concepts and subject matter, however, to properly look at PDS, it was necessary to also look into Pii and student rights along with the academic institution's respect of intellectual property rights of the student. On the point of Pii, GDPR, etc., iParadigms LCC [company] acknowledges that Turnitin [software] collects personal information; however, there is the competing Copyright Act (1985) and the international Berne Convention (1886) that both deal with protection and literary works.

Stabingis et al., (2014) investigated how plagiarism was actually measured, thus allowing the evaluation of prevention measured effectiveness. Interestingly enough, at the turn of the century (i.e., 1999), UK universities concerned with plagiarism cases noted that PDS use was delegated to individual lecturers. It was found that such 'judgement' did not work since different lecturers did not uniformly apply the same standards. Different attitudes towards plagiarism cases imposed varying penalties to students for the same academic crime. This meant that something about ensuring quality of studies and perception of universal justice were not met.

Vanacker (2011) focused on ethics and technology. Student rights with respect to PDS and submissions to SaaS were investigated. Ethical issues associated with Pii and GDPR were also raised. Guidelines for instructor use were provided; teachers rejected the use of PDS on different grounds, including certain uses of Turnitin do not comport with well-established fair information practice guidelines.

## Literature Review and ATLAS.ti

ATLAS.ti (https://at;asto.com) was used to perform a qualitative analysis of the reviewed literature. A particular focus was on creating graphical representations of the qualitative data (e.g., word cloud and mind map).

The use of ATLAS.ti, is not a requirement for robust qualitative analyses (Silver & Lewins, 2014, p. 11); however, the software's role in designing and conducting research is the principal theme in "Using software in Qualitative Research" by Sage Publications Ltd. Silver and Lewins (2014) state that "[c]onducting a literature review within qualitative [design] is not only feasible, but also incredibly useful" (p. 13). They go on to dedicate an entire chapter regarding methods of handling the literature, coding, and establishing [document] links.

A distinct benefit of using ATLAS.ti as part of the literature review and qualitative analysis process was the ability to integrate the literature review appraisals or insights with research study analysis results (Silver & Lewins, 2014).

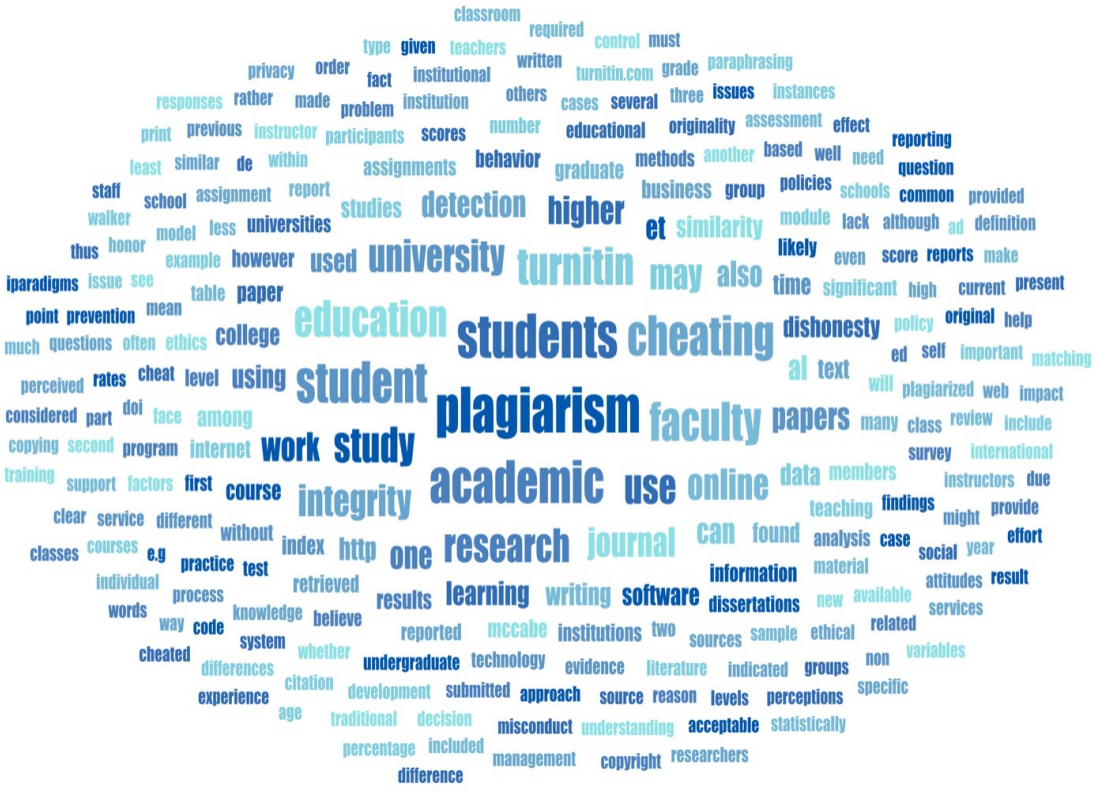
### *Graphical Representations*

Creswell and Plano Clark (2018) describe how various software applications can be employed in mixed methods research to create visual representations of data (p.254).

Given the trio of thematic questions -- What are the technical issues, operational or resource constraints preventing instructors from using PDS?; What are the ethical or moral reasons preventing instructors from utilizing PDS?; What are the institutional or policy issues preventing instructors from using PDS? -- the mind map provides a way of visualizing thoughts through a manual editing process.

The word cloud, shown in Figure 6, illustrates language used in a narrative with the size of words arranged by frequency of use.

**Figure 6**
*Word Cloud Based on Literature Reviewed Documents*




*Note.* (Created by Colin Sim using Atlas.ti (for Mac) and literature review source documents)

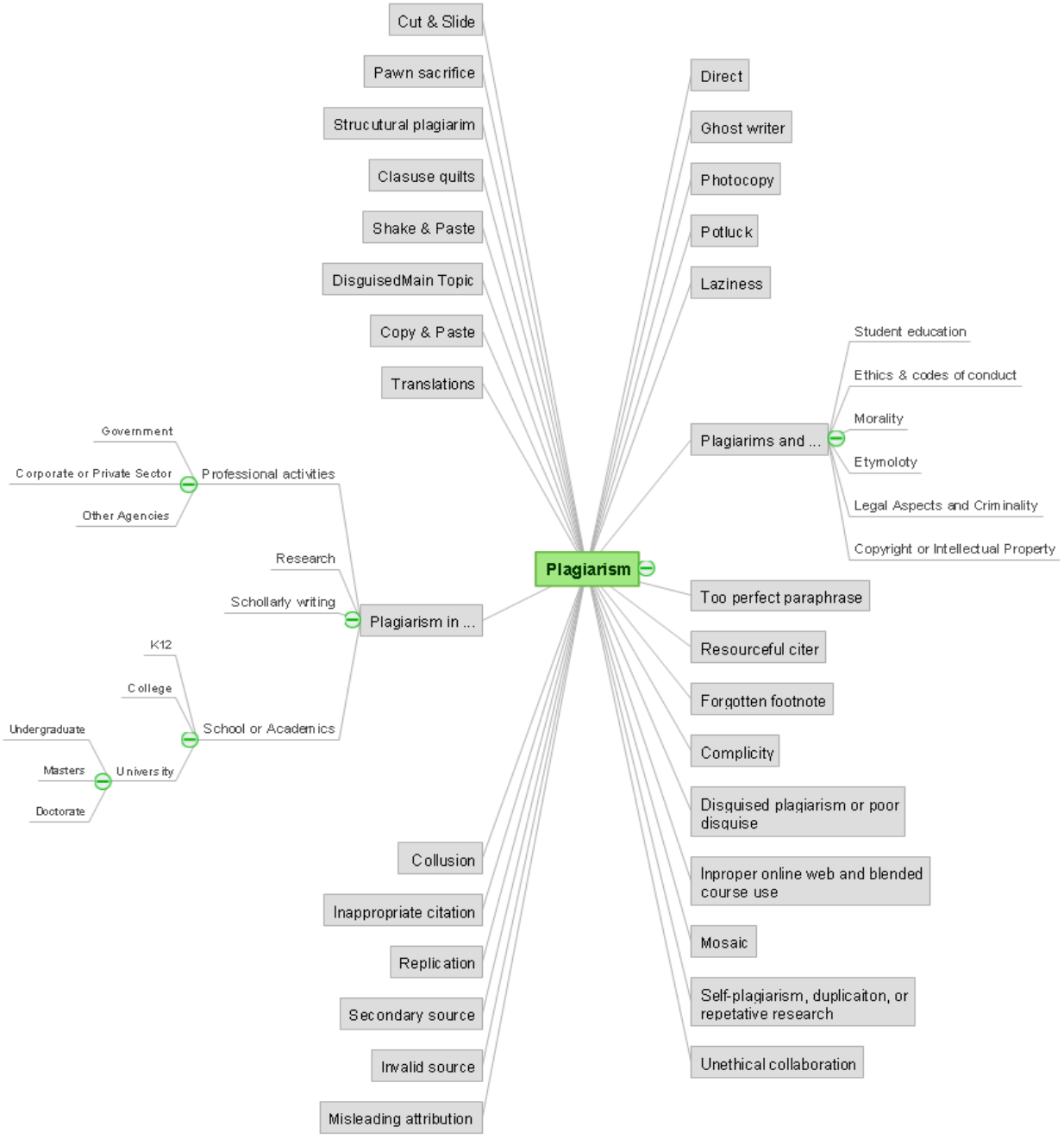
The mind map, shown in Figure 7, illustrates theme nodes and illustrates the use of Concept Draw's Mind Map [for Macintosh], after the methods documented by: Buzan (2012); Buzan (2013); Buzan & Griffiths (2013); Buzan et al., (2014); Krasnic (2012); and Taylor (2014). The concept map allowed the researcher to define concepts using a series of standard block diagram elements and explore connections or relationships between concepts. Krasnic (2012) reminds that mind maps are noteworthy because they:

> are very effective at bringing together the logical left brain and the visual and creative right brain to improve memory and productivity. The real power behind visual maps is the ability to link and layer information. By establishing links and

layers between concepts, you can see the big picture and gain a deeper understanding of a topic. (Loc 495 of 1167)

**Figure 7**

*Plagiarism Mind Map Example Illustrating Thematic Concepts and Terms*




*Note.* (Created by Colin Sim using Concept Draw Mind Map and thesis topic search citations).

## Chapter 2 Retrospective

Plagiarism is an ongoing issue and concern within university distance education programs. Although PDS like Turnitin is available to an institution, its use has not been widely adopted by instructors. This raises the salient question: why is this the case?

# Chapter 3: Methodology

This chapter focuses on the research methodology, including the mixed methods case study convergent design. A discussion of the research instruments, data collection and ethical treatment of data also follows in this chapter. The methodology details the data analysis of quantitative and qualitative survey results as well as qualitative interview results and how the data sets were converged.

## Mixed Methods Case Study Sequential Convergent Design

A mixed methods case study research (MMCSR) design was used to explore and develop an enhanced understanding of adoption barriers to the use of PDS at a Canadian university [case] using quantitative and qualitative data sources (Creswell & Plano Clark, 2018, p. 116). As Creswell and Plano Clark state, "[t]he choice of this complex mixed methods design is based on the researchers needing to use both quantitative and qualitative information to best describe a case" (p. 117).

### *Case Study Framework*

The mixed methods case study framework represented the intersection of the [core] mixed methods design with another type of methodology, namely case study (Creswell & Plano Clark, 2018, p. 116). As Creswell and Plano Clark suggest, "[t]his complex mixed methods design is consistent with the basic idea of a case study that focuses on developing a detailed understanding of a case (or multiple cases) through gathering diverse sources of data" (p. 116).

Neuman (2014) identified six strengths offered by case study research methods, including conceptual validity, heuristic impact, causal mechanism identification, capture complexity and trace processes, calibration, and holistic elaboration (p. 42). Neuman further clarifies these as follows:

1) Concept validation identifies concepts or variables of interest and determine meaning;
2) Heuristic impact provides learning or exploration, develop new theories or extend concepts;
3) Causal mechanism identification exposes details of processes and mechanisms;
4) Capture complexity and trace processes depicts complex multi-factor situations;
5) Calibration adjusts measurements of abstract concepts to concrete standards; and
6) Holistic elaboration elaborates on entire situation and integrates multiple perspectives.

### *Explanatory Sequential Design*

An explanatory sequential mixed methods design can be used with a convergent design. Research begins by conducting a quantitative web-based survey followed by a research phase using qualitative interviews to help explain quantitative results (Creswell & Plano Clark, 2018). As Creswell and Plano Clark suggest, "[t]he qualitative phase is implemented for the purpose of explaining the initial results in more depth … how the qualitative data help[s] explain the quantitative results" (p. 77).

As Creswell and Plano Clark (2018) state: "[s]ome of these [quantitative] results need further explanation, so the researcher launches a qualitative phase to explore the results in more depth with a few individuals" (p. 78). This two-phase approach provided a manageable research design, suitable for the scope of the case study research while affording the opportunity to refine second-phase interview questions based on the information gathered with the survey in the first phase (p. 81). Reporting of the two-phase study results beginning with a quantitative section followed by a qualitative section also provided a straightforward framework for detailing research findings before reporting convergent or divergent results (p. 81).

## Convergent Design

Creswell and Plano Clark (2018) explain that the objective of the convergent design is to "bring together the results of the quantitative and qualitative data analysis so they can be compared or combined….[t]he basic idea is to compare the two results with the intent of obtaining a more complete understanding of a problem, to validate one set of findings with the other, or to determine if participants respond in a similar way" (p. 65).

Additionally, "[t]he intent of the convergent design is to obtain different but complementary data on the same topic in order to best understand the research problem" (p. 68).

### *Combine Both Sequential Databases*

The sequential quantitative and qualitative data are gathered separately and independently with a focus on answering the study's research question and sub-questions. Data were then merged by including separate results in a [joint display] table (for example, Table 2) as well as discussing the results, organized by research sub-questions (Creswell & Plano Clark, 2018, pp. 68-71).

A subsequent discussion examines the degree to which the quantitative and qualitative data results converge or diverge, and how the data are related to each other. As Creswell and Plano Clark (2018) state, "the integration involved merging the results from the quantitative and qualitative data so that a comparison can be made, and a more complete understanding emerge than that provided by quantitative or qualitative results alone" (p. 71).

## Instrumentation

Research instrumentation consisted of a web-based survey hosted using LimeSurvey and a subsequent interview hosted by Zoom Meeting for participant volunteers.

The literature review revealed the absence of existing research instruments suitable for use in this thesis, however, several published papers were identified which contained a cross section of representative survey questions that were adapted towards this study (refer to Appendix E).

**LimeSurvey Platform**

Based on the author's ad-hoc due diligence investigation (Sim, Surveys and FGS Research Studies, unpublished manuscript, 2018) into popular and well-reviewed web survey platforms available, including the use of webms.org, a site for web survey methodology, online survey software and internet mediated research and bibliography of social science methods, LimeSurvey was determined to be the optimum platform. Operational requirements for the survey platform included:

- Current and modern survey user interface (i.e., < 3 years old)
- Hosted or geofenced on a Canadian server/data center
- Results downloadable as csv or Excel spreadsheet
- Platform could manage 1000 surveys (or subjects)
- Platform was affordable, either free or available as a subscription with educational discounting

***Web-Based Survey (Quantitative Data)***

The web-based survey consisted of six sections and gathered the following quantitative data (refer to Appendix C.):

- Front matter; review of participation, and consent to participate in survey
- Demographics; sex, province of residence, and full or part-time employment
- Teaching activities; undergraduate, masters or doctorate level and students per class

- Academic misconduct perceptions; memorable incidents of plagiarism and action taken
- Familiarity with PDS; name software and how often used
- Interest in participating in subsequent interview

Qualitative data was stored based on either text, numeric, or multiple-choice answer input fields. The use of Likert scales was also employed (i.e., use of PDS at the undergraduate, masters or doctorate level). Data input for these quantitative survey fields was mandatory or required.

***Web-Based Survey (Qualitative Data)***

During completion of the survey, participants also had the option to elaborate on specific questions and optionally provide remarks. A survey question would ask for a yes-or-no response and a subsequent question allowed for feedback if the leading question was answered yes (i.e., a subsequent question was deterministic, based on the leading questions response). Data input for these qualitative survey fields was optional and not a requirement for completion of the survey.

For example, survey question thirteen asked "Thinking back over the past 2 years, I suspected that a student plagiarized or failed to provide proper attribution." Question fourteen would only be displayed when question thirteen was answered yes and asked, "Please elaborate and provide details regarding the case that is most memorable; what led you to suspect the student plagiarized?" (refer to Appendix C).

***Post-Survey Interview (Qualitative Data)***

Participants who expressed an interest in being interviewed as part of the survey questions, supplied their email address. Volunteers were contacted via email and supplied with a set of open-ended interview questions (refer to Appendix D) in advance of scheduling a date and time for the interview.

Interviews were conducted using Zoom Meeting, each lasting under one hour. Some additional time was required via email communications to establish a convenient meeting date and time between the principal researcher and study participant. Internet access and a computer with a suitable microphone and speaker was required. In addition to written consent, participants gave their verbal consent before continuing with the interview recording. During the course of the interview, a number of semi-structured questions were presented (see Appendix D), and the responses recorded using Zoom Meeting. During the interview via Zoom Meeting, a PowerPoint slide deck (refer to Appendix F) was presented by the researcher to help remind the participant of the open-ended interview questions being asked.

## Preliminary Inquiry

### *Survey Tested*

The LimeSurvey was tested by volunteer thesis cohort students. Feedback was used to refine survey question wording and improve data input fields.

The principal researcher enabled the web-survey just prior to the release of an invitation email. The survey remained open for a period of four calendar weeks at which point the survey was closed to participants.

### *Interview Tested*

The Zoom Meeting [room], PowerPoint slide deck and open-ended interview questions were tested during sessions with thesis cohort members as well as committee member who was not a study participant due to contract status. Feedback was used to refine interview questions.

## Data Collection

### *Recruiting Participants*

A convenience sample (i.e., approximate 205, actual 195) of the entire full-time and part-time instructors at the Canadian university, excluding contract instructors, were invited to participate in the research, beginning with the web-based survey followed by an in-depth interview. These were educators who taught either undergraduate or graduate students in web-based courses in Moodle, the Learning Management System (LMS) used by the university. As such, they had access to identify plagiarism in their courses.

### *Invitation to Participate in Research*

The invitation (refer to Appendix B) was sent as the body of an email message along with a letter of information / informed consent (refer to Appendix H) as an attached PDF file. A URL link to the LimeSurvey hosted survey was also included in the email invitation.

## Survey Availability

The web-based survey instrument was used to collect closed-ended data using a Likert scale, for example, participant's prior experience with PDS. Participants also had the opportunity to elaborate and provide qualitative comments or remarks to some of the survey questions. Generally speaking, participants who provided qualitative data to survey questions were more likely to volunteer to be interviewed, however, there was no requirement for participants to provide qualitative data in order to complete the survey.

The survey was made available to all participants to access via their preferred web browser (e.g., Chrome, Firefox, Safari, etc.). Operationally, a single URL link was provided to the study participants in the body of an invitational email (refer to Appendix B for a copy of the invitational text).

The principal researcher enabled the web-survey just prior to the release of an invitation email. The survey remained open for a period of four calendar weeks at which point the survey was closed to participants.

## Return Rate

Lindemann (2018) discussed survey-specific delivery implementations and respective participant return rates. He stated that an average survey response rate was 33%. While there was a profound lack of consistency with a number of recent papers published on number of surveys needed to achieve validity, recent literature on return rates for online surveys points to rates as low as 8% (Schonlau, Fricker & Elliott, 2002).

## Ethics and Ethical Treatment of Data

### *Tri-Council Requirements*

The human research study component of this study followed TCPS2 ethical standards, recommendations, policies, and followed the core principles – respect for persons, concern for welfare, and justice (TCPS2, 2014, p. 6). This ensured that all applicable legal and regulatory requirements with respect to consent were met. The researcher completed required Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS 2) tutorial and certification, as required by Athabasca University and its research ethics board.

### *Research Ethics Board (REB)*

Approval to conduct human research was required and granted by the Athabasca University Research Ethics Board (REB). Refer to Appendix G for a copy of the issued certificate.

### *Data Returned From LimeSurvey and Zoom Meeting*

The first data set consisted of the survey data, downloaded from LimeSurvey as a csv source file.

The second data set consisted of recorded interviews. Data began with locally recorded Zoom Meeting MP4 data files, converted MP4 to MP3 audio files and then to transcribed text files and finally into Microsoft Word transcripts.

### *Encryption, Maintenance, and Data Disposal*

There were a hierarchy of various regulatory bodies including institutions and organizations that had an impact on thesis data management and its retentioning. There was also a differentiation between research subject data and other thesis workmanship and its related data.

Raw human research data was stored and managed on a portable USB drive that was encrypted using VeraCrypt. Data was accessed by a single password protected MacBook computer. The network on which the computer was running had enterprise-level security with state-of-the art virus and malware protection.

Only the primary researcher accessed the raw human research data, and it was not shared or transmitted to anyone else.

The Research Ethics Board (REB) requires all physical, electronic, and other artefacts associated with research with human subject data to be retained for five years. For example, a recorded interview must be managed, maintained, retentioned, and disposed of according to the policies of the Athabasca University REB. The portable USB drive and its data will be retained for a period of 5 years after which the entire contents of the drive will be securely erased using DoD (Department of Defense) methods. This is consistent with TCPS2 Article 5.3.

Once raw human research data had been aggregated or processed using either qualitative or quantitative analysis software, that research data was not stored on the portable drive, but on the MacBook computer as these data sets did not contain personally identifiable information (Pii). This thesis data was routinely backed up using Time Machine or a network-based Network Attached Storage (NAS) device especially during the analysis of the data.

**Anonymity and Confidentiality**

Use of Zoom Meeting was the preferred platform because it eliminated the need to share potentially identifiable account details, unlike Microsoft Skype and Teams. As well, no human data or metadata collected contained any personally identifiable information (Pii).

Participants were told how their data was secured and protected, for example, where and under what conditions it was stored, and that only the principal researcher would have access to the data. Human research data was stored in a secure manner. While the survey was performed anonymously, during the conducting of the interview there was the possibility that information regarding people, places, or events became part of the interview record. Where applicable, specific identifiers (e.g., people's name, institution names) were anonymized using codes or pseudonyms.

Study participants did not have an opportunity to review or edit the resulting transcript because sharing the [Word document] between the principal researcher and the study participant would involve file encryption and password protection to ensure that participant confidentiality was maintained. The technical burden on the participant to decrypt, process, and then re-encrypt the file was unreasonable. Additionally, if any institutional [email] accounts were used, the transcript would otherwise have to transit through the respective server and put the research subject's confidentiality at risk.

## Inconveniences

Human study participant inconveniences were limited to the time and effort involved in participating in the internet-based online survey. The estimated amount of time necessary to complete the basic survey was 20 minutes. For those participants who provided additional information (e.g., long text fields), the time involved was slightly greater, proportional to the amount of information or details submitted to the survey by the participant.

## Invitation to Participate in Research

Athabasca University full and part-time instructors were invited to participate in the web-based survey. The invitation (refer to Appendix B) was sent as the body of an email message along with a letter of information / informed consent (refer to Appendix H) as an attached PDF file. A URL link to the LimeSurvey hosted survey was also included in the email invitation.

## Participant's Right to Withdraw

### *General Principle to Withdraw*

The front matter in both the survey and interview provided a clear statement that participants were under no obligation to participate or continue to participate in a study, and that refusal or withdrawal would have no negative consequences.

### *Withdraw From Survey*

In the case of the survey, it stated: "By clicking **Yes,** you are providing your informed consent and agreement to participating in this survey. You may withdraw from the study at any time by simply closing your browser. Once you submit your completed survey, however, data cannot be withdrawn as the survey is completely anonymous."

### *Withdraw From Interview*

In the case of the interview, once verbal consent was given the participant could elect to withdraw from the interview right up to the point where the researcher concluded the interview. The participant also had the right to decline to answer any of the interview questions. Moments after the interview concluded, data was transferred (e.g., MP4 to MP3, MP3 to transcript, transcript verified), thus making it problematic for the participant's data to be removed from the study.

## Benefits

The anticipated benefit(s) apply to study participants, Canadian universities or educational institutions/society, and/or the pool of distance education knowledge. The study researcher anticipated that potential benefits outweighed potential risks to human participants, including:

- Access to services offered in the research that ultimately prove beneficial to the individual participant. Greater awareness or understanding of oneself or one's situation
- Assist those in similar situation in the future through knowledge gained

## Emotional or Employment Risk

Although the research study participants, Canadian university instructors, were characterized as low risk from a human research or vulnerability perspective, there was a remote possibility that a participant completing the survey or participating in the interview could result in either emotional or employment risk. While researchers assert that when participants have an emotional reaction or response during the research (e.g., during an interview), it does not necessarily constitute an emotional or psychological risk. While this

assertion may be true in some circumstances, since this study investigated potentially sensitive, personal issues regarding plagiarism and institutional policies, it was important to acknowledge potential emotional risks and include plans to both prevent/minimize emotional risks and deal with harm if it did occur.

As the principal researcher is not a mental health expert, to ensure mental well-being of research participants, should participants feel overwhelmed, confused, conflicted following the completing of the survey or interview, even experience unanticipated anxiety or stress related to recalling prior memories on the subject of plagiarism, mental health resources were available from the researcher, if required.

Additional strategies for minimizing and responding to emotional risks in studies dealing with personal and sensitive issues included the following:

- Informed participants before starting the survey or interview that if they become upset, the researcher would offer the participant a break, the chance to stop and reschedule the interview and/or the opportunity to stop the interview altogether
- If the participant experienced any perceived harm (i.e., mental unwellness) ‘at that moment in time’, they had the right to withdraw from the survey and/or interview
- Provided a referral list of available support and/or counselling services to the participant to choose to utilize, if necessary

Potential risks to employment were also considered here. Many organizations have policies about employees participating in research about their organization (e.g., confidentiality agreements, employee oaths). Study participants were not asked to answer any questions that would contravene non-disclosure or confidentiality agreements they have with their employer.

Participants were also free to decline to answer any questions they felt may have jeopardized their current standing with their employer.

## Data Analysis

### *Specific Procedures - Preparing the Data*

The LimeSurvey downloaded CSV file containing survey results was initially edited to remove the email addresses of participants who volunteered to be interviewed (i.e., removal of Pii). These participants were subsequently identified by their participant number.

LimeSurvey automatically assigned participant IDs when the survey was submitted. The action of disabling web access for the survey, purging [test] data, and re-enabling web access (i.e., field testing the survey before going 'live'), did not reset the participant ID 'counter' to 1, as a result participant IDs in this study began with the ID number 8.

### *Sequential – Survey Quantitative*

A copy of the LimeSurvey CSV file was imported into Excel and all of the qualitative data columns were deleted, leaving only quantitative data available. This data set was then available for quantitative analysis.

### *Sequential – Survey Qualitative*

A copy of the LimeSurvey CSV file was imported into Excel and all of the quantitative data columns were deleted, leaving only qualitative data available. This data set was then explored and discussed in Chapter 4. Where qualitative data was provided by a participant who also volunteered to be interviewed, survey results were merged into a [separate] Microsoft Word document template, similar to Appendix C, and this document, was used during the interview process to help guide or refine the pre-planned open-ended interview questions (refer to Appendix D).

### *Sequential – Interview Qualitative*

In addition to the pre-planned open-ended interview questions, based on thesis research sub-questions and lines of inquiry regarding PDS adoption barriers, survey qualitative information provided by interview volunteers was used to refine interview questions. The refinement was in the form of re-phrasing a planned interview question or possibly asking a new semi-directed question, based on survey information provided by a participant.

## Quantitative Analysis

### *Software*

While SPSS (https://www.ibm.com/analytics/spss-statistics-software) is perhaps the defacto qualitative and statistical analysis software, results of an ad-hoc due diligence investigation resulted in Stata as the choice for this analysis. Desirable application traits included:

- Cost effective for a perpetual license, under $ 700usd
- Offered to students with educational discount
- Available for both Windows and Macintosh operating systems
- Moderate learning curve
- Favorably reviewed by other colleges or universities

### Quantitative Survey

The statistical analysis of quantitative survey data was conducted in Stata and focused on descriptive statistics. Descriptive statistics including frequency distribution, histogram, mean, median, mode, standard deviation, and variance. These descriptive statistics were utilized to summarize the survey data based on single dependent variables and focused on internal consistency.

## Qualitative Analysis

### *Software*

Based on the author's ad-hoc due diligence investigation (Sim, CAQDAS software and literature reviews, unpublished manuscript) into popular Computer Assisted Qualitative Data Analysis (CAQDAS) applications, ATLAS.ti was determined to be the optimum platform. Operational requirements for the survey platform included:

- Current and modern (i.e., <3 years old) with graphical user interface plus command line interface
- Moderate learning curve; NVivo is considered exceptionally steep
- Supported data (MP4, MP3 etc.), architecture and interoperability
- Application available with educational discounting and affordable
- Application available for both Windows and Macintosh platforms

## Qualitative Survey Data

Where participants supplied optional qualitative remarks for the web-based survey, the information was examined from the view of the research sub-questions (refer to Figure 1) including the importance of the respective PDS adoption barriers (refer to Figure 9).

## Qualitative Interview Data

Potential interview participants were contacted using the email addresses they provided when they completed the "I am willing to participate in the interview section of this research study" portion of the survey. On completion of the quantitative survey, all participants who had given their permission were interviewed.

Similar to the qualitative survey data, the interview transcripts also explored PDS usage lines of inquiry (i.e., research sub-questions; refer to Figure 1), including the importance of the respective PDS adoption barriers.

**Treatment of the Qualitative Data**

On conclusion of the interview, the meeting recording was available locally (i.e., on an encrypted USB portable drive, available only to the principal researcher). The file was then converted as required and transcribed into text using speech recognition software, Dragon Naturally Speaking for Macintosh. The transcribed interview was then copied into Microsoft Word, formatted and both spell and grammar checked. The transcript was also manually reviewed by the principal researcher for any transcription errors made by Dragon Naturally Speaking transcription software.

***Data Coding***

The aim or goal of this stage of analysis was to identify codes and themes from the qualitative data. ATLAS.ti provided for the segmentation of data along with coding, memoing, grouping and linking of information. Silver and Lewins (2014) summarized this process as follows:

> The idea is that such a de-linearization fosters a deeper understanding of the researched phenomena, supporting the building up of a 'context of discovery'. Projects, documents, codes, memos, and groups of these entireties are ingredients of virtually any kind of qualitative data analysis software. ATLAS.ti supports describable and functional links between codes and/or data segments. (p. 61-62)

### *Explore Whether or not Databases Confirm*

In keeping with the analysis process outlined by Creswell and Plano Clark (2018), the quantitative and qualitative data were collected and analyzed separately, then results were integrated to compare similarities or differences. Results were presented in a [joint display] table (refer to Table 2). Discussion focused on what ways the qualitative and quantitative databases confirm or disconfirm their positions toward the research question and sub-questions.

## Chapter 3 Retrospective

This thesis examined and investigated possible reasons behind the apparent lack of PDS adoption at a Canadian university. Reviewed literature revealed that plagiarism rates vary widely; however, they tended to lie between 40% and 60%, centering around 50% (refer to Figure 5). PDS can be used either as a training tool or as detection device to either reduce or identify errors in attribution. Not all distance education institutions have PDS resources at their disposal for instructor or student use, but where it is available, instructors may not utilize it. Where PDS is available to instructors, there is a low level of adoption or utilization, often as low as 10%. Manual grading with occasional use of internet search engines such as Google provided instructors with plagiarism detection levels less than 10%.

The research study consisted of a mixed methods case study research framework using a web-based survey with quantitative analysis followed by interviews and qualitative analysis.

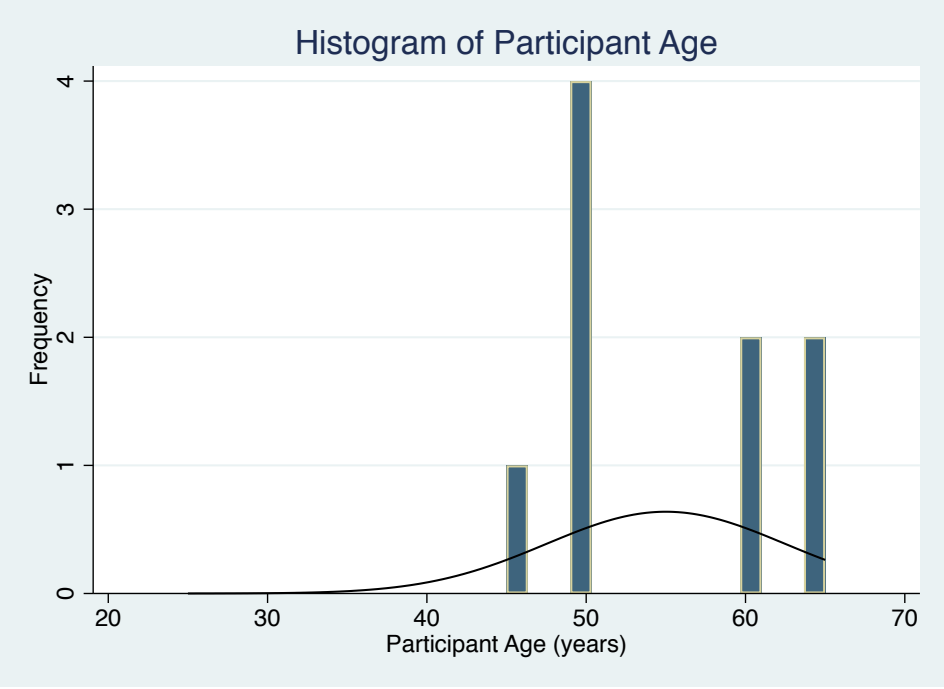
# Chapter 4: Results and Discussion

## Web Survey Quantitative Results

A total of 195 email invitations (i.e., *n*=195) were sent to full and part time instructors at a Canadian university (internal communication, Potts, C., 24 June 2020) inviting them to participate in an anonymous web-based survey regarding PDS. The survey was available to participants for a period of 4-weeks through an email URL. The web survey questions offered through LimeSurvey are in Appendix C.

The survey was completed by 8 participants (4.1 % of total population), consisting of 4 males and 4 females. Of these 8 participants, 4 volunteered to be interviewed.

**Figure 8**
*Histogram of Survey Participant Age*




While the survey participants taught classes at undergraduate, masters and doctorate levels, there were a greater number of instructors who taught at the undergraduate level (*n*=6) relative to the master's level (*n*=4) and the doctorate level (*n*=2). This distribution is consistent

with conclusions in the literature that there was a higher prevalence of plagiarism with respect to undergraduate students relative to those at the masters or doctorate level (McCabe et al., (2001); Ballard (2013); Lofstrom et al.,(2017)).

Instructors reported that they had dealt with situations of suspected plagiarism or failures in attribution (87.5%) and cases where students have been caught plagiarizing (62.5%) within the past 2-years. The survey-reported rate or level of student plagiarism is consistent with the conducted literature review, illustrated in Figure 5. The higher incidence rates of plagiarism reported in the survey data may have been influenced by to participants who had something to say about plagiarism, so completed the survey. Additionally, 75% of the participants taught at the undergraduate level, where the incidence of plagiarism has been documented to be higher (Ballard, 2013).

Instructors reported the action that was taken ($n$=7) when plagiarism was discovered (refer to Table 1). Results indicate an overwhelming tendency to utilize corrective or training actions, sometimes with a punitive component (e.g., a reduction in grade for assignment).

**Table 1**
*Count of Action Taken When Student Plagiarism Discovered*

| Course level | Action (*) | Count |
|---|---|---|
| Undergraduate | Corrective | 3 |
| | Punitive | |
| | Both corrective and punitive | 3 |
| | Neither corrective nor punitive | |
| | No answer | 2 |
| Masters | Corrective | 3 |
| | Punitive | |
| | Both corrective and punitive | 1 |
| | Neither corrective nor punitive | |
| | No answer | 4 |
| Doctorate | Corrective | 1 |
| | Punitive | |
| | Both corrective and punitive | |
| | Neither corrective nor punitive | |
| | No answer | 7 |

*Note.* (*) A typical corrective action was for an instructor to mark up a student's paper, pointing out errors in attribution and asking the student to re-submit a corrected paper. A typical punitive action was for the instructor to assign a lower grade to the student who had plagiarized.

**Web Survey Qualitative Results**

In addition to the quantitative data collected by the web survey, instructors were asked to elaborate on situations where they suspected student plagiarism had occurred. Their experiences or remarks are summarized as follows:

- Students did not plagiarize in most courses, however, there was one notable exception where a pair of students plagiarized (i.e., copied) from each other's assignment
- Students lacked sufficient knowledge or understanding to properly cite references particularly at the undergraduate level
- Students download essay(s) from aggregator (i.e., coursehero.com) and failed to update footer contents. Instructor noted that aggregator sites represent 80% of all plagiarized papers

- Student writing style, prose, quality, etc. was more sophisticated or advanced in assignment than was previously authored by student, indicating copy-and-paste or patchwork writing
- If a research paper was submitted by a student without citations, it is returned to student for correction and re-submission
- Student plagiarism is made more difficult through the use of research projects that are scaffolded, employ various reflection techniques, or requires the creation of an annotated bibliography
- Students caught plagiarizing are referred to the Academic Integrity Officer
- Copy and paste or patchwork plagiarism occurs in approximately 2% of student papers

Where an instructor was confronted with a case of student plagiarism, their responses or actions were summarized as follows:

- Plagiarizing student was given the opportunity to take course again (student subsequently expelled when they plagiarized again)
- Plagiarized assignment returned to student and told to re-do and re-submit with directions to get help from library, write site or other student resources
- Student given an opportunity to correct errors in attribution before paper officially graded
- Plagiarism documented and case turned over to Academic Integrity Officer
- Academic Integrity Officer issues a minimum penalty since anything more severe will typically be overturned by the student academic appeals committee

Instructors were also asked about their familiarity with PDS and Turnitin specifically. The following characteristics were identified from the survey data:

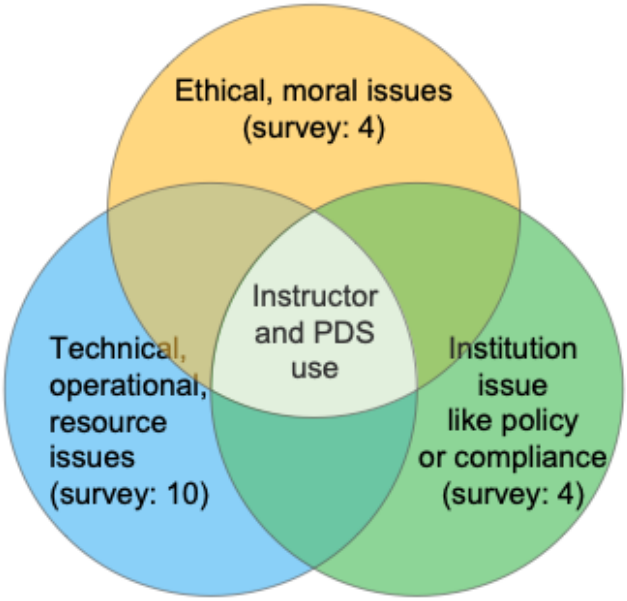
- Previously used PDS (i.e., last 20 years), but rarely use now (Participant 8)
- Tried to use PDS in one course (Participant 10)
- Previously used PDS 14 years ago (Participant 12)
- Used PDS extensively for several years (Participant 14)
- Using Turnitin more now than previously (Participant 15)

Based on the survey data, the majority of instructors had previously used (or tried to use) PDS. What is striking is that only 12.5% of the instructors identified that they are actively using PDS. This adoption rate is generally consistent with the literature review findings where less than 10% of instructors make use of PDS (Ballard, 2013).

**Research Sub-Questions and Survey Results**

The survey explored barriers to PDS use and attempted to help answer the following research sub-questions:

**Figure 9**
*PDS Use Lines of Inquiry With Non-Adoption Reason Survey Counts*




The following statements or remarks were offered by survey participants regarding PDS use and technical issues, operational or resource constraints preventing the use of the software:

- “I find it [PDS] often more trouble than it's worth, offering little more than Google search for identifying suspicious passages but almost always providing countless false positives. The only times I have used it have been for gathering evidence when plagiarism has already been detected, as it makes documentation relatively straightforward. I am a bit bothered when I do that because of the numbers that it tends to put to it tend to be exaggerated and as mentioned, it is incredibly bad at getting rid of false positives." (Participant 8)

- “I have not experienced intentional plagiarism or cheating. Mostly learning opportunities for junior undergrads.” (Participant 9)
- “I received no assistance in its use.” (Participant 10)
- “The university has enacted a strict set of rules around [PDS] use. But the university has not provided any meaningful resources that would allow staff to meet these requirements. So, while use is theoretically possible, it is practically impossible due to management failure. […] It is easier to just ignore PDS and use Google and accept that a certain amount of plagiarism will go undetected.” (Participant 11)
- “I don't know how Turnitin.com works … If I wanted it used, I'd require all the course tutors to use it and explain to students how they could use it as a tool. The tutors and I would need instruction on how to use it effectively, not just as a plagiarism-detector, but as a way to help teach students the art of using evidence, especially paraphrasing.” (Participant 12)
- "I have not found it necessary for graduate students. As well, Turnitin is not integrated into Moodle.” (Participant 13)
- “The university that I currently teach for does not seem to have the ability to embed PDS within the LMS. I have taught at two other universities where instructors had the option to automatically turn this on for all students submitting assignments on the LMS. I like this feature as it shows at a glance that the incidences of probable plagiarism. My university could definitely be doing a lot more to make better use of PDS.” (Participant 14)

- "Another reason I don't use Turnitin … is that I don't like the feature that lists the other universities that also have overlapping text with that of my student. This is pretty useless. It makes using Turnitin that much more work." (Participant 15)
- "As an instructor I have found it unnecessary [to use PDS] Google usually suffices." (Participant 16)

**Discussion of Survey Results**

Participant 9 would appear to be an outlier or exceptional case lacking the typical plagiarism incidence levels. Equally possible, as the literature suggests, this instructor has failed to identify plagiarism using manual techniques and is thus under-reporting their plagiarism incidence rate. This participant my also exemplify the shield metaphor, taking any plagiarism or attribution error as an opportunity, to create a student-centered learning experience.

Participant 10's and participant 12's remarks are reflected in the literature review and align with the research question concerning operational or resource constraints preventing instructors from utilizing the PDS. This issue is prevalent in the literature where an institution makes PDS available to its instructors (and tutors), however, provides no training or support to ensure the software is consistently used by everyone. The lack of institutional support for PDS is a clear reason for software adoption failure.

Participant 13 and participant 14 both identified issues with PDS software not being integrated into the LMS. The lack of PDS integration with the LMS (i.e., Moodle) appears to be a major operational or technical barrier to the adoption of PDS at this Canadian university.

Participant 15's survey results speak directly to their dislike of Turnitin features and functionality; specifically, that Turnitin's text-matching properties will match all the other papers

that are stored within its massive database, thus listing all other papers from all other universities.

Based on survey data, there were 10 reported technical issues, operational or resource constraints that prevented instructors from using PDS, as illustrated in Figure 9.

***Sub-Question #1 Summary***

The following statements were offered by survey participants regarding PDS use and ethical or moral reasons preventing the use of the software:

- "I object to the companies' approach to use of private student data"; "I … dislike its pre-emptive use that shows total distrust of students and cements a very unhealthy power relationship … "; "… I really dislike the practice of allowing students to run the software on their own work, which penalizes the honest and provides the dishonest with a great tool for tweaking their work so that they avoid detection. For the truly dishonest it offers little or no protection. Students are very familiar with tricks like running it through a translator and back, that fools all of the tools all the time." (Participant 8)
- "If the university doesn't really care about academic integrity to do something about it, why should I get in a twist about it?" (Participant 11)

**Discussion of Sub-Question 1**

Participant 8 had multiple reasons for not adopting PDS including a number of ethical issues as well as technical or operational issues. From the survey data, it is unclear whether the moral or technical issues were the overriding considerations for their non-adoption of PDS.

Participant 11's ethical or moral issues did not involve themselves, but instead with respect to the Canadian university itself. In this context the Canadian university has well-defined

policies and procedures regarding academic misconduct (i.e., including plagiarism). Survey results, however, point to a paradox where the institution has an ethical obligation to enforce academic conduct yet fails to do so in a uniform or consistent manner.

***Sub-Question #2 Summary***

Based on survey data, there were 4 reported ethical or moral reasons preventing instructors from utilizing PDS, as illustrated in Figure 9.

The following statements or remarks were offered by survey participants regarding PDS use and institutional or policy reasons preventing the use of the software:

- “There are issues with compliance with the Plagiarism Detection Technology Policy." (Participant 13)
- "We have been discouraged from using it. The message that has come across is to tell tutors not to use it.” (Participant 15)
- “As an instructor I have found it unnecessary [to use PDS] Google usually suffices.” (Participant 16)

**Discussion of Sub-Question 2**

Participant 11, also based on the literature review, identified an underlying institutional and/or policy disfunction where instructors were incapable of implementing institutional policies or successfully implementing PDS, either due a lack of resources or as suggested here, management failure.

Participant 13 identified issues with complying with official institutional policies regarding PDS (Note: the survey data did not provide elaboration or details concerning this issue).

Participant 15's identified a different barrier to PDS use that was not previously identified in the literature review: an institution that has PDS available but discourages its use.

Participant 16's survey result was reflective of the literature review results, indicating that Google or similar search engines provided the necessary tools for locating phrases that have been plagiarized in student papers, without the need for dedicated PDS software. A common argument cited in the literature is that dedicated, confusing or expensive PDS is not required when any internet search engine is adequate to find passages of plagiarized text.

### *Sub-Question #3 Summary*

Based on survey data, there were 4 reported institutional or policy issues preventing instructors from using PDS, as illustrated in Figure 9.

## Summary of Web-Based Survey Text Responses

To summarize the web-survey results, this Canadian university parallels many of the literature results that report 40%-60% rates of student plagiarism (refer to Figure 5), PSD adoption rates (i.e., 10%), and the use of teaching or training (i.e., shield metaphor) as the principle means of ensuring that students use proper citation methods. Also consistent with literature results, there were a combination of ethical/moral issues, technical/operational and resource issues, and institutional like policy or compliance issues that represent significant adoption barriers to the use of PDS.

The various technical, operational, or resource issues leading to non-adoption of PDS in comparison to ethical/moral or institutional policy related issues are illustrated in Figure 9. The survey results revealed that participants had an equal number of ethical/moral and institutional or policy issues ($n$=4) regarding the non-adoption of PDS, however, the number of technical,

operational or resource issues (*n*=10) represented 55.56% of the total number of issues regarding the non-adoption of PDS.

Based on the web survey data, it can be concluded that technical issues or operational and resource constraints represents a significant barrier to the successful adoption (i.e., use) of PDS at this Canadian university. In addition, there were ethical or moral challenges as well as institutional, policy or compliance issues that pose serious barriers to the use of PDS.

One policy standard that was mentioned only once in the interviews is this Canadian university's prohibition from using software services whose servers are based in the United States. While privacy documentation that includes justifications for collecting personal information is available on the Turnitin.com website, absolute security cannot be guaranteed. (https://help.turnitin.com/Privacy_and_Security/Privacy_and_Security.htm).

**Interview Qualitative Results**

This section reports and interprets the qualitative interview data provided by four participants who volunteered to be interviewed following submitting the web-based survey.

Four participants agreed to in-depth interviews following submission of their web-based surveys. These four also provided [qualitative] text information in the survey. Four recurring themes emerged from the qualitative interview data: workload and compensation, common issues when grading papers, plagiarism indicators, and plagiarism remediation. Comments addressed the three sub-questions.

***Recurring Theme: Workload and Compensation***

The Canadian university compensates instructors and tutors a fixed sum associated with grading course assignments. The implication is that if more work or time is required, for example to use Turnitin PDS, to generate similarity scores and then track down the original

literature or other sources of material, the instructor/tutor would not receive adequate financial compensation for the effort involved, including locating the original source that the student plagiarized.

Within the context of workloads and the effort required to determine if a student has plagiarized, Participants 13 and 15 specifically discussed this topic during their interviews.

- " …faculty have expressed concerns about the amount of time it takes to do a good job … and the payment structures or compensation structures do not allow a great deal of in-depth commitment of time at the undergraduate level to exploring this [plagiarism] so that's absolutely a resource constraint." (Participant 13)
- " … tutors do not get paid for it for their time … with the extra time in doing the work that needs to be done using the [PDS] software especially as I said … you really need to drill down in order to find the original sources." (Participant 15)

Furthermore, if the student were to be formally prosecuted by the university, additional time and effort by the instructor/tutor would be required to bring such a case forward, again without any form of compensation. The university policy stipulates that the instructor "shall provide an alternative method of demonstrating originality" (http://ous.athabascau.ca/policy/academic/plagiarism-detection-technology-policy.pdf), implying that the instructor is not paid for providing the evidentiary proof needed to bring a plagiarism case forward.

### *Recurring Theme: Common Issues When Grading Papers*

Participants were each asked about the kind of common issues they encountered when grading student assignments or other submitted work. Common student assignment or submitted work issues included:

- Does not read instructions or has not addressed what was asked in assignment
- Plagiarism including sections that have been copied and pasted
- Poor writing quality including syntax, grammar, spelling, punctuation
- Poor paraphrasing
- Lack of citations, bibliography issues or attribution errors
- APA style
- English as second language (ESL)
- Structure of arguments and using evidence effectively
- Does not complete assignment or hand it in

***Recurring Theme: Indicators of Suspected Student Plagiarism***

Participants were each asked about the kind of common indicators that would make the instructor concerned about plagiarism when grading student assignments or other submitted work. Common indicators of suspected student plagiarism included:

- Differences in prose, tone, voice, quality of writing or authorship
- Use of assignment aggregator (e.g., course hero)
- Typographical (i.e., font, font size, font background) different due to copy & paste
- Hyperlinks from source (e.g., Wikipedia) due to copy and paste
- Unacknowledged sources or attribution errors including proper use of quotation
- Paraphrasing too closely
- Citation style inconsistencies (e.g., APA, Chicago)
- English as a second language (ESL)

### *Recurring Theme: Remediation When Student Plagiarism Discovered*

Participants were each asked about the kind of remediation approaches or methods when they discover plagiarism when grading student assignments or other submitted work. Of note are participants' statements that they forward violations to the appointed academic integrity officer, whether Dean, Program Director, or other individual in such a role, despite other commentary regarding lack of compensation for time and effort to substantiate suspicions of violation.

Remediation approaches or methods when student plagiarism was discovered, included the following shield paradigm cases, with a theme of returning the paper to the student for correction:

- If minor infraction like forgetting a single citation when quoting, using Microsoft Word's markup to point out and document attribution error. So, the incident becomes a teachable moment (Participant 11)
- If [research] paper does not contain proper citations (i.e., quotation with citation and bibliography), assignment is rejected without penalty
- Errors in attribution are pointed out to student and student allowed to resubmit corrected paper. So, the incident becomes a teachable moment (Participant 12)

Remediation approaches or methods when student plagiarism was discovered, included the following sword paradigm cases, with a theme of forwarding the paper to an academic integrity officer:

- If major infractions like multiple citations are missing and/or the assignment contains plagiarized material, Used Microsoft Word's markup to document the source/URL of

material and passage that was plagiarized. So, the student's assignment is turned over to the academic integrity officer (Participant 11)

- If paper contains more serious plagiarism (i.e., copy & paste) … Issue is raised with the Dean's office / academic integrity officer. So, the student's assignment is turned over to the academic integrity officer (Participant 12)
- Assignment contained plagiarized material (i.e., no citation or reference) Issue forwarded to Program director, following institutional and Faculty policy. So, the student's assignment is turned over to the academic integrity officer (Participant 13)
- If there has been an [academic integrity (i.e., plagiarism)] infraction, the incident is reported to the academic integrity officer. So, the student's assignment is turned over to the academic integrity officer (Participant 15)

### *Research Sub-Questions and Interview Results*

The participant interviews explored barriers to PDS use and attempted to help answer the following research sub-questions:

The following statements or remarks were offered by interview participants regarding PDS use and technical issues, operational or resource constraints preventing the use of the software:

- "Lack of PDS integration with LMS creates a "technical barrier" (Participant 11)
- "Turnitin's similarity reports requires further investigation particularly when the text-matching produces false matches for legitimate quotations, so some expertise is required to interpret the similarity report output." (Participant 11)
- "After a student's paper is uploaded into Turnitin and another instructor asks for a copy of the student's paper, that assignment is not kept or retained by the instructor

and is not retrievable from Turnitin (i.e., “we don’t keep stuff like that”). (Participant 11)

- “Implementing plagiarism detection software for individualized undergraduate courses may be just a bit of … a technical roadblock … that's what I perceive.” (Participant 12)
- “[O]ur university, … has … distance education [--] asynchronous self-paced undergraduate courses [--] without due deadlines and continuous enrolments … I think there have been questions on how plagiarism detection software could be efficiently deployed.” (Participant 12)
- “The option I heard was that individual papers could be uploaded by the instructor if they wanted to check [for plagiarism] and that students have to be able to easily do that [upload to Turnitin] … If the instructors do use plagiarism detection software, the students have to have the first option of checking their work before submitting it themselves, so there's some technical issues which adds to the complexity of marking in our particular environment.” (Participant 12)
- “Our university is not promoting it , so I don't really hear much about the option for using plagiarism detection software … there may be resource issues but I'm not aware of them.” (Participant 12)
- “Yes, especially with [our] online and peculiar structure [i.e., constant intake or stream of undergraduate enrollment] , we have to know how that [PDS] works and the moral imperative of communicating to students that we will be using it. I'm suggesting that we have to use it for every student, not just if we have a suspicion, so

a lot of people will start getting anxious about having another system [i.e., PDS] through which to put a student's paper becomes cumbersome." (Participant 12)

- "I touched on some of the resistance to using it before … I suspect probably the technological challenges would be big for many [instructors] … but for us, I suspect the technical and operational practicalities is the primary reason we're not using it, as otherwise I think we would."
- "This [plagiarism detection software] policy was written to identify [incidents of plagiarism] as the primary use, rather than a punitive use of Turnitin, however, the policies [are] not being enforced for a variety of technical reasons that I don't fully understand. As a result, … instructors can still use it, but I'm not sure I'm not aware that students can use it." (Participant 13)
- "I can't really describe for you what those technical issues where it had something to do with the integration." (Participant 13)
- "So, there's technical issues with respect to the technology is technical issues with respect to policies and procedures or technical issues … the reasons there are technical issues related to training an understanding of the potential of the technology so yes so I'm aware absolutely of some of those issues and I think they fall into those categories." (Participant 13)
- "I think there's a limitation … this would be a resource constraint with respect to the time that our tutors have available for marking. Faculty have expressed concerns about the amount of time it takes to do a good job [i.e., checking for plagiarism using Turnitin]. [The] payment structures [or] compensation structures do not allow a great deal of in-depth commitment of time at the undergraduate level to explor[e] this [i.e.,

student plagiarism in assignments], so that's absolutely a resource constraint. Even at the graduate level … I think a huge amount of time that needs to be invested in helping students write better and so that that would qualify as a resource constraint as well. The other operational [constraints] I see now … would be in operation and training [i.e., of the PDS]." (Participant 13)

- "Like I said before, tutors would use it more if they got paid for their time, so that's a resource issue. The mixed messages from administration may also be a barrier, but I'm not sure that using it is all that great, but they said it's a shortcut for looking into all of these articles [source material that has been plagiarized, possibly using copy & paste]." (Participant 15)

**Discussion of Sub-Question 1**

While none of the reviewed journal articles in this report specifically identified Turnitin (or PDS) integration with a LMS (e.g., Moodle) as a barrier to the use of PDS, it must be acknowledged that a lack of PSD integration with a LMS would result in the need to use two or more systems to complete the submission of student papers. Integration would certainly achieve a streamlined submission process.

Interviewed participants also identified a particular challenge associated with their university's undergraduate programs, where they have an open and continued stream of new students. The challenge here, is that students may wait to the end of the course (i.e., deadline) to submit all of their assignments for grading, providing no opportunity for identification of errors in attribution and allowing the student to make corrections and re-submit assignments.

Instructor (and tutor) workloads was specifically mentioned during the participant interviews. This included the addition burden or work involved in the use of Turnitin and the

need to interpret the provided similarity report. As stated by Löfström and Kupila in *The Instructional Challenges of Student Plagiarism*:

> Teacher guidance was called for in the interpretation of the similarity reports produced by the system. Many students emphasized that the reports needed to be discussed with the teacher in order to avoid misinterpretations; students wanted to clarify things with the teacher so that they would be able to develop their writing and improve their writing skills. (2013, p. 239)

Additionally, there was the over-arching theme that instructors do not receive compensation for any additional work that goes into the grading of a student's assignment when they employ Turnitin and subsequently perform additional investigation or analysis of the similarity report output.

Participants 12 and 13 identified technical, resource (or policy) issues with Turnitin use, but they were not familiar with or chose to not disclose the specific nature of the technical or resource issue(s).

Based on interview data, there were 14 reported technical issues, operational or resource constraints that prevented instructors from using PDS.

The list of the reported technical issues, operational or resource constraints included::

- Integration. No PDS integration with LMS (i.e., Moodle)
- Promotion. University does not promote or encourage PDS adoption and usage
- Workload. PDS use adds to instructor workload
- Compensation. Instructors not compensated for additional time and effort involved with identifying and prosecuting plagiarism

- Manual investigation. PDS text-matching (e.g., similarity report) requires further investigation by instructors to deal with false positive hits.
- PDS instruction. No PDS instruction offered by university
- PDS support. No institutional support or resources to assist instructors in complying with policies and procedures
- Consistent PDS use. No consistency in the application or use of PDS between instructors and tutors grading student papers and across all academic levels and distance learning courses
- Dislike PDS features. Instructor dislike of PDS features and functionality (e.g., lists all University papers with similar text)
- Google easier. It is easier to use Google or another internet search engine over dedicated PDS software to match suspected plagiarized text
- Text-match only. PDS (e.g., Turnitin) can text match [only] but not detect the wide range of plagiarism scenarios (e.g.,
- Prosecuted. Operationally, many students will seek reduction or mitigation of stiff penalties when they appeal their plagiarism prosecution
- Intake stream. Undergraduate courses with a perpetual intake stream presents unique operational or technical challenges (e.g., cannot always grade student paper and have them re-submit)
- Other. Any other technical, operation or resource constraint that did not fit into the aforementioned areas

The following statements or remarks were offered by interview participants regarding PDS use and ethical or moral reasons preventing the use of the software:

- "There are several facets related to instructor principles associated with the use of plagiarism detection software such as Turnitin. Firstly, the PDS is owned by a for-profit company where a student's paper is submitted, and their paper becomes part of the PDS database. Secondly, Turnitin gets the university to force students to turn over their intellectual property (IP) as part of the paper submission process. Thirdly, there is the issue of privacy, especially by the United States by agencies such as the CIA and NSA or other agencies performing surveillance under the Patriot Act." (Participant 11)
- "Morally, there needs to be a balance of public good, given threats to academic integrity posed by students". Given the "rampant cheating" is balanced out by the use of plagiarism detection software and "is the right thing to do." (Participant 11)
- "I don't think it's immoral to check for cheating … would-be plagiarists have quite an arsenal of technology that they can deploy to cheat the University, to cheat other students, and to cheat themselves and I think a tool like this is not immoral. It's no more moral than me searching … Google for passages it's basically doing the same thing on an automated and faster scale." (Participant 12)
- "I don't buy the morality arguments of filtering student's papers. The morale out of there may be a moral problem if you're asking all students to slip their paper into a plagiarism detection machine they may feel that plagiarism is therefore so normal, but maybe they should be actually doing it this process and move the onus. Others may come to think falsely that the machine can do their work for them but they will just

hammer something out and then see if the machine accepts it or not and which is not the case either the student is ultimately morally responsible for what is submitted for credit so there are moral and morale issues with big plagiarism detection software deployments it's convenient but it may send out the wrong message to students." (Participant 12)

- "I touched on some of the resistance to using it to before … for others there's what they perceived to be some of the moral issues of using a plagiarism detection is repellent for them …" (Participant 12)
- "Yeah, I understand that perspective. I don't think it's the way I orient myself. I think that as an instructor our moral responsibility is to help students do the very best job they can and if … they deserve to be caught or they deserve to be supported in their learning, so I that's not the direction I would go, although I understand it." (Participant 13)
- "I don't think that it's an invasion of privacy. I think what I need to know that they [i.e., the students] need to follow the rules … I really don't think it's it is a big moral issue to be honest. I don't think it's a big invasion of privacy. (Participant 15)

**Discussion of Sub-Question 2**

When the interviewed participants were asked about the ethics and morality surrounding plagiarism. The semi-directed questions focused on ethical or moral reasons that might affect the non-use of PDS, such as Turnitin.

While there was recognition of potential issues such as loss of student intellectual property when submitting a paper into Turnitin, submitting papers to a for-profit private company, or the prospect of submitted papers undergoing surveillance or being monitored by

agencies such as the CIA or NSA [referring to the USA Patriot Act], the participants did not indicate that any of these potential issues would serve as barriers to the use of Turnitin PDS.

Statements made by the interviewed participants suggested that a moral imperative existed with university instructors that reinforced the need to implement and utilize PDS or text-matching tools in a bid to keep the occurrence of attribution errors at the university level in-check, given the acknowledged existence of plagiarism at this Canadian university.

The following statements or remarks were offered by interview participants regarding PDS use and institutional or policy reasons preventing the use of the software.

- Compliance with the [institutional] PDS policy is a challenge (Participant 11)
- Instructors must "manufacture or prepare" other ways for students to demonstrate intellectual integrity [if they plagiarize and the matter is raised with the integrity officer] (Participant 11)
- There is no compensation for the time spent using PDS including working on the similarity report. It is easier to use Google for "stuff that looks suspicious" rather than using PDS software (Participant 11)
- "I don't know if any of my colleagues employ Turnitin for their courses. I've heard that they can [and] the option of … manually uploading assignments. I don't use it [i.e., Turnitin] because the policy is unclear; how practical it is unclear to me. [Instead] I [have] pursued developing better instructional design with my courses rather than trying to fix the other end [i.e., using Turnitin], so there may be these technical problems [that are] very peculiar to our University but I don't know … I haven't pursued it." (Participant 12)

- “In my courses I'm not the only marker, so I would have to ensure that my other markers are using the software consistently and fairly and using it as a pedagogical tool that they know what they're doing so all of those were obstacles for me to investigate further – [the] use of plagiarism detective detection software.” (Participant 12)
- “This [plagiarism detection software] policy was written to identify [incidents of plagiarism] as the primary use, rather than a punitive use of Turnitin, however, the policies [are] not being enforced for a variety of technical reasons that I don't fully understand. As a result, … instructors can still use it, but I'm not sure I'm not aware that students can use it.” (Participant 13)
- “The message that we have gotten from the institution is that we should not use it [Turnitin, plagiarism detection software]. And so, you're interested in barriers that's a big barrier I mean were told not to use it, so we don't … a lot of people don't that there are number of reasons behind that decision and the message that the tutors and faculty [don’t use it]. First of all, they're worried about the American … Patriot Act … so they don't want our students papers up on USA servers.” (Participant 15)
- There are also ethical issues about students not agreeing to having their papers used in any other way [i.e., appropriating intellectual property or used by a for-profit company like Turnitin]. So, putting them into Turnitin or a plagiarism detection software platform is unethical. (Participant 15)
- “I know there are other issues about it [i.e., using Turnitin], creating a negative atmosphere -- that instructors use it -- automatically suggests that were not trusting

our students that we think that they're going to cheat and creates a conflict … not a good bond between the instructors and students." (Participant 15)

- "A lot of it [is] very time-consuming and … tutors do not get paid for it. With the extra time in doing the work that needs to be done using the software especially as I said -- you really need to drill down in order to find the original sources sometimes you get just as much luck throwing pieces of the students work into Google. I think a lot of instructors … yeah just want to bother but I think the idea that there some sort of bias against using it [Turnitin, PDS] from instructors would be incorrect. I think it's the policy is unclear, people's thoughts about it are unclear so it's difficult for the administration too. I guess promote the idea of using plagiarism detection it is really word-matching software and is not sufficient in it in itself, but it is not well known around the university that we have access to a and it not even sure how people would go about getting it now." (Participant 15)
- "I think the policy is that we need to let students know that we might be using it [i.e., Turnitin plagiarism detection software] in which case they [students] know. [Students] could withdraw from the course, I suppose, if they don't like [PDS], but they're supposed to know that this might be an issue." (Participant 15)

**Discussion of Sub-Question 3**

When the interviewed participants were asked about the institutional or policy and procedural issues as barriers to the adoption and use of PDS, such as Turnitin, several salient issues were identified.

Consistent with earlier participant remarks, there was the issue of instructor (or tutor) compensation for any additional time and effort required to investigate incidents of suspected

student plagiarism with submitted papers or assignments. It could be argued that people grading student assignments already have to deal with a range of writing issues, so it is unreasonable to expect that they would embark on plagiarism investigations (i.e., with or without the aid of a Turnitin similarity report) each time they encounter a questionable passage found in each student's paper when marking sets of 30 or more submissions at a time.

The use of Google as a text-matching tool as opposed to Turnitin PDS mentioned in university policies or procedures, is another common theme that was revealed with multiple participants, often multiple times during the course of an interview. As Konstantinidis, Theodosiadou, and Pappos in *Plagiarism: Examination of Conceptual Issues and Evaluation of Research Findings on Using Detection Services* states:

> … PDS are neither infallible on detecting plagiarism nor have unlimited searching capacity. Mulcahy and Goodacre (2004) confirmed the assumption that a detection service can detect more plagiarism cases than a marker; yet markers identified some plagiarized papers that slipped from the PDS. Evans (2006) and Carbone (2002) proposed that intuitive Google search is more effective to catch plagiarized text than relying on PDS, since they identified several cases of plagiarism that slipped from the PDS; yet they both did not seem to consider the potential increase of the workload (McKeever, 2006; Mottley, 2004). Woolls (1999) and Bilic-Zulle et al. (2008) acknowledged that they could not detect internet plagiarism when using PDS for collusion detection (i.e., such as WcopyFind). Several other limitations were also documented upon using sophisticated PDS (Atkinson & Yeoh, 2008; Center for educational resources 2006), while Park (2003) exposed a thorny challenge; that of the online paper

> mills, where students can buy even customized papers. Therefore, the precise implementation of PDS in real-world settings plays a major role in their effectiveness (Badge & Scott, 2009).” (2013, p. 216).

The student-instructor relationship or teaching dynamic was also raised as a possible institutional issue.

As Vie in *A Pedagogy of Resistance Toward Plagiarism Detection Technologies* described, any instructor-student relationship could be adversely affected by imparting an institutional message of implied dishonesty or mistrust of student authorship:

> … instructors may worry specifically about the effect of plagiarism detection services on the student writers themselves. If we as writing teachers work hard to build and support a community of writers in our classrooms, what happens when we introduce a technology like Turnitin? After all, plagiarism detection tools seem to imply a message of “guilty until proven innocent,” assuming that students are likely to plagiarize, and our goal is to catch them. As the CCCC-IP Caucus (2006) recommendation statement on academic integrity and plagiarism detection services noted, these services can create an atmosphere of mistrust in the classroom and can violate students’ privacy and intellectual property rights.“ (2013, p. 5)

***Sub-Question #3 Conclusion***

Based on the information provided during the participant interviews, the institution has succeeded in creating a paradox with respect to its PDS use (via its policies) and the ability for teaching staff to implement and utilize the software on a consistent and uniform basis. There are a number of readily identified contradictions. The first has to do with the use of PDS being

challenged by the student and the need of the instructor to provide alternative ways for the student "demonstrating originality". Secondly, both the policy and procedure make several respective references to staff training, however, based on the conducted interviews, no such training has been made available to the research study participants. There is similar mention of the PDS, or plagiarism detection technology (PDT) being made available to students; based on my time enrolled in the university's master's program, I have never been afforded an opportunity to utilize any PDS or PDT.

## Convergent and Divergent Results

### *Convergence*

Pursuant to the trio of research sub-questions – what are the technical issues, operational or resource constraints preventing instructors from using PDS?, what are the institutional or policy issues preventing instructors from using PDS?, and what are the ethical or moral reasons preventing instructors from utilizing PDS? – the qualitative interview results converged or strongly agreed with the qualitative remarks submitted by survey participants. The ranked order of the adoption barriers to PDS use remained the same: #1 technical issues, #2 institutional issues, and #3 ethical issues.

Qualitative interview results also converged with the literature, reviewed in this study. Participants described incidents of student plagiarism that paralleled those reported in the literature. Instructor views and opinions regarding plagiarism and PDS (i.e., adoption barriers) also mirrored many of those detailed in the literature. Examples included the added cost and burden placed on instructors to produce evidentiary proof of student plagiarism, or the failings of the university to prosecute and adequately punish overt and repeated plagiarists.

A joint table, as illustrated in Table 2, combines the two qualitative sets of data from the survey and interviews. Totals reflect the number of unique or discrete adoption barrier issues participants detailed within the web-based survey and during their respective interviews.

**Table 2**
*Thesis Sub-Question Identified Issues With PDS use*

| **Thesis Sub-Question PDS Use Issue** | **Survey Results** | | **Interview Participant** | | | | **Interview Results** | |
|---|---|---|---|---|---|---|---|---|
| | **Total Issues** | **Percentage of total** | **11** | **12** | **13** | **15** | **Total Issues** | **Percentage Of total (*)** |
| Technical, operational, or resource issue | 10 | 55.56 | 3 | 6 | 4 | 1 | 14 | 43.75 |
| Institutional or policy issue | 4 | 22.22 | 3 | 2 | 1 | 5 | 11 | 34.38 |
| Ethical or moral issue | 4 | 22.22 | 2 | 3 | 1 | 1 | 7 | 21.87 |

(*) Percentages reflect the number of unique or discrete adoption barrier issues participants detailed within their respective interviews.

Although convergent, the survey and interview data sets produced slightly different totals for reported technical, institutional, and ethical issues as barriers to PDS adoption. The survey platform was conducive for instructors to list adoption barriers while the interview was more structured and it probed or explored specific barriers, thus offering an explanation for greater totals found within survey data and smaller totals found within interview data. Additionally, participants may have described a similar adoption barrier using different phrases or wording within either qualitative data set, however, the total figure only reflected the sum of uniquely described adoption barriers (i.e., research grouped similar issues together). Thus, if a participant repetitively reported similar issues during an interview, the issue total would be proportionately lower. Contrary to the discussed pattern of totals was an increase in reported institutional issues (i.e., 22.22% for survey and 34.38% for interview).

Presumably, the semi-structured interview format provided an environment where instructors could openly detail institutional barriers to PDS use, thus resulting in a higher total for the interview data set.

Convergence was also observed between the survey quantitative data (i.e., demographics and teaching activities) and the information gathered during participant interviews (refer to Appendix D and Appendix F – questions A and B) where the provided information sets agreed with each other.

***Divergence***

Although survey and interview qualitative results produced nearly identical percentages with respect to the ethical and moral issues at 22.22% and 21.87% respectfully, a closer review of the data reveals divergence.

The reviewed literature reported a wide range of ethical and moral dilemma issues for instructors adopting and using PDS. This was not evidenced by the interviewed participants. In fact, it could be stated that none of these instructors had ethical or moral barriers that would deter them from using PDS.

One interesting divergent point raised in the data was the institutions or university's ethical or moral obligation to eliminate plagiarism. While this point is interesting, the focus of this study was exploring instructor adoption barriers to PDS use and did not look at institutional ethics.

# Chapter 5: Conclusions and Recommendations

## Discussion

The sword-shield paradigm used in the literature review provided a useful segue to a discussion of the results of this research study.

To the foundational question of whether plagiarism occurs at this Canadian university, results of the study affirm that plagiarism does occur. While this study made no attempt to quantify rates of plagiarism, at least 50% of the participants interviewed could recall a specific case of student plagiarism. This 'rate' of plagiarism agrees with the literature review results (refer to Figure 5).

To the question of the Canadian university being combat ready (i.e., ready to use PDS as a sword or shield), the web survey and subsequent interviews indicate mixed results.

Institutional readiness successfully begins at this Canadian university with various student policies and procedures regarding academic misconduct and more specific ones regarding plagiarism and PDS such as Turnitin. The institution also has various training [modules] or distance learning content that teach students proper research and citing practices. There are additional supports available such as library resources to aid students when researching and authoring papers. Additionally, readiness can come in the form of pedagogically designed distance education courses that have been created to make plagiarism more difficult (i.e., scaffolding based on research then an annotated bibliography before writing a paper).

This Canadian university, however, is simultaneously not combat ready with respect to dealing with paper mills or course aggregator sites (e.g., course hero) as identified during participant interviews. Two instructors specifically mentioned course aggregators (i.e., course hero) by name as being a source of student papers that are being submitted as original work.

These aggregators are similar to the paper mills and ghostwriting described by Simonson, Smaldino, and Zvacke (2015, p. 160) which was the inspiration for this research to explore plagiarism and PDS adoption. Based on interview remarks, minimal penalties are usual levied against such students according to interviewed participants.

The readiness and/or willingness to use PDS or text-matching search engines (e.g., Google search) as either sword or a shield at this Canadian university in an effort to deal with student plagiarism is conflicted or contradictory, as revealed by both the web survey results and the participant interviews.

At this Canadian university, PDS (i.e., Turnitin) or alternatively relying on text -matching internet search engines (i.e., Goggle), instructors may employ the sword paradigm to penalize students and assign a lower or failing grade when they have repeatedly or seriously plagiarized. In minor cases of plagiarism, the overwhelming trend, based on interview remarks, is to employ the shield paradigm whenever instructors have detected errors in attribution by students. Based on participant remarks, instructors prefer to take errors in attribution and transform the event into a teaching or learning opportunity, pointing out student mistakes and providing instructional feedback. Concurrently, many distance education courses are designed with a pedagogy that allows students to build on previous work such as an annotated bibliography, which makes copy-and-paste plagiarism much more difficult.

From the web survey data and participant interviews, a discussion of the [combat] readiness of the Canadian university gives way to the main research goal of this study -- to explore or investigate the apparent paradoxical contradiction: students plagiarize while enrolled in distance education courses, but instructors do not avail themselves to utilize PDS resources,

even when they are available at Canadian Universities. The corresponding three research sub-questions were as follows:

- What are the technical issues, operational or resource constraints preventing instructors from using PDS?
- What are the ethical or moral reasons preventing instructors from utilizing PDS?
- What are the institutional or policy issues preventing instructors from using PDS?

Based on the web survey data and participant interviews, the biggest challenges to Canadian university instructors in utilizing PDS are a series of technical, operational or resource constraints. Highlights of these issues uncovered during the interviews include:

- Google easier to use than Turnitin, no support or training for the latter
- PDS not integrated or embedded in LMS
- Instructor (or tutor) not compensated for doing more plagiarism investigation of student papers

The next largest challenge to instructors utilizing PDS are a series of institutional or policy constraints. Highlights of these issues identified during the interviews include:

- Implementing and/or complying with PDS policy
- Discouraged from using PDS
- Institutionally, everyone needs to use PDS to have uniformity in grading and policy enforcement/implementation

Based on the participants interviewed, it would appear that there are few or no universal ethical or moral reasons present that would impact the adoption of PDS. One particular interview participant did, however, remark about the ethical and moral obligation of the Canadian

university with respect to preventing student plagiarism (i.e., university should properly educate students how to research and cite references and not allow plagiarists to graduate).

**Conclusions**

In conclusion, this mixed methods research study has found that student plagiarism is occurring at this Canadian university. Although determining or measuring the rate of plagiarism was not within the scope of the study, participant interviews report similar rates of student plagiarism as reported by the literature and previously conducted studies into student plagiarism rates.

This Canadian university is not [combat] ready to deal with student plagiarism. While the institution does possess some of the infrastructure such as policies and/or procedures to deal with academic misconduct, plagiarism, and PDS (i.e., Turnitin), this study has identified a series of undefined/unexplored contradictions that instructors have with respect to complying with use of PDS.

The most profound impact to the readiness of this institution with respect to PDS adoption and use were a number of technical, operational or resource issues that represented 43.75% of the total number of issues regarding the non-adoption of PDS (PDS).. The most significant of these issues included a lack of software training and support for its users as well as instructors being adequately compensated for the time and effort required to evaluate student assignments using Turnitin or other PDS.

A secondary barrier was policy or institutional issues that represented 34.38% of the issues raised or discussed by interviewed participants.

In contrast to the literature review findings regarding moral or ethical barriers to instructor use of PDS, the interviewed participants of this Canadian University did not have

strong ethical barriers, however, interview results identified 21.87% of the issues fell into this category and thus rank it in third place as a barrier to PDS adoption.

**Future Research**

There are a number of opportunities for continued or future research, including the following:

This study was limited to one Canadian University (i.e., case) and its small response rate. Replicating the research but expanding it to include multiple Canadian Universities or cases could be done in the future thereby increasing the population size and improving survey response rates.

Subsequent research could probe deeper into the nature of the institutional policies and procedures regarding PDS (e.g., Turnitin) and the lack of instructor adoption. This research should achieve a comprehensive understanding of the nature of institutional policy-procedure issues.

A closer exploration of the specific technical and other challenges that this study has identified as PDS (e.g., Turnitin) adoption barriers and propose possible remediation or solutions to overcome challenges.

Expand the mixed methods research to include PDS policy creators or contributors as a focus group that can be interviewed and include this as part of the qualitative study data.

Interestingly enough, a number of published papers, for example Shirindza (2015); Baugh, Hallcom, and Harris (2011); as well as Duncan and Zeng (nd) have used ATLAS.ti to assist in their respective FFA qualitative analysis of study data. With a larger pool of participants. future research could include FFA using ATLAS.ti to better understand PDS adoption barriers as restraining forces with future research

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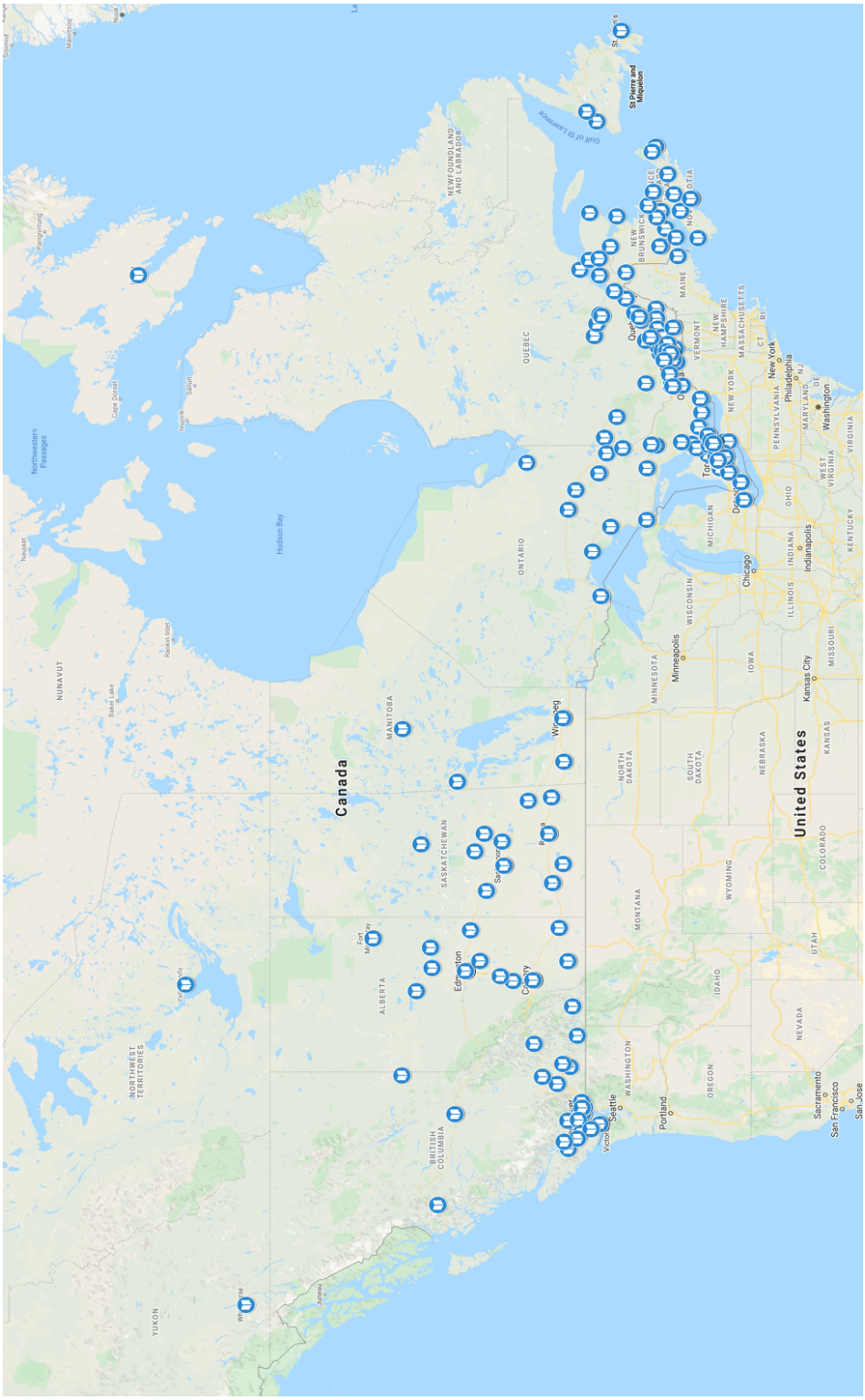
## Appendix A: Geographical Distribution of DE Universities in Canada




Source: 2019 Canadian National Online and Digital Education Survey. Geoplot data compiled by Colin Sim. Mapping provided by Google Maps.
*https://www.google.com/earth/outreach/learn/visualize-your-data-on-a-custom-map-using-google-my-maps/#importdata*

## Appendix B: Invitation to Participate in Research Study Email

### INVITATION TO PARTICIPATE

ACADEMIC MISCONDUCT AT A CANADIAN UNIVERSITY: INSTRUCTOR ADOPTION CHALLENGES AND BARRIERS TO PLAGIARISM DETECTION SOFTWARE

03 May 2020

**Principal Researcher:** Colin Sim, mddethesis@outlook.com
**Supervisor:** Cynthia Blodgett-Griffin; cynthiablodgettau@gmail.com

My name is Colin Sim and I am a master's in distance education student at Athabasca University. As a requirement to complete my degree, I am conducting a research project about plagiarism as an ongoing issue and concern within university distance education programs. Although plagiarism detection software (PDS) like Turnitin is available to an institution, its use has not been widely adopted by instructors. This raises the salient question: why is this the case? I am conducting this project under the supervision of Cynthia Blodgett-Griffin.

I invite you to participate in this project because a literature review reveals a gap in our current knowledge and understanding as to why distance education instructors do not adopt plagiarism detection software, when it is readily available from various Canadian Universities.

The purpose of this research project is to explore plagiarism detection software adoption barriers including, what are the technical issues or reasons preventing instructors from using available software and what are the ethical or moral reasons preventing instructors from utilizing the software.

Your participation in this project would involve a 30-minute anonymous web-based survey and for those who volunteer, a 60-minute audio-recorded personal interview that explores plagiarism detection software adoption barriers.

Involvement in this study is entirely voluntary and you may refuse to answer any questions or to share information that you are not comfortable sharing. You may withdraw from the study at any time during the data collection period. For the survey, you can close the web browser at any point prior to clicking the *Submit* button to withdraw from the study. Given the anonymous design of the survey, participant survey data cannot be removed once it has been submitted.

Interviews are only arranged with volunteers; you can withdraw from this part of the study up to the point where the interview is concluded. Interview materials collected up to that point will be disposed of when the participant chooses to withdraw.

The research study involves transcribed interviews. Given the subject nature of the research, participant confidentiality and/or anonymity is of paramount importance. To this end, transcripts will not be provided to participants for their review (i.e., member check).

This research will benefit Canadian Universities offering distance education by contributing to the existing pool of distance education, creating a greater awareness or understanding of plagiarism detection barriers and assist those in similar situation in the future through knowledge gained. I do not anticipate you will face any risks as a result of participating in this

research. The potential risks to participants is considered minimal given the anonymous nature of the survey and the measures in place to safeguard confidentiality.

Thank you for considering this invitation. If you have any questions or would like more information, please contact me, (the principal investigator) by e-mail mddethesis@outlook.com or my supervisor at cynthiablodgettau@gmail.com.

Thank you.

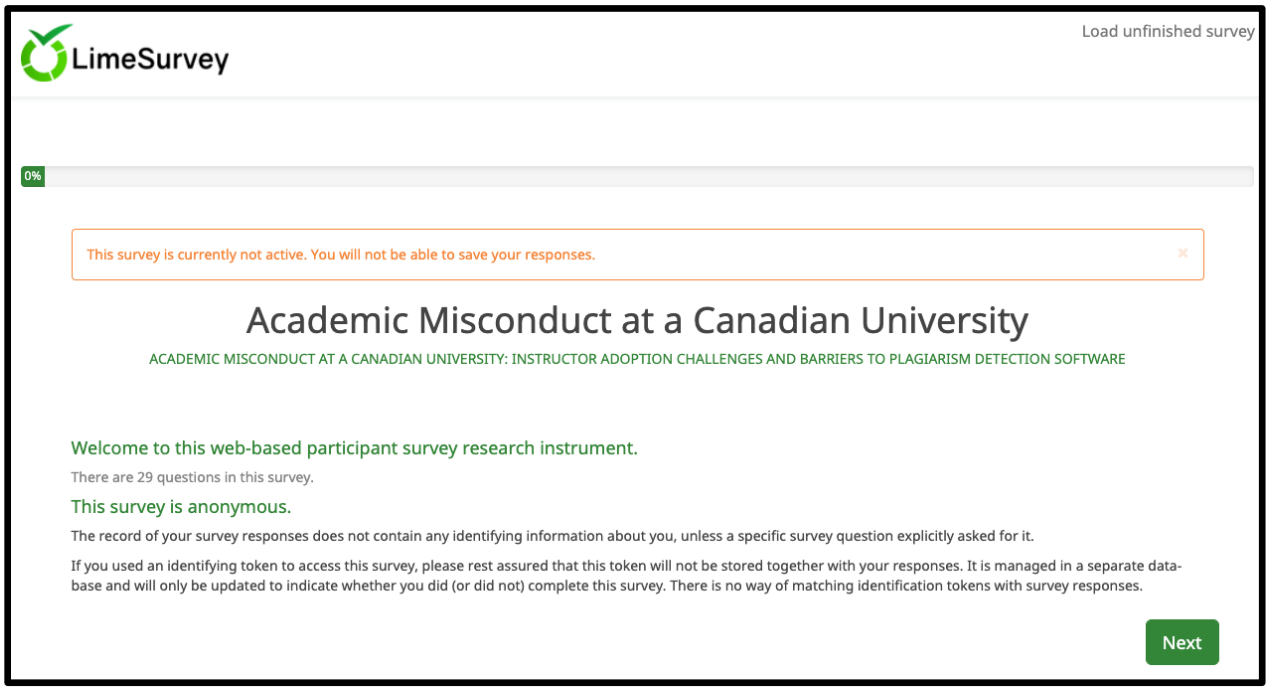
Colin Sim

**This project has been reviewed by the Athabasca University Research Ethics Board. Should you have any comments or concerns regarding your treatment as a participant in this project, please contact the Research Ethics Office by e-mail at rebsec@athabascau.ca or by telephone at 1-800-788-9041, ext. 6718.**

## Appendix C: Survey Instrument Using LimeSurvey

This appendix contains:

- Screenshots of the actual survey instrument using its native formatting in LimeSurvey, representing what study participants viewed.
- Text-based version of the same survey questions, provided after each screenshot, to aid in readability and also to provide screen-readers content for the visually impaired.
    - Light grey text contains question logic, but it was not displayed to participants.
    - Green text represents displayed question 'hint' information for participants.
    - Some questions are deterministic; they will only appear based on prior survey inputs.
    - Question numbers containing an asterix (e.g., ( #*)) identifies the question as mandatory, so input was required from the participant and could not be left blank.

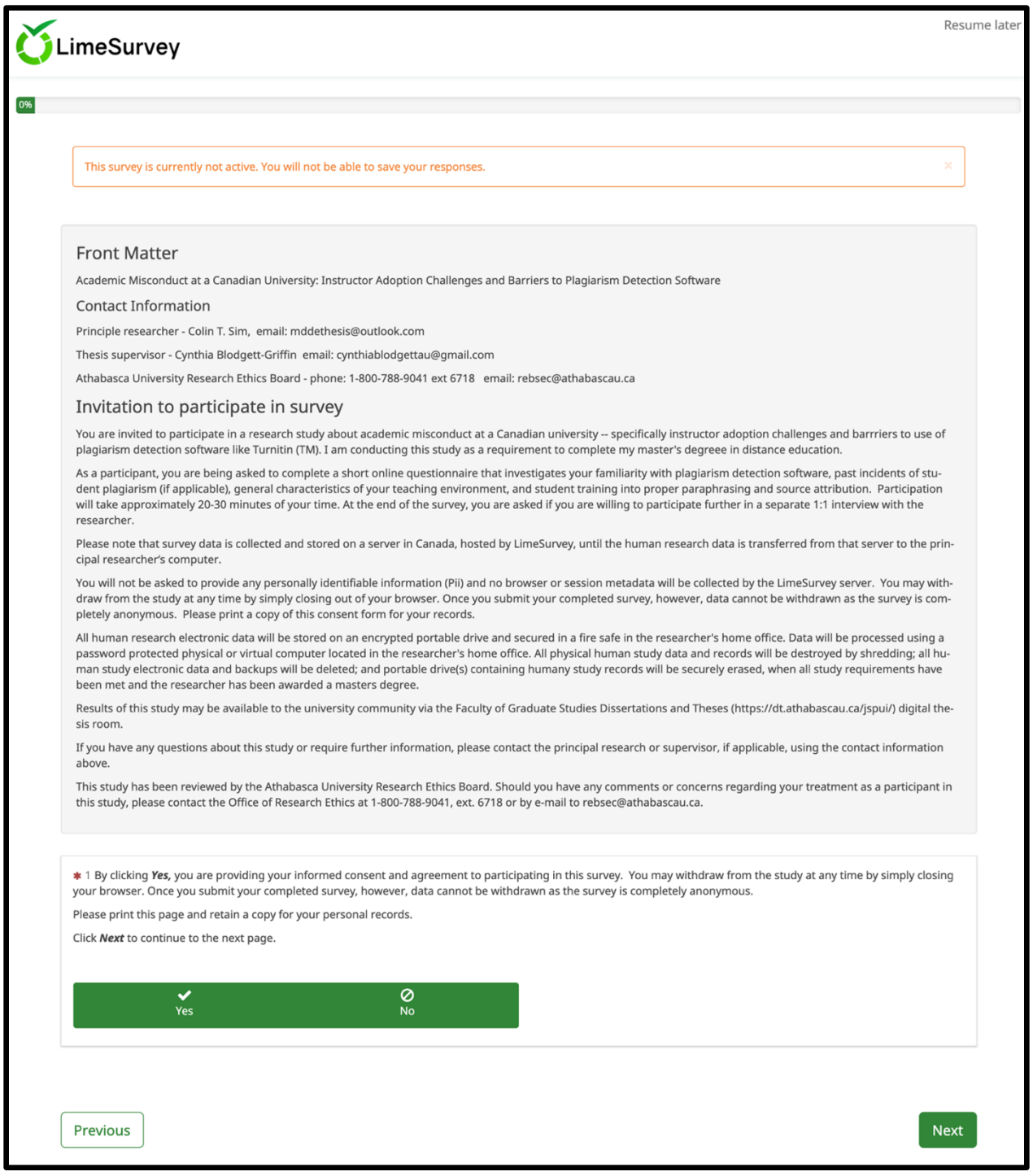



Academic Misconduct at a Canadian University

ACADEMIC MISCONDUCT AT A CANADIAN UNIVERSITY: INSTRUCTOR ADOPTION CHALLENGES AND BARRIERS TO PLAGIARISM DETECTION SOFTWARE

Welcome to this web-based participant survey research instrument.

There are 28 questions in this survey.


LimeSurvey
Resume later
0%
This survey is currently not active. You will not be able to save your responses.
Front Matter
Academic Misconduct at a Canadian University: Instructor Adoption Challenges and Barriers to Plagiarism Detection Software
Contact Information
Principle researcher - Colin T. Sim, email: mddethesis@outlook.com
Thesis supervisor - Cynthia Blodgett-Griffin email: cynthiablodgettau@gmail.com
Athabasca University Research Ethics Board - phone: 1-800-788-9041 ext 6718 email: rebsec@athabascau.ca
Invitation to participate in survey
You are invited to participate in a research study about academic misconduct at a Canadian university -- specifically instructor adoption challenges and barrriers to use of plagiarism detection software like Turnitin (TM). I am conducting this study as a requirement to complete my master's degreee in distance education.
As a participant, you are being asked to complete a short online questionnaire that investigates your familiarity with plagiarism detection software, past incidents of student plagiarism (if applicable), general characteristics of your teaching environment, and student training into proper paraphrasing and source attribution. Participation will take approximately 20-30 minutes of your time. At the end of the survey, you are asked if you are willing to participate further in a separate 1:1 interview with the researcher.
Please note that survey data is collected and stored on a server in Canada, hosted by LimeSurvey, until the human research data is transferred from that server to the principal researcher's computer.
You will not be asked to provide any personally identifiable information (Pii) and no browser or session metadata will be collected by the LimeSurvey server. You may withdraw from the study at any time by simply closing out of your browser. Once you submit your completed survey, however, data cannot be withdrawn as the survey is completely anonymous. Please print a copy of this consent form for your records.
All human research electronic data will be stored on an encrypted portable drive and secured in a fire safe in the researcher's home office. Data will be processed using a password protected physical or virtual computer located in the researcher's home office. All physical human study data and records will be destroyed by shredding; all human study electronic data and backups will be deleted; and portable drive(s) containing humany study records will be securely erased, when all study requirements have been met and the researcher has been awarded a masters degree.
Results of this study may be available to the university community via the Faculty of Graduate Studies Dissertations and Theses (https://dt.athabascau.ca/jspui/) digital thesis room.
If you have any questions about this study or require further information, please contact the principal research or supervisor, if applicable, using the contact information above.
This study has been reviewed by the Athabasca University Research Ethics Board. Should you have any comments or concerns regarding your treatment as a participant in this study, please contact the Office of Research Ethics at 1-800-788-9041, ext. 6718 or by e-mail to rebsec@athabascau.ca.
* 1 By clicking Yes, you are providing your informed consent and agreement to participating in this survey. You may withdraw from the study at any time by simply closing your browser. Once you submit your completed survey, however, data cannot be withdrawn as the survey is completely anonymous.
Please print this page and retain a copy for your personal records.
Click Next to continue to the next page.
Yes
No
Previous
Next

**Front Matter**

Academic Misconduct at a Canadian University: Instructor Adoption Challenges and Barriers to Plagiarism Detection Software

Contact Information

Principle researcher - Colin T. Sim, email: mddethesis@outlook.com
Thesis supervisor - Cynthia Blodgett-Griffin email: cynthiablodgettau@gmail.com
Athabasca University Research Ethics Board - phone: 1-800-788-9041 ext 6718 email: rebsec@athabascau.ca

Invitation to participate in survey

You are invited to participate in a research study about academic misconduct at a Canadian university -- specifically instructor adoption challenges and barriers to use of plagiarism detection software like Turnitin (TM). I am conducting this study as a requirement to complete my master's degree in distance education.

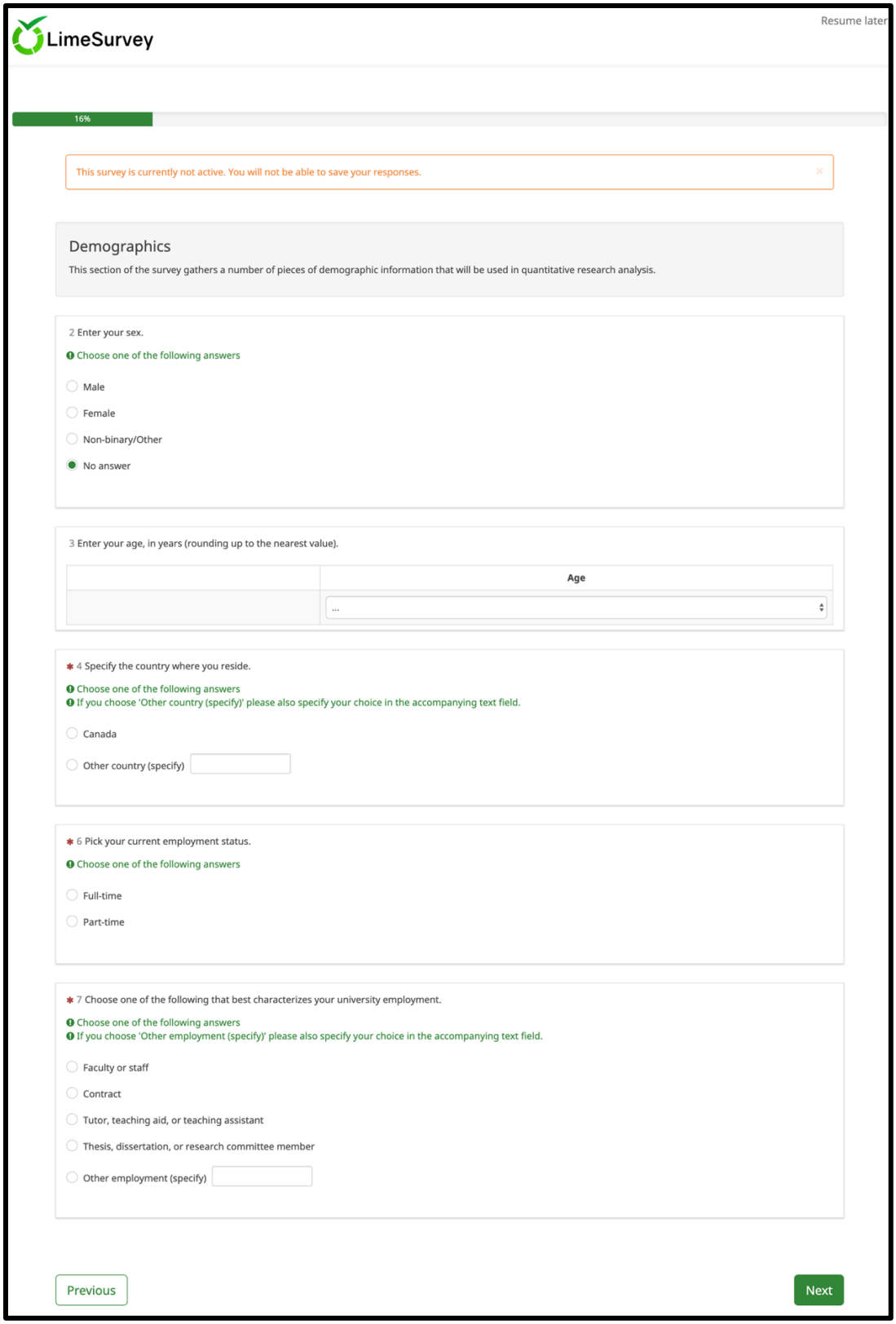
As a participant, you are being asked to complete a short online questionnaire that investigates your familiarity with plagiarism detection software, past incidents of student plagiarism (if applicable), general characteristics of your teaching environment, and student training into proper paraphrasing and source attribution. Participation will take approximately 20-30 minutes of your time. At the end of the survey, you are asked if you are willing to participate further in a separate 1:1 interview with the researcher.
Please note that survey data is collected and stored on a server in Canada, hosted by LimeSurvey, until the human research data is transferred from that server to the principal researcher's computer.

You will not be asked to provide any personally identifiable information (Pii) and no browser or session metadata will be collected by the LimeSurvey server. You may withdraw from the study at any time by simply closing out of your browser. Once you submit your completed survey, however, data cannot be withdrawn as the survey is completely anonymous. Please print a copy of this consent form for your records.
All human research electronic data will be stored on an encrypted portable drive and secured in a fire safe in the researcher's home office. Data will be processed using a password protected physical or virtual computer located in the researcher's home office. All physical human study data and records will be destroyed by shredding; all human study electronic data and backups will be deleted; and portable drive(s) containing human study records will be securely erased, when all study requirements have been met and the researcher has been awarded a master's degree.

Results of this study may be available to the university community via the Faculty of Graduate Studies Dissertations and Theses (https://dt.athabascau.ca/jspui/) digital thesis room.

If you have any questions about this study or require further information, please contact the principal research or supervisor, if applicable, using the contact information above.
This study has been reviewed by the Athabasca University Research Ethics Board. Should you have any comments or concerns regarding your treatment as a participant in this study, please contact the Office of Research Ethics at 1-800-788-9041, ext. 6718 or by e-mail to rebsec@athabascau.ca.

( 1 ) By clicking ***Yes,*** you are providing your informed consent and agreement to participating in this survey. You may withdraw from the study at any time by simply closing your browser. Once you submit your completed survey, however, data cannot be withdrawn as the survey is completely anonymous.
Please print this page and retain a copy for your personal records.
Click ***Next*** to continue to the next page.
Yes / No


LimeSurvey
Resume later
16%
This survey is currently not active. You will not be able to save your responses.
Demographics
This section of the survey gathers a number of pieces of demographic information that will be used in quantitative research analysis.
2 Enter your sex.
Choose one of the following answers
Male
Female
Non-binary/Other
No answer
3 Enter your age, in years (rounding up to the nearest value).
Age
...
* 4 Specify the country where you reside.
Choose one of the following answers
If you choose 'Other country (specify)' please also specify your choice in the accompanying text field.
Canada
Other country (specify)
* 6 Pick your current employment status.
Choose one of the following answers
Full-time
Part-time
* 7 Choose one of the following that best characterizes your university employment.
Choose one of the following answers
If you choose 'Other employment (specify)' please also specify your choice in the accompanying text field.
Faculty or staff
Contract
Tutor, teaching aid, or teaching assistant
Thesis, dissertation, or research committee member
Other employment (specify)
Previous
Next

**Demographics**

This section of the survey gathers a number of pieces of demographic information that will be used in quantitative research analysis.

( 2 ) Enter your sex.
(!) Choose one of the following answers
Male
Female
Non-binary/Other
No answer

( 3 ) Enter your age, in years (rounding up to the nearest value).
{20-100 increments of 5}

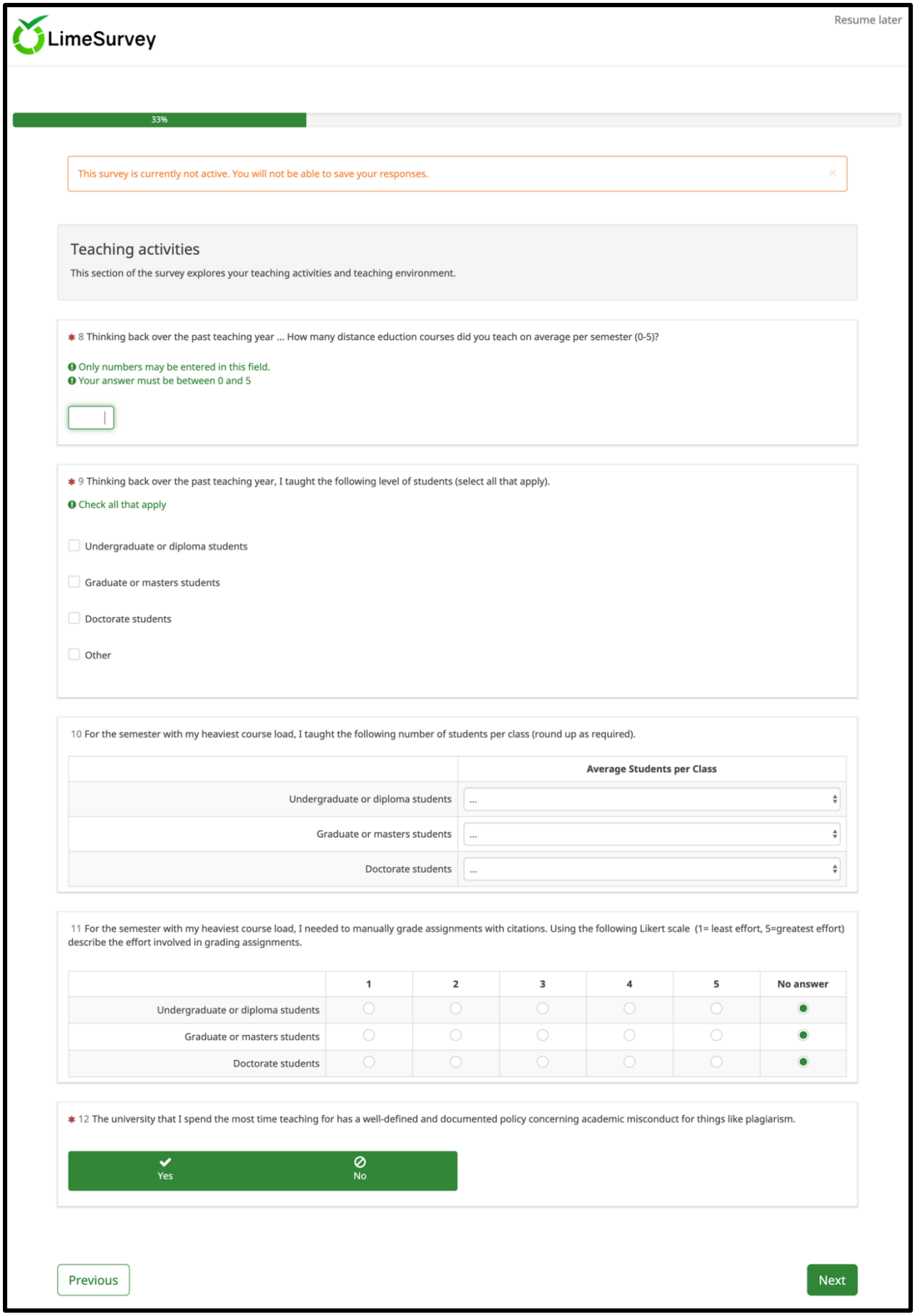
( 4* ) Specify the country where you reside.
(!) Choose one of the following answers
(!) If you choose 'Other country (specify)' please also specify your choice in the accompanying text field.
Canada
Other country (specify)

( 5* ) Pick your province of residence.
Only answer this question if the following conditions are met:
Answer was 'Canada' at question '6 [Country]' (Specify the country where you reside.)
(!) Choose one of the following answers
Alberta
British Columbia
Manitoba
New Brunswick
Newfoundland and Labrador
Nova Scotia
Ontario
Prince Edward Island
Quebec
Saskatchewan
Northwest Territories
Nunavut
Yukon
Decline to answer

( 6* ) Pick your current employment status.
(!) Choose one of the following answers
Full-time
Part-time

( 7* ) Choose one of the following that best characterizes your university employment.

(!) Choose one of the following answers
(!) If you choose 'Other employment (specify)' please also specify your choice in the accompanying text field.
Faculty or staff
Contract
Tutor, teaching aid, or teaching assistant
Thesis / Dissertation / Research committee member
Other employment (specify)



LimeSurvey

Resume later

33%

This survey is currently not active. You will not be able to save your responses.

## Teaching activities

This section of the survey explores your teaching activities and teaching environment.

* 8 Thinking back over the past teaching year ... How many distance eduction courses did you teach on average per semester (0-5)?

Only numbers may be entered in this field.
Your answer must be between 0 and 5

* 9 Thinking back over the past teaching year, I taught the following level of students (select all that apply).

Check all that apply

- [ ] Undergraduate or diploma students
- [ ] Graduate or masters students
- [ ] Doctorate students
- [ ] Other

10 For the semester with my heaviest course load, I taught the following number of students per class (round up as required).

| | Average Students per Class |
|---|---|
| Undergraduate or diploma students | ... |
| Graduate or masters students | ... |
| Doctorate students | ... |

11 For the semester with my heaviest course load, I needed to manually grade assignments with citations. Using the following Likert scale (1= least effort, 5=greatest effort) describe the effort involved in grading assignments.

| | 1 | 2 | 3 | 4 | 5 | No answer |
|---|---|---|---|---|---|---|
| Undergraduate or diploma students | ○ | ○ | ○ | ○ | ○ | ● |
| Graduate or masters students | ○ | ○ | ○ | ○ | ○ | ● |
| Doctorate students | ○ | ○ | ○ | ○ | ○ | ● |

* 12 The university that I spend the most time teaching for has a well-defined and documented policy concerning academic misconduct for things like plagiarism.

Yes | No

Previous

Next

**Teaching activities**

This section of the survey explores your teaching activities and teaching environment.

( 8* ) Thinking back over the past teaching year... How many distance education courses did you teach on average per semester (0-5)?
(!) Only numbers may be entered in this field.
(!) Your answer must be between 0 and 5
{0-100 increments of 10}

( 9* ) Thinking back over the past teaching year, I taught the following level of students (select all that apply).
(!) Check all that apply
Undergraduate or diploma students
Graduate or masters students
Doctorate students
Other

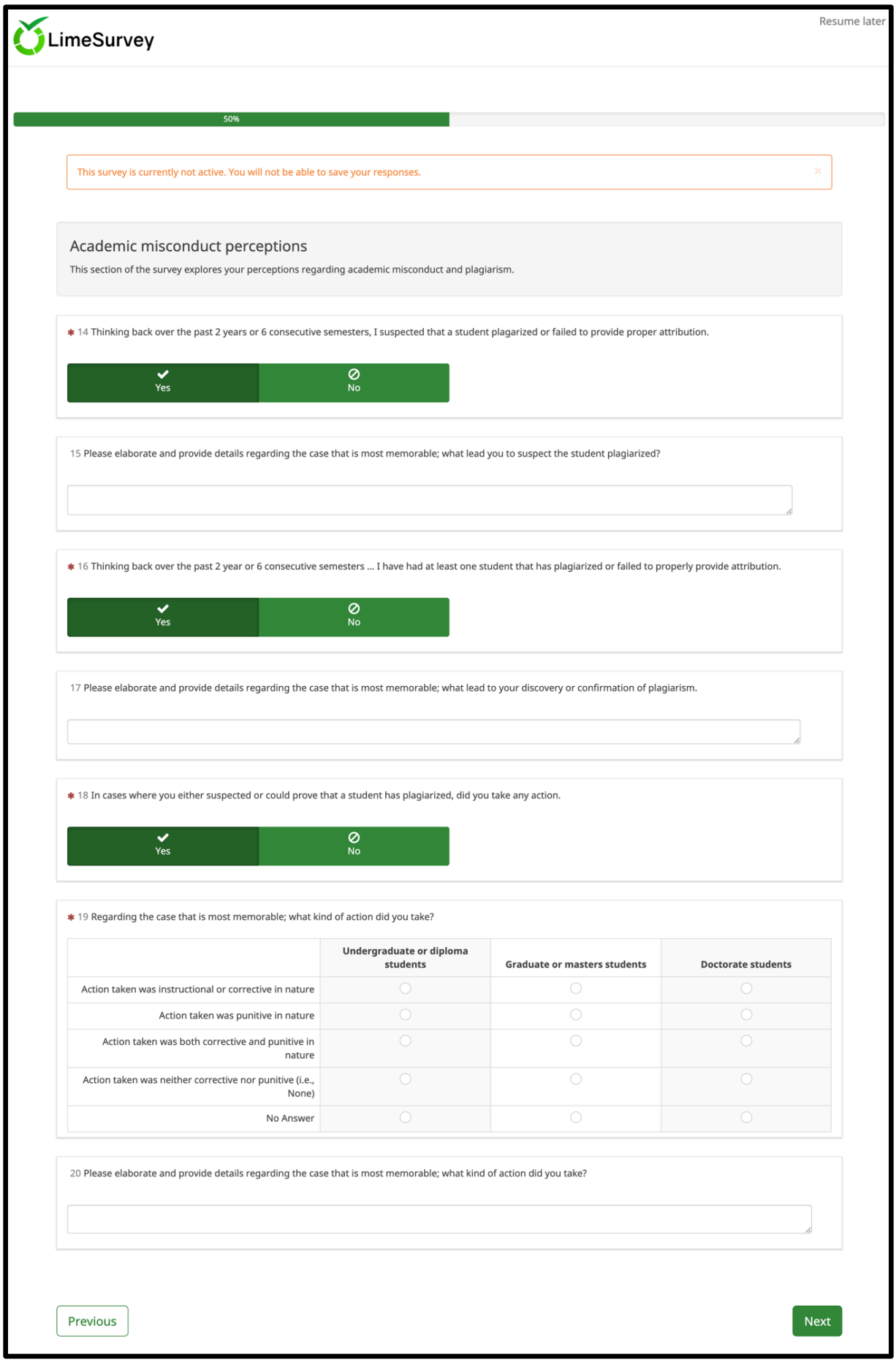
( 10 ) For the semester with my heaviest course load, I taught the following number of students per class (round up as required).

| | **Average Students per Class** |
|---|---|
| **Undergraduate or diploma students** | |
| **Graduate or masters students** | |
| **Doctorate students** | |

( 11 ) For the semester with my heaviest course load, I needed to manually grade assignments with citations.
Using the following Likert scale (1= least effort, 5=greatest effort) describe the effort involved in grading assignments.

| | **1** | **2** | **3** | **4** | **5** | **No answer** |
|---|---|---|---|---|---|---|
| **Undergraduate or diploma students** | | | | | | |
| **Graduate or masters students** | | | | | | |
| **Doctorate students** | | | | | | |

( 12* ) The university that I spend the most time teaching for has a well-defined and documented policy concerning academic misconduct for things like plagiarism.
Please choose **only one** of the following:
Yes
No



LimeSurvey

Resume later

50%

This survey is currently not active. You will not be able to save your responses.

## Academic misconduct perceptions

This section of the survey explores your perceptions regarding academic misconduct and plagiarism.

* 14 Thinking back over the past 2 years or 6 consecutive semesters, I suspected that a student plagarized or failed to provide proper attribution.

Yes | No

15 Please elaborate and provide details regarding the case that is most memorable; what lead you to suspect the student plagiarized?

* 16 Thinking back over the past 2 year or 6 consecutive semesters ... I have had at least one student that has plagiarized or failed to properly provide attribution.

Yes | No

17 Please elaborate and provide details regarding the case that is most memorable; what lead to your discovery or confirmation of plagiarism.

* 18 In cases where you either suspected or could prove that a student has plagiarized, did you take any action.

Yes | No

* 19 Regarding the case that is most memorable; what kind of action did you take?

| | Undergraduate or diploma students | Graduate or masters students | Doctorate students |
|---|---|---|---|
| Action taken was instructional or corrective in nature | ○ | ○ | ○ |
| Action taken was punitive in nature | ○ | ○ | ○ |
| Action taken was both corrective and punitive in nature | ○ | ○ | ○ |
| Action taken was neither corrective nor punitive (i.e., None) | ○ | ○ | ○ |
| No Answer | ○ | ○ | ○ |

20 Please elaborate and provide details regarding the case that is most memorable; what kind of action did you take?

Previous

Next

**Academic misconduct perceptions**

This section of the survey explores your perceptions regarding academic misconduct and plagiarism.

( 13* ) Thinking back over the past 2 years, I suspected that a student plagiarized or failed to provide proper attribution.
Yes
No

( 14 ) Please elaborate and provide details regarding the case that is most memorable; what lead you to suspect the student plagiarized?
Only answer this question if the following conditions are met:
Answer was 'Yes' at question '20 [Incidence]'
(Thinking back over the past 2 years or 6 consecutive semesters, I suspected that a student plagiarized or failed to provide proper attribution.)

( 15* ) Thinking back over the past 2 years … I have had at least one student that has plagiarized or failed to properly provide attribution.
Yes
No

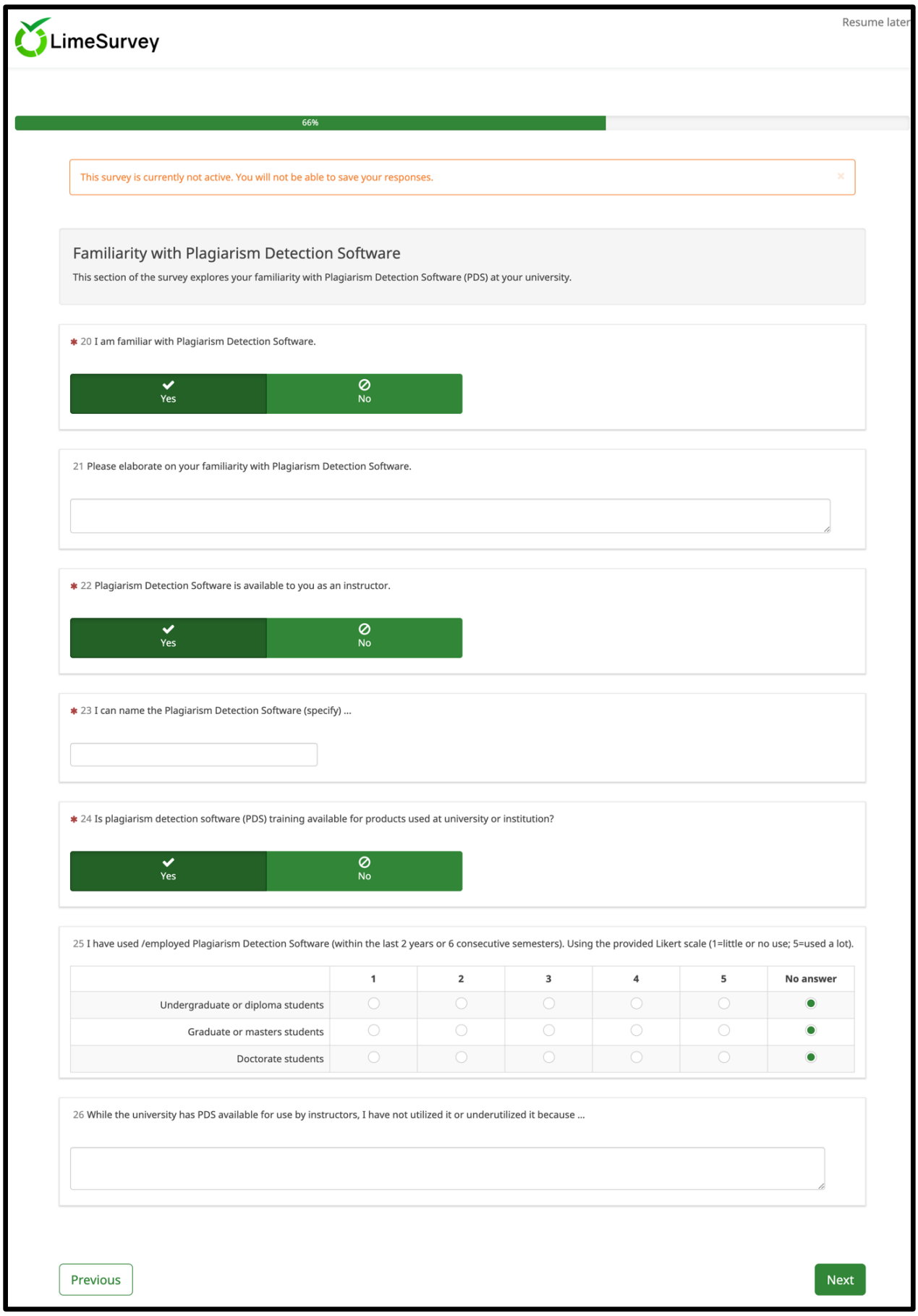
( 16 ) Please elaborate and provide details regarding the case that is most memorable; what lead to your discovery or confirmation of plagiarism.
Only answer this question if the following conditions are met:
Answer was 'Yes' at question '22 [HadPlagiarism]'
(Thinking back over the past 2 year or 6 consecutive semesters … I have had at least one student that has plagiarized or failed to properly provide attribution.)

( 17* ) In cases where you either suspected or could prove that a student has plagiarized, did you take any action. *
Only answer this question if the following conditions are met:
-------- Scenario 1 --------
Answer was 'Yes' at question '20 [Incidence]' (Thinking back over the past 2 years or 6 consecutive semesters, I suspected that a student plagiarized or failed to provide proper attribution.)
-------- or Scenario 2 --------
Answer was 'Yes' at question '22 [HadPlagiarism]' (Thinking back over the past 2 year or 6 consecutive semesters … I have had at least one student that has plagiarized or failed to properly provide attribution.)
Yes
No

( 18* ) Regarding the case that is most memorable; what kind of action did you take?
Please choose the appropriate response for each item:

| | Undergraduate or diploma students | Graduate or masters students | Doctorate students |
|---|---|---|---|
| **Action taken was instructional or corrective in nature** | | | |
| **Action taken was punitive in nature** | | | |
| **Action taken was both corrective and punitive in nature** | | | |
| **Action taken was neither corrective nor punitive (i.e., None)** | | | |
| **No Answer** | | | |

( 19 ) Please elaborate and provide details regarding the case that is most memorable; what kind of action did you take?
Only answer this question if the following conditions are met:
Answer was 'Yes' at question '24 [AnyAction]'
(In cases where you either suspected or could prove that a student has plagiarized, did you take any action.)



LimeSurvey

Resume later

66%

This survey is currently not active. You will not be able to save your responses.

## Familiarity with Plagiarism Detection Software

This section of the survey explores your familiarity with Plagiarism Detection Software (PDS) at your university.

* 20 I am familiar with Plagiarism Detection Software.

Yes | No

21 Please elaborate on your familiarity with Plagiarism Detection Software.

* 22 Plagiarism Detection Software is available to you as an instructor.

Yes | No

* 23 I can name the Plagiarism Detection Software (specify) ...

* 24 Is plagiarism detection software (PDS) training available for products used at university or institution?

Yes | No

25 I have used /employed Plagiarism Detection Software (within the last 2 years or 6 consecutive semesters). Using the provided Likert scale (1=little or no use; 5=used a lot).

| | 1 | 2 | 3 | 4 | 5 | No answer |
|---|---|---|---|---|---|---|
| Undergraduate or diploma students | ○ | ○ | ○ | ○ | ○ | ● |
| Graduate or masters students | ○ | ○ | ○ | ○ | ○ | ● |
| Doctorate students | ○ | ○ | ○ | ○ | ○ | ● |

26 While the university has PDS available for use by instructors, I have not utilized it or underutilized it because ...

Previous

Next

**Familiarity with Plagiarism Detection Software**

This section of the survey explores your familiarity with Plagiarism Detection Software (PDS) at your university.

( 20* ) I am familiar with Plagiarism Detection Software.
Yes
No

( 21 ) Please elaborate on your familiarity with Plagiarism Detection Software.
Only answer this question if the following conditions are met:
Answer was 'Yes' at question '27 [Familiar]' (I am familiar with Plagiarism Detection Software.)

( 22* ) Plagiarism Detection Software is available to you as an instructor.
Only answer this question if the following conditions are met:
Answer was 'Yes' at question '27 [Familiar]' (I am familiar with Plagiarism Detection Software.)
Yes
No

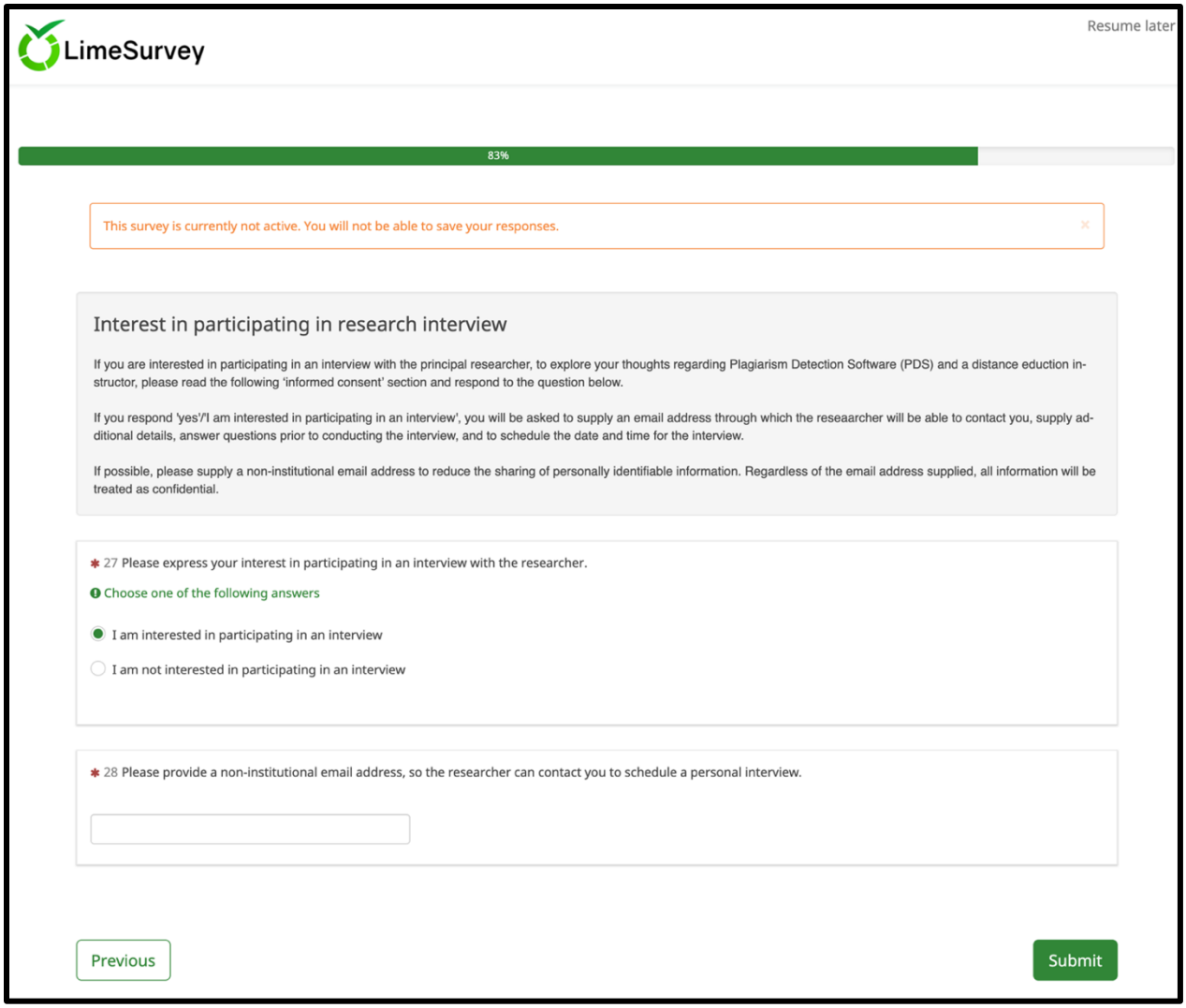
( 23* ) I can name the Plagiarism Detection Software (specify) ... *
Only answer this question if the following conditions are met:
Answer was 'Yes' at question '29 [FamiliarWith]' (Plagiarism Detection Software is available to you as an instructor.)

( 24 ) To your knowledge, is plagiarism detection software (PDS) training available for products used at university or institution?
Yes
No

( 25* ) I have used /employed Plagiarism Detection Software within the last 2 year. Using the provided Likert scale (1=little or no use; 5=used a lot)

| | 1 | 2 | 3 | 4 | 5 | No answer |
|---|---|---|---|---|---|---|
| **Undergraduate or diploma students** | | | | | | |
| **Graduate or masters students** | | | | | | |
| **Doctorate students** | | | | | | |

( 26 ) While the university has PDS available for use by instructors, I have not utilized it or underutilized it because …


LimeSurvey
Resume later
83%
This survey is currently not active. You will not be able to save your responses.
Interest in participating in research interview
If you are interested in participating in an interview with the principal researcher, to explore your thoughts regarding Plagiarism Detection Software (PDS) and a distance eduction instructor, please read the following 'informed consent' section and respond to the question below.
If you respond 'yes'/'I am interested in participating in an interview', you will be asked to supply an email address through which the reseaarcher will be able to contact you, supply additional details, answer questions prior to conducting the interview, and to schedule the date and time for the interview.
If possible, please supply a non-institutional email address to reduce the sharing of personally identifiable information. Regardless of the email address supplied, all information will be treated as confidential.
* 27 Please express your interest in participating in an interview with the researcher.
Choose one of the following answers
I am interested in participating in an interview
I am not interested in participating in an interview
* 28 Please provide a non-institutional email address, so the researcher can contact you to schedule a personal interview.
Previous
Submit

**Interest in participating in research interview**

If you are interested in participating in an interview with the principal researcher, to explore your thoughts regarding Plagiarism Detection Software (PDS) and a distance education instructor, please read the following 'informed consent' section and respond to the question below.

If you respond 'yes'/'I am interested in participating in an interview', you will be asked to supply an email address through which the researcher will be able to contact you, supply additional details, answer questions prior to conducting the interview, and to schedule the date and time for the interview.

If possible, please supply a non-institutional email address to reduce the sharing of personally identifiable information. Regardless of the email address supplied, all information will be treated as confidential.

( 27* ) Please express your interest in participating in an interview with the researcher.
(!) Choose one of the following answers
I am interested in participating in an interview
I am not interested in participating in an interview

( 28* ) Please provide a contact email address, so the researcher can contact you to schedule the interview.
Only answer this question if the following conditions are met:
Answer was 'I am interested in the 1:1 interview ' at question '33 [InterviewInterest]'
(Please express your interest in participating in a 1:1 interview with the researcher.)

Submit.

Thank you for completing this survey.

## Appendix D: Interview Questions, Shared With Interview Participants

**Question A**

- • How many courses you teach per semester on average/last term you taught?
- • About how many students?

**Question B**

- • When you are grading papers, what are some of the common issues you run into?
    - Possible: grammar, APA, spelling, structure, citations
- Have you ever run into an assignment that you think may have been borrowed from another source, plagiarized? [suspected plagiarism]
    - Yes - How did you identify that [Recalling the one most recent and memorable incident, can you please describe and detail what led you to conclude that the student plagiarized.]
    - Probe: paper is written better than writing in forum discussions
    - Recognize from other writing
    - Probe: What did you do? [corrective action was instructional/punitive/both/neither. Please elaborate the underlying rationale behind your course of action]
    - Probe: Do you think a lot of students plagiarize?

- In your opinion, is student attribution or plagiarism apparent and an issue at an undergraduate/masters/-and/or-doctorate level in Canadian universities? o Yes - Please elaborate
    - Probe: What makes you say that?

**Question C**

- • Have you ever used plagiarism detection software (PDS)? oYes – how is that working out for you? No – Does your institution provide this for you?
    - Probe: Have you ever had any training for this? Yes – how did that work for you? Helpful? How so? No – Would you be interested in buying PDS or finding a free program somewhere?
    - Probe: There are plenty of teachers who do not use PDS. Do you have any ideas why they wouldn't?
    - Probe: Would you recommend that instructors have use PDS?
    - Probe: Some people think there is a moral//invasion of privacy issue with checking for cheating. What do you think?
- • Are you aware of any technical issues or reasons preventing instructors from using PDS?
- • Are you aware of any operational or resource constraints preventing instructors from utilizing PDS?
- • Do you think that there are any specific reasons why instructors don't use PDS?

## Appendix E: Survey Instrument Literature Sources

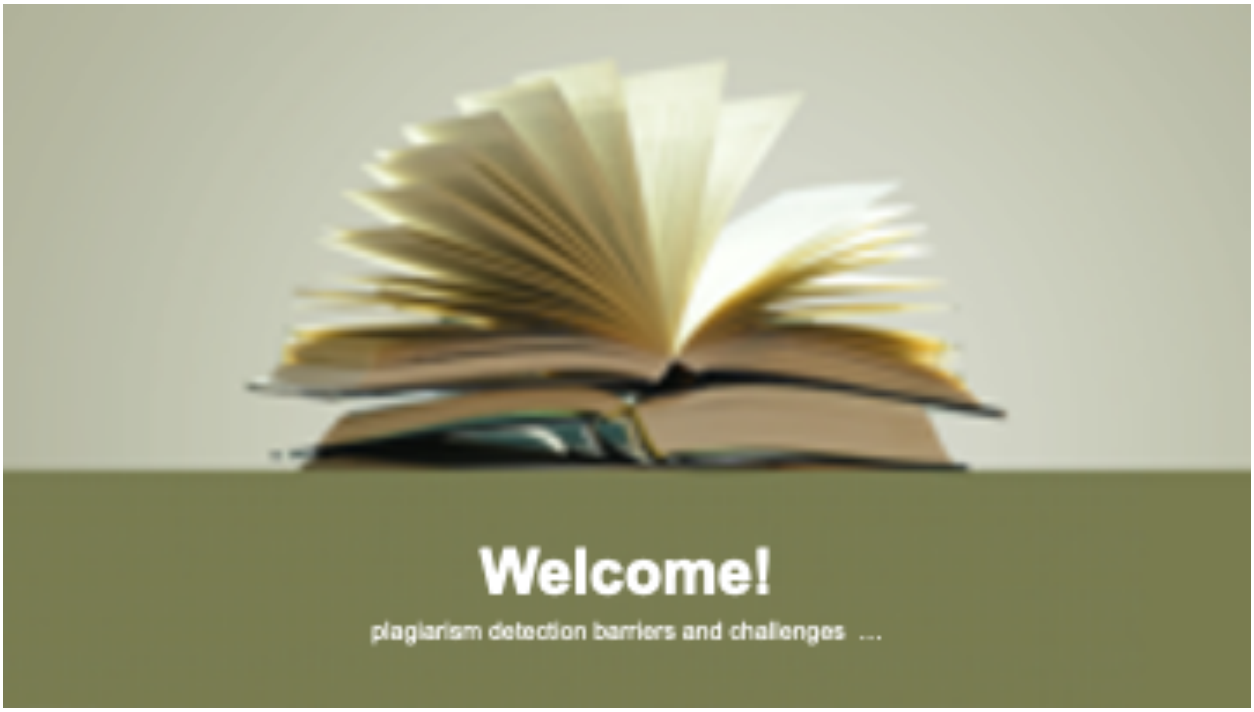
Based on the reviewed literature, there were no suitable single survey instruments available for this thesis research study.

Several reviewed documents, however, were identified which contained a cross section of representative survey questions that that author adapted towards the study.

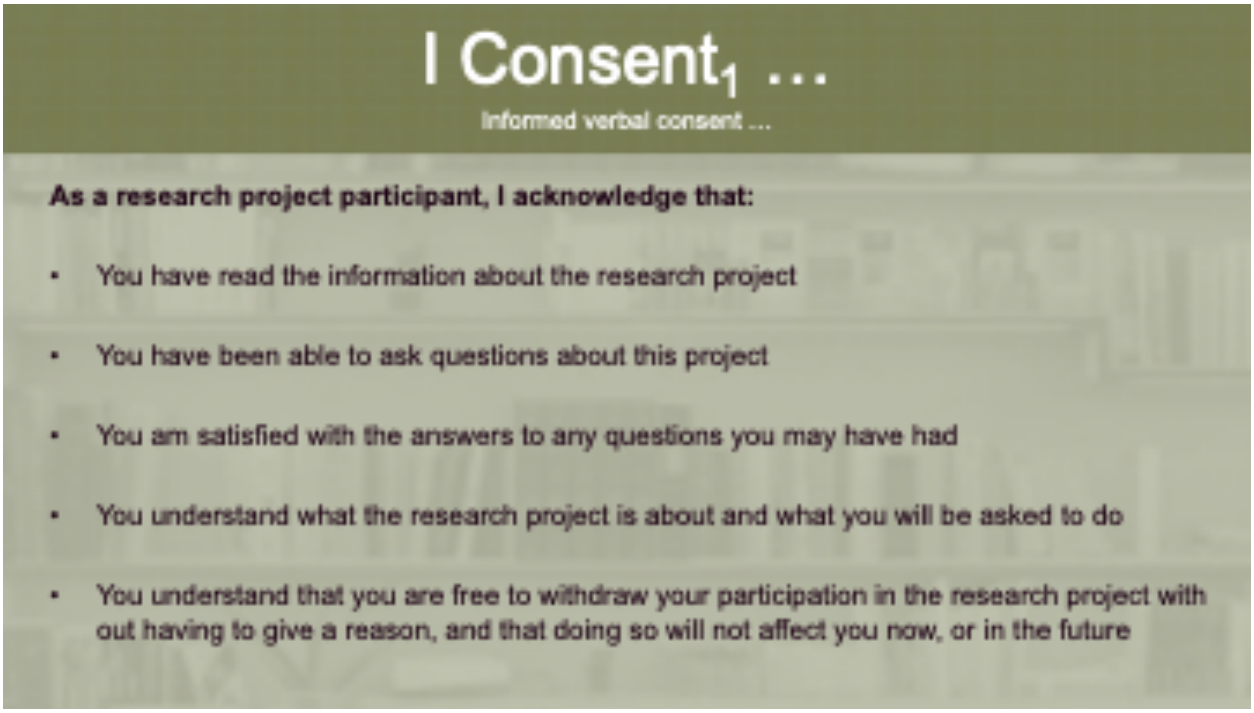
The documents included the following:

- Allemand, K. R. (2012)
- Bemmel, M. B. (2014)
- Coren, A. (2011)
- Hart, H. F. (2014)
- Joeckel, G. L. (2007)
- Löfström, E., et al. (2017)
- McCawley, P. (2009)
- Rowland, A. M. (2007)
- Williams, S., et al. (2014)

**Appendix F: PowerPoint Slide Deck Shown to Participants During Interview**


Consent introduction
plagiarism detection barriers and challenges ...
• Why participate
• Purpose of research
• Asked to do – interview
• Risks and benefits
• Privacy and anonymity
• Data collection and storage


I Consent$_1$ ...
Informed verbal consent ...
As a research project participant, I acknowledge that:
• You have read the information about the research project
• You have been able to ask questions about this project
• You am satisfied with the answers to any questions you may have had
• You understand what the research project is about and what you will be asked to do
• You understand that you are free to withdraw your participation in the research project with out having to give a reason, and that doing so will not affect you now, or in the future

# I Consent$_2$ …

Informed verbal consent …

**As a research project participant, I acknowledge that (continued):**

- You understand that if you choose to end your participation during data collection, any data collected from you up to that point will be retained by the researcher, unless you indicate otherwise
- You understand that your survey data is being collected anonymously, and therefore cannot be removed once the data collection has ended
- You agree to be audio-recorded during a personal interview
- You understand that on conclusion of the interview, that it becomes part of the study and it cannot be removed

# I Consent$_3$ …

Informed verbal consent …

**Your verbal consent confirms**:

- You have read what this research project is about and understood the risks and benefits. You have had time to think about participating in the project and had the opportunity to ask questions and have those questions answered to your satisfaction
- You understand that participating in the project is entirely voluntary and that you may end your participation at any time without any penalty or negative consequences
- You have been given a copy of this Informed Consent (form) for your records; and you agree to participate in this research project.

*I agree to participate in this research project*


Skip … Stop … Withdraw!
plagiarism detection barriers and challenges …
• You can skip any question, or you can decline to answer
• You can stop or withdraw at any point, up to where the interview is concluded


Interview Questions

# Question A

In the study survey, I asked about the number of students you teach …

- How many courses you teach per semester on average/last term you taught?
- About how many students?
- Of the courses you teach, describe the variations in student numbers

# Question $B_1$

In the study survey, I asked you about your academic misconduct perceptions. Let's explore this a little more …

- When grading papers -- common issues you run into?
- Have you ever run into an assignment that you think may have been borrowed from another source, plagiarized?
  - Yes? How did you identify that?
  - Assignment written better than writing in DE forum discussions?
  - What did you do?
  - Do you think a lot of students plagiarize?

## Question $B_2$

In the study survey, I asked you about your academic misconduct perceptions. Let's explore this a little more ...

- In your opinion, is student attribution or plagiarism apparent and an issue at Canadian universities?
  - Yes? Please elaborate
  - What makes you say that?

## Question $C_1$

In the study survey, I asked you about your familiarity with plagiarism detection software. Let's explore a bit more.

- Have you ever used plagiarism detection software (PDS)?
  - Yes? How is that working out for you?
  - No? Does your institution provide this for you?
  - Have you ever had any training for this?
  - Yes? How did that work for you? Helpful? How so?
  - No? Would you be interested in purchasing PDS or finding a free program somewhere?

## Question $C_2$

In the study survey, I asked you about your familiarity with plagiarism detection software. Let's explore a bit more.

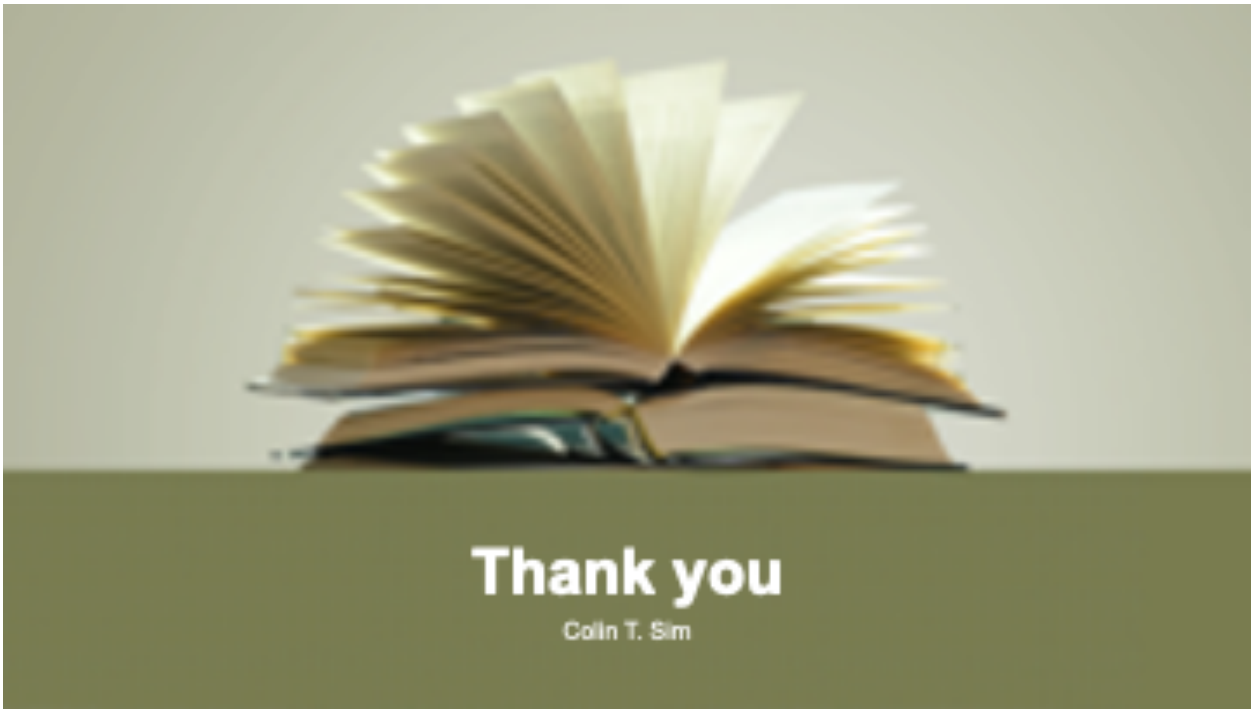
- There are plenty of teachers who do not use PDS
  Do you have any ideas why they wouldn't?
- Would you recommend that instructors have use PDS?
- Some people think there is a moral//invasion of privacy issue with checking for cheating. What do you think?

## Question $C_3$

In the study survey, I asked you about your familiarity with plagiarism detection software. Let's explore a bit more.

- Are you aware of any technical issues or reasons preventing instructors from using PDS?
- Are you aware of any operational or resource constraints preventing instructors from utilizing PDS?
- Do you think that there are any specific reasons why instructors do not use PDS?


Your questions?
plagiarism detection barriers and challenges ...
• Do you have any questions for me?
• This concludes the interview ...


Thank you
Colin T. Sim

# Appendix G: Certificate of Ethics Approval

Athabasca University
RESEARCH CENTRE

## CERTIFICATION OF ETHICAL APPROVAL

The Athabasca University Research Ethics Board (REB) has reviewed and approved the research project noted below. The REB is constituted and operates in accordance with the current version of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS2) and Athabasca University Policy and Procedures.

**Ethics File No**.: **23917**

**Principal Investigator**:
Mr. Colin Sim, Graduate Student
Faculty of Humanities & Social Sciences\Master of Education in Distance Education (MEd)

**Supervisor**:
Dr. Cynthia Blodgett-Griffin (Supervisor)

**Project Title**:
ACADEMIC MISCONDUCT AT A CANADIAN UNIVERSITY: INSTRUCTOR ADOPTION CHALLENGES AND BARRIERS TO PLAGIARISM DETECTION SOFTWARE

**Effective Date:** April 30, 2020 **Expiry Date**: April 29, 2021

**Restrictions:**

Any modification or amendment to the approved research must be submitted to the AU REB for approval.

Ethical approval is valid *for a period of one year*. An annual request for renewal must be submitted and approved by the above expiry date if a project is ongoing beyond one year.

A Project Completion (Final) Report must be submitted when the research is complete *(i.e., all participant contact and data collection is concluded, no follow-up with participants is anticipated and findings have been made available/provided to participants (if applicable))* or the research is terminated.

**Approved by:** **Date: April 30, 2020**

Michael Lithgow, Chair
Faculty of Humanities & Social Sciences, Departmental Ethics Review Committee

Athabasca University Research Ethics Board
University Research Services, Research Centre
1 University Drive, Athabasca AB Canada T9S 3A3
E-mail rebsec@athabascau.ca
Telephone: 780.675.6718

# Appendix H: Letter of Information and Informed Consent

## LETTER OF INFORMATION / INFORMED CONSENT

ACADEMIC MISCONDUCT AT A CANADIAN UNIVERSITY: INSTRUCTOR ADOPTION CHALLENGES AND BARRIERS TO PLAGIARISM DETECTION SOFTWARE

03 May 2020

**Principal Researcher:** Colin Sim, mddethesis@outlook.com
**Supervisor:** Cynthia Blodgett-Griffin; cynthiablodgettau@gmail.com

You are invited to take part in a research project entitled 'Instructor Adoption Challenges And Barriers To Plagiarism Detection Software'.

This document is part of the process of informed consent. The information presented should give you the basic idea of what this research is about and what your participation will involve, should you choose to participate. It also describes your right to withdraw from the project. In order to decide whether you wish to participate in this research project, you should understand enough about its risks, benefits and what it requires of you to be able to make an informed decision. This is the informed consent process. Take time to read this document carefully as it is important that you understand the information given to you. Please contact the principal investigator, Colin Sim if you have any questions about the project or would like more information before you consent to participate.

It is entirely up to you whether or not you take part in this research. If you choose not to take part, or if you decide to withdraw from the research once it has started, there will be no negative consequences for you now, or in the future.

### Introduction

My name is Colin Sim and I am a Master of Education in Distance Education student at Athabasca University. As a requirement to complete my degree, I am conducting a research project about plagiarism as an ongoing issue and concern within university distance education programs. Although plagiarism detection software (PDS) like Turnitin is available to an institution, its use has not been widely adopted by instructors. This raises the salient question: why is this the case? I am conducting this project under the supervision of Cynthia Blodgett-Griffin.

### Why are you being asked to take part in this research project?

You are being invited to participate in this project because a literature review reveals a gap in our current knowledge and understanding as to why distance education instructors do not adopt plagiarism detection software, when it is readily available within a Canadian University.

**What is the purpose of this research project?**

The purpose of this research project is to explore plagiarism detection software adoption barriers including, what are the technical issues or reasons preventing instructors from using available software and what are the ethical or moral reasons preventing instructors from utilizing the software.

**What will you be asked to do?**

Your participation in this project would involve a 30-minute anonymous web-based survey and for those who volunteer, a 60-minute audio-recorded personal interview that explores plagiarism detection software adoption barriers. The survey can be completed within a 2-to-4-week period on receipt of the project participation invitation email and requires an internet connection and web browser. The interview would be arranged to be conducted at a time that is convenient for your schedule and utilize Zoom Meeting; an internet connection, web browser, and headset or another suitable microphone and speaker will be required.

Involvement in this study is entirely voluntary and you may refuse to answer any question or to share information that you are not comfortable with. You may withdraw from the study at any time during the data collection period. For the survey, you can close the web browser at any point prior to clicking the *Submit* button to withdraw from the study. Given the anonymous design of the survey, participant survey data cannot be removed once it has been submitted.

Interviews are only arranged with people who specified their willingness to be interviewed. You can withdraw from this part of the study up to the point where the interview is concluded. Interview materials collected to that point will be disposed of if the participant chooses to withdraw.

The research study involves transcribed interviews. Given the subject nature of the research, participant confidentiality and/or anonymity is of paramount importance. To this end, transcripts will not be provided to participants for their review. Similarly, there will be no follow-up email communications between researcher and participant regarding interview or transcript content.

**What are the risks and benefits?**

This research will benefit Canadian Universities offering distance education by contributing to the existing pool of distance education, creating a greater awareness or understanding of plagiarism detection barriers and assist those in similar situation in the future through knowledge gained. I do not anticipate you will face any risks as a result of participating in this research. The potential risks to participants is considered minimal given the anonymous nature of the survey and the measures in place to safeguard confidentiality.

**Do you have to take part in this project?**

Involvement in this study is entirely voluntary and you may refuse to answer any questions or to share information that you are not comfortable sharing. You may withdraw from the study at any time during the data collection period.

**How will your privacy and confidentiality be protected?**

The ethical duty of confidentiality includes safeguarding participants' identities, personal information, and data from unauthorized access, use or disclosure. All information will be held confidential, except when legislation or a professional code of conduct requires that it be reported.

In this research study, the internet survey is completely anonymous, and no human data or metadata collected contains any personally identifiable information (Pii). The only possible exception would be if the study participant volunteered to participate in the interview and supplied an institutional or other potentially personally identifiable contact email address. If a shared email address contains personally identifiable information, it will remain confidential. The purpose of sharing email information is to allow for the scheduling of the interview.

Use of Zoom Meeting as the preferred platform also eliminates the need to share potentially identifiable Microsoft Skype/Team account details. Only audio will be recorded along with PowerPoint slide deck screen sharing by the principal researcher. No video content will be recorded as part of the interview.

In the unlikely event that the study participant discloses people, places, or things that could breech confidentiality, this information will be redacted or anonymized in the interview transcript. Any inadvertent disclosure of Pii data disclosed [to principal researcher] will be held in confidence.

**How will my anonymity be protected?**

Every reasonable effort will be made to ensure your anonymity; you will not be identified in publications without your explicit permission. Anonymity refers to protecting participants' identifying characteristics, such as name or description of physical appearance.

As previously stated, where a participant has volunteered to be interviewed, they will need to provide an email address as the means of communication and setting up the date-time of the interview. The email address will be treated as confidential and stored as part of either mddethesis@outlook.com or on the principal researcher's encrypted external USB drive.

Should the principal researcher be directly contacted via email at mddethesis@outlook.com, a possible study participant may disclose their otherwise anonymous involvement with the research. All of their email correspondence will be treated as confidential.

**How will the data collected be stored?**

Research data or assets consisting of raw survey results as well as interview recordings and transcripts will be stored and managed on a portable USB drive that has been encrypted. Data will be accessed by a password protected computer. Only the primary researcher will be accessing the research data, it will not be shared or transmitted to anyone else, and the research data will not be published or disclosed to anyone either.

The portable USB drive will be stored in the primary researcher's home office. The portable USB drive and its data will be retained for a period of 5 years, following conclusion of this research project. At the end of the 5-year obligatory retention period, the encrypted portable USB drive will have all its files securely erased.

At this time, the principal researcher has no 'plans for future use of the data'. There is no foreseeable likelihood that this study data will 'become part of a data repository'. However, should the principal researcher pursue a doctorate dissertation, it is possible that this study data may serve a secondary use.

**Who will receive the results of the research project?**

Results of this study may be disseminated via articles submitted to academic or professional journals. A copy of the research study results (e.g., executive summary) can alternatively be requested by participants by contacting the principal researcher. The existence of the research will be listed in an abstract posted online at the Athabasca University Library's Digital Thesis and Project Room and the final research paper will be publicly available (i.e., https://dt.athabascau.ca/jspui/)].

No direct quotations or any other personally identifiable information will be reported in this project; all published data is in an aggregate or summarized form.

**Who can you contact for more information or to indicate your interest in participating in the research project?**

Thank you for considering this invitation. If you have any questions or would like more information, please contact me, (the principal investigator) by e-mail mddethesis@outlook.com or my supervisor by cynthiablodgettau@gmail.com.

Thank you.
Colin Sim

**This project has been reviewed by the Athabasca University Research Ethics Board. Should you have any comments or concerns regarding your treatment as a participant in this project, please contact the Research Ethics Office by e-mail at rebsec@athabascau.ca or by telephone at 1-800-788-9041, ext. 6718.**

Athabasca University

Principal Investigator:

*I have explained this project to the best of my ability. I invited questions and responded to any that were asked. I believe that the participant fully understands what is involved in participating in the research project, any potential risks and that he or she has freely chosen to participate.*

**Informed (Verbal) Consent:**

**As a research project participant:**

- You have read the information about the research project.
- You have been able to ask questions about this project.
- You are satisfied with the answers to any questions you may have had.
- You understand what the research project is about and what you will be asked to do.
- You understand that you are free to withdraw your participation in the research project without having to give a reason, and that doing so will not affect you now, or in the future.
- You understand that if you choose to end your participation during data collection, any data collected from you up to that point will be destroyed
- You understand that your survey data is being collected anonymously, and therefore cannot be removed once the data collection has ended.
- You agree to be audio-recorded during a personal interview and understand that no identifying information will be included
- You understand that on conclusion of the interview, that it becomes part of the study and it cannot be removed

**Your verbal consent confirms**:

- You have read what this research project is about and understand the risks and benefits. You have had time to think about participating in the project and had the opportunity to ask questions and have those questions answered to your satisfaction.
- You understand that participating in the project is entirely voluntary and that you may end your participation at any time without any penalty or negative consequences.
- You have been given a copy of this Informed Consent (form) for your records; and You agree to participate in this research project.

*"I agree to participate in this research project."*

# Appendix I: Glossary

CAQDAS - Computer Assisted Qualitative Data Analysis

Copyright Act (1985) – The [Canadian] Copyright Act of 1985 provides protections to authors of literary works. https://laws-lois.justice.gc.ca/eng/acts/c-42/fulltext.html

Course aggregators (e.g., course hero) – As the name suggests, there are entities that have student assignment holdings and where students can obtain copies of these materials. Similar to a paper mill in some respects.

GDPR - General Data Protection Regulation (GDPR) deals with personal information privacy and protection (i.e., security). law in the world became effective 25th May 2018.
Drafted and passed by the European Union (EU), it imposes obligations onto organizations anywhere, so long as they target or collect data related to people in the EU.
https://gdpr.eu/what-is-gdpr/

International Berne Convention (1886) - The Berne Convention provides protections to author of literary works. https://www.wipo.int/treaties/en/ip/berne/summary_berne.html

MMCSR - Mixed Method Case Study Research

Patriot Act – An act that provides USA government and agencies with a number of counter-terrorism tools. https://www.justice.gov/archive/ll/highlights.htm

Pii – Personally identifiable information
Definition of "personal information" in the acts "personal information" means recorded information about an identifiable individual, including:

> (a) information relating to the race, national or ethnic origin, color, religion, age, sex, sexual orientation or marital or family status of the individual,
> (b) information relating to the education or the medical, psychiatric, psychological, criminal or employment history of the individual or information relating to financial transactions in which the individual has been involved,
> (c) any identifying number, symbol or other particular assigned to the individual,
> (d) the address, telephone number, fingerprints or blood type of the individual,
> (e) the personal opinions or views of the individual except where they relate to another individual,
> (f) correspondence sent to an institution by the individual that is implicitly or explicitly of a private or confidential nature, and replies to that correspondence that would reveal the contents of the original correspondence,
> (g) the views or opinions of another individual about the individual, and
> (h) the individual's name where it appears with other personal information relating to the individual or where the disclosure of the name would reveal other personal information about the individual.

https://www.ipc.on.ca/wp-content/uploads/2016/10/what-is-personal-information.pdf

REB - Research Ethics Board

Tort and due care – The overarching principal here is that university and its community has a ‘duty of care’ to ensure that its students have been appropriately taught (i.e., properly cite/paraphrase without plagiarizing). In the absence of such, there could be an issue of negligence brought about.
https://legaldictionary.net/due-care/
https://npc.gvsd.ca/web/rschroeder/2013%20-%20Canadian%20Law%20PowerPoints/PPT%2012%20-%20Negligence%20and%20Tort.pdf

TCPS2 – Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans – TCPS 2 (2018). https://ethics.gc.ca/eng/policy-politique_tcps2-eptc2_2018.html

## Appendix J: Statement of Original Work

I have read the Student Academic Misconduct Policy (http://calendar.athabascau.ca/undergrad/current/student-code/academic-misconduct-offences.php), as described in the Athabasca University 2020 Undergraduate Calendar.

This master's thesis represents my original work, except where I have acknowledged the ideas, words, or materials of other authors. I have acknowledged other author's ideas by citing them in the required APA style.

Where applicable, I have obtained permission from the author or publisher, to include any copyrighted material (e.g., tables, figures, survey instruments, etc.) in this manuscript.

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The following PowerPoint slide deck and graphical resources were used in the authoring of this thesis and/or its associated research instruments and are credited here:

- iStock – Getty Images. (2011). Medieval Knight with Sword and Shield Vector Mascot stock illustration. Acquired 04 Mar 2019 under standard license (Order number: 2058382585)
- Envato Market. (2015). Marketofy - Ultimate PowerPoint Template. Acquired 17 Jun 2017 under Regular License (Purchase code: 1cd65861-5583-4258-ac03-c8a73e799b25)
- Vintage Old Books PowerPoint Template (2013). Acquired March 2019 licensed under fair use. Retrieved from https://www.free-powerpoint-templates-design.com/vintage-old-books-powerpoint-template