

“Does Plagiarism Mean anything? LOL.” Students’ Conceptions of Writing and Citing

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Abstract This study focuses on the intersection of research ethics and academic writing, i.e. the use of sources, assignment of credit to the contributors in the research, and the dissemination of research findings. The study utilized a set of semi-structured and open-ended questions. The sample consisted of 269 undergraduate (BA) and graduate (MA) students at a U.S. university department of psychology including major and non-major students. The data showed that although an overwhelming number of the students’ examples related to ethical issues in citation dealt with plagiarism, a broad range of examples of other types of issues were also provided. Understandably, students tended to view the questions about both the assignment of credit to those involved in conducting the research and the dissemination of research findings from the research participant’s perspective, which is more familiar to them than the researcher perspective. In order to help the students to expand their notions beyond the immediate own experience to a broader understanding for the ethical principles that ought to guide a researcher in his or her work, it is desirable that students be provided with opportunities to participate in authentic research projects. With a deeper understanding of the students’ conceptions of ethics in research and academic writing, we can become more attuned to the common limitations and misconceptions that students harbor, and thus better equipped to support students in their learning process.

Keywords Research ethics · Academic writing · Citation · Assignment of credit · Dissemination · University students

Introduction

A goal of universities is to educate graduates with a profound competence and expertise in their subject areas. University graduates are expected to exhibit the values, attitudes and behaviors of experts in their fields, and to possess insight into professional and research

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ethics. Yet, academic misconduct may not be a new problem, but due to external pressures for resources and funding, and owing to the rapid spread of information, misconduct has taken unanticipated and novel forms. The ever-increasing number of students and the tightening competition for resources has led to growing concern for academic integrity. In the 2nd World Conference on Research Integrity in 2010, the need for developing unified policies, guidelines and codes of conduct worldwide emerged as a pressing issue (cf. Singapore Statement 2010). The challenges have consequences for the institutions of higher education that train students in research skills. Steneck (1994) has called on universities to take action and to be proactive rather than be reactive in terms of adopting measures for the prevention of scientific misconduct. From this perspective, it is important that the teachers recognize common misconceptions and prevent them from arising. Universities can benefit from research on their students' conceptions of ethics in order to develop appropriate strategies for promoting academic integrity (Gullifer and Tyson 2010).

This study focuses on students' conceptions of specific aspects of ethical conduct. Since the written text is a key means of communication among academics, this analysis is concerned with the intersection of the ethics of research and the conventions of academic writing. This paper therefore focuses on the use of sources, the assignment of credit and authorship to those involved in conducting the research, and the dissemination of research findings as the three core areas in which research ethics and academic writing merge. With an increased understanding of students' conceptions of these issues, university teachers can become more attuned to their students' common (mis)conceptions and consequently will be better equipped to support their students in their process of figuring out what is expected of them in research and academic writing.

Students' Conceptions of the Ethics of Academic Writing

In a study on international students' conceptions of academic literacy in a North-American context, the students' writing was characterized by the reproduction of ideas and heavy reliance on references (Abasi and Graves 2008). Yet, at the same time, the students were keen on exhibiting non-plagiarizing behavior, i.e. they wanted to assure their teachers that they would not engage in stealing other researchers' works and ideas and present them as their own. The students appeared to view referencing as a technical matter that can be taken care of by adhering to established guidelines. The technicalities would also help solve the "plagiarism problem." However, as Abasi and Graves (ibid.) point out, a focus on avoiding plagiarism detracts attention from the core purposes of referencing, i.e. contributing to scholarly discussions, and accumulating and developing the knowledge in the field. "Avoiding plagiarism" was also one of the concerns of the students in Yildirim's and Ilin's (2009) study on students' and tutors' views of good research papers.

Breen and Maassen (2005) found that psychology students generally had an understanding of plagiarism, yet they were unable to define the finer aspects of ethical conduct versus plagiarism. Avoiding plagiarism was experienced as being stressful, and the students feared the penalties that they associated with plagiarism. The authors did find qualitative differences between novice and advanced students, and concluded that students' conceptions about referencing and their writing strategies developed over time with their focus turning from a reproduction of ideas (first-year students) to an extraction of ideas (third-year students). Other studies (Zuccherro 2009) have provided evidence for how the development can be facilitated by utilizing case vignettes in undergraduate psychology education. Research has indicated that a university environment is not *per se* particularly

fruitful for facilitating the development of ethical sensitivity, but focused interventions have also been proven successful in science teaching at the university (Clarkeburn 2002a).

In research on students' conceptions and understanding of the ethics of academic writing plagiarism frequently emerges. This is not surprising, considering the wealth of easily accessible electronic databases and information sources. Based on various definitions of the concept, Walker (2010) distinguishes three forms of plagiarism:

1. Sham paraphrasing: "The practice of correctly citing a source but presenting the material as paraphrased, when it is a direct quote without quotation marks".
2. Verbatim: "Copying material verbatim from a source without citing the source, thus presenting the material as one's own".
3. Purloining: "Submitting an assignment that is substantially, or entirely, the work of another student with or without that student's knowledge".

(Walker 2010, 46)

Walker's categories are useful as they distinguish three different actions leading up to a similar outcome, i.e. plagiarism, which is something that students generally recognize without being able to describe how a proper citation might have been made (cf. Gullifer and Tyson 2010). In a focus group study in various programs, including psychology, Gullifer and Tyson (2010) found that the students were in general able to define plagiarism as the use of other's work without appropriate referencing, but failed to recognize the more subtle aspects of attributing ideas to their sources and paraphrasing others' ideas in one's own words. The students' conceptions of plagiarism were characterized by anxiety and fear, concerns about academic and legal consequences, and perceived sanctions. The authors concluded that students need to be exposed to principles of academic integrity, as well as to university cultures in which they learn about the principles of academic writing while developing an authorial voice (Ibid. 2010).

Based on the findings in prior studies, the general conclusion that can be drawn is that students recognize the concept of plagiarism, they are able to describe it to some degree, and that they also take action to avoid engaging in unintentional misconduct. Nonetheless, many students fail to grasp what academic writing is about and consequently do not comprehend the underlying functions of proper citation and referencing as they pertain to advancing knowledge in the field. Thus, it appears that among the novice students and to some extent among the more advanced students, the level of understanding reaches a multi-structural level (cf. Biggs 1999), at which the student is able to enumerate, describe, illustrate, sequence, select, combine, do algorithms and follow procedures, but they struggle with making the connections between these or draw conclusions based on inter-relations. The students would need to reach a relational level of understanding in order to compare, contrast, explain causes, analyze, relate, integrate and apply knowledge of research ethics and academic writing (cf. Biggs, *ibid.*). At this level, a student is able to address why an issue is ethical in nature, and can provide reasonable explanations for what might have caused the issue and how it may be solved.

The Guidelines for the Undergraduate Psychology Major by the American Psychological Association (APA) (2007) include ethics in the treatment of research participants, in the design of a study, in data collection and interpretation, and in the reporting of research. The sub-goals pertaining to the writing and the dissemination of research include that students "acknowledge that research results may have unanticipated societal consequences", and that they "recognize that individual differences and socio-cultural contexts may influence the applicability of research findings." In short, ethical standards in research are a priority in psychology.

The Research Task

Considering the APA guidelines (2007) and its focus on student learning outcomes, it is not irrelevant how students learn research ethics and academic writing and what depth of understanding they reach. When attempting to influence people's attitudes or behaviors, it is necessary to understand their perceptions of the issue at hand (Gullifer and Tyson 2010). In this paper I explore the students' conceptions about three specific themes pertaining to academic writing. These themes are the use of sources and citations, the assignment of credit and authorship, and the dissemination of the findings.

The aim was thus to determine the kind of ethics that students associate with central aspects of research. Instead of asking what the students understand by, for instance, plagiarism, sham and purloining, the study attempted to understand what kind of ethics students attach to the three central tasks that researchers frequently engage in. The questions addressed were: 1) What kind of conceptions do students hold about the ethics of citing, assignment of credit to contributors, and dissemination of research findings? and 2) What kind of misconceptions about these issues do students harbor? The aim was also to map out dominating conceptions and common misconceptions.

Method

Research Method

This study utilized a semi-structured set of questions with open-ended questions building on the student responses to the semi-structured ones. The students were asked about their conceptions of the ethical issues in academic writing with the use of sources and citations, the assignment of credit and authorship, and the dissemination of the findings. The question about the use of sources and citations was intended to provide insight into students' understandings about how to utilize literary sources for research. Problematic areas could for instance be the use of secondary sources and "grey area" literature (West and Stenius 2008), such as unpublished reports and outdated internet sources. Citation issues could, for instance, include direct quoting without adequate referencing or insufficient paraphrasing.

The question on the assignment of credit and authorship was intended to provide insight about the students' views on issues in acknowledging contributions of individuals and determining authorships among researchers in the research team. The question on the dissemination of the findings was intended to reveal the students' views about the kinds of issues that researchers may encounter in the dissemination of their research outcomes, i.e. the protection of specific groups of people vs. reporting findings that may portray the group in a negative way. The questions were open to allow the students' determine their point of view within the loosely provided framework.

For each item, the students were asked to indicate whether or not that particular item was an ethical issue. The three response alternatives for the semi-structured part were: "Not an ethical issue," "Unsure," and "Can be an ethical issue." Potentially, all items could pose ethical problems. If the students thought the issue possibly involves an ethical aspect, they were requested to provide an example of what kind of ethical issue might arise or in which situation the matter could pose an ethical problem.

According to Jordan (2007), domain-transcending moral sensitivity measures that are valid and reliable are practically non-existing, although they hold promise for substantial explanatory power. The task developed for this study can be described as a domain-

transcending ethical sensitivity task, as it specifically addressed ethical issues in research, but did this on a generalized level, removed from the immediate context and its application. Instead, the students were asked to create an application, i.e. provide an example of an issue involving ethical matters. In this way, the questions did not specifically test the understanding of ethics in psychological research, and thus the fact that the sample also included other than psychology students did not pose a problem for the validity or the reliability of the research. Furthermore, the measure included both recognition (the three semi-structured questions) and production items (the students' own examples of ethical issues) as recommended in Sirin et al. (2003).

Data Analysis

The data were analysed through inductive content analysis in order to produce descriptive categories of the students' conceptions and misconceptions of the ethics related to research and academic writing. The categories describe the phenomenon in a condensed and general form (cf. Weber 1985; Marshall and Rossman 1995). The students' expressions were in most cases rather brief, so there was no need to transform them into condensed descriptions as they already were dense. The expressions were grouped according to themes that appeared to be at the core of each expression. The expressions were not broken apart. Instead, each expression formed a unit of analysis of its own. The intention was to map out the range of conceptions that the students hold and the misconceptions that they harbor, and expose the nuances in those conceptions.

Double-rating was conducted at the level of categories, not at the level of each single response. The concern was whether the same or similar categories would emerge irrespective of the rater. This level of double-rating was considered to be appropriate as the analyses were mostly data driven, and disagreement occurred possibly already at the level of what categories to include, and not just regarding which categories the individual responses should belong to. In brief, the author deemed it to be most important to reach an agreement over the type of categories pertaining to the three domains of ethical issues. Regarding the first domain, i.e. citation of others' work, the second rater decided upon eight categories, all relating to the acknowledgement function of citation (cf. West and Stenius 2008). The categorizations matched on plagiarism, stealing, honesty/dishonesty, and legal consequences. Plagiarism and stealing appear to represent the same idea. Plagiarism, however, may take on various forms (cf. Walker 2010). It is a concept the meaning of which may or may not be understood by the students. Which aspects of the Walker definition the students thought of was not always clear. On the contrary, stealing as an ordinary concept is likely to include less ambiguity.

The categories pertaining to the verification function of citation were lacking among the second rater's categorizations and were included in two categories that the second rater described as "dos" and "don'ts." The classification of citation functions by West and Stenius (2008) provided support for including the verification categories as independent themes. These were the only categories in which a theory-driven categorization was applied after the author realized the resemblance of the responses to the functions described in West and Stenius (*ibid.*)

Regarding the question on the assignment of credit to those involved in the research, the author and the second rater agreed that the emerging themes were whom/when to acknowledge, unethical behavior, idiomatic expressions and misconceptions. The third domain, the dissemination of research findings, was the smallest with only 61 responses. These were grouped by the author alone. Nevertheless, more than 80% of the data were double-coded independently by two raters, assuring the reliability of the interpretation of the data.

Context, Sample and Procedures

The study was conducted at a medium-sized, U.S. Southwestern regional comprehensive university. The sample consisted of undergraduate (BA) and graduate (MA) students at a department of psychology, and included psychology majors, minors and the students electing separate courses in psychology. Thus, not all students were psychology majors. A total of 759 invitations were sent out to students, whose e-mail addresses were pulled from the department's student register. Of these, 718 e-mail invitations reached their destination, resulting in 269 retained responses. For an online study, the response rate of 37.5% can be considered to be reasonable. The findings cannot be generalised as this is not a true random sample. Recognising this limitation, it is believed that learning from case, such as this one, can be useful for others working on research ethics with students.

Of the respondents, 215 were females and 53 were males. Forty-one of the respondents were graduate students, and the great majority, 226 were undergraduate students. Of the undergraduates, 152 were psychology majors, and 74 were majoring in another subject.

Permission for conducting the study was sought from the university Institutional Review Board. Students were informed about the study in their classes, after which a link to the online questionnaire, including an informed consent letter, was sent out. In addition, data were stored in a password-protected website. No faculty-student relationship in terms of teaching or supervision existed between the researcher and the research participants. As an incentive to participate in the study, students were either given a point towards credit in one of their classes, or they could alternatively enter a prize drawing with gift cards as token incentives for their participation. The credit incentive may have worked in favor of the participation among students with different levels of interest towards research ethics, reducing the skewness towards the participation of students with a particular interest in the topic.

Findings

The easiest ethical issue to recognize and define for over half the students was the question concerning the citation of others' work; 165 participants provided examples. The most challenging question concerned the ethical issues pertaining to the dissemination of the research, producing only 61 examples. Furthermore, the question concerning the assignment of credit to those involved in conducting the research produced 108 examples. In the following, the conceptual categories are described.

Citation of Others' Work

The responses related to the citation of others' work were categorized according to the three functions of citation described in West and Stenius (2008). First, the verification function means that the reader should be able to check the sources used for their accuracy in general, and for the accuracy with which they have been reported. Second, the acknowledgement function means that the authors of the sources used are given credit for contributing to the field. Third, the documentation function means that the source is identified as the object of research in its own right. This latter category, however, was not identified in the data.

The students' responses were mostly related to the acknowledgement function of citation. The sub-categories included Plagiarism and failure to cite properly (55 examples); Recognition of others' work (32); Stealing (10); Legal and other consequences (7), and Honesty/Dishonesty (6). The sub-categories related to the verification function of citations were named as follows:

The need for *proper* citing (29 examples); Citation as a necessity (13); and credibility of research (7). In addition, misconceptions (6 examples) were grouped into a separate category (See Table 1).

Ethical issues related to the citation of others' work mostly dealt with plagiarism and failure to recognize original authors. Plagiarism, the failure to cite original authors, stealing, and acting in a dishonest way are all conceptually close. All dealt with the idea that one should not provide a false image of oneself as the original source of other researchers' works and ideas:

Not citing others' work means you are claiming it to be your own, which is very unethical (Female undergraduate, health education).

A failure to cite others' work represents a form of lying or dishonesty, because in the absence of citation, there is an implicit understanding that the work represents novel ideas. Similarly, it represents theft, if one accepts the idea of intellectual property (Male graduate, psychology).

Students also expressed emotions in their responses. One student expressed frustration, perhaps even anger over the demands on student writing:

Teachers really lose their minds on the topic of plagiarism. Nobody can say or write anything without proper APA citation anymore. Damn you! (Sex unknown, graduate student, chemistry).

An ironic undertone can be sensed in the following quote:

Does plagiarism mean anything? LOL (Female, undergraduate, psychology).

Expressions such as these suggest that there is some ambivalence in the students' attitudes either towards the teaching, academic writing or plagiarism.

The way in which plagiarism was understood appears to mostly resemble the second form of plagiarism in Walker's (2010, 46) scheme: "Copying material verbatim from a source without citing the source, thus presenting the material as one's own." Examples of sham were less frequent, and examples of purloining did not emerge at all. The categories Plagiarism and failure to cite properly and Recognition of others' work can be thought of as the opposite sides of a coin: Whereas Plagiarism and the failure to cite properly describe the shortcomings and breaches of ethics, Recognition of others' work emphasizes the right thing to do.

Some of the examples were more concerned with the legal and other consequences that could ensue rather than with the unethical behavior itself. The following quote is an example of a student providing an example, which in itself is reasonable, however the concern appears to be on doing things right in order to avoid consequences rather than for the sake of high ethics:

The researcher must have adequate knowledge of how to cite the works of others; little mistakes such as putting authors in incorrect order of contribution or not citing work that was referenced can be consequential (Female, undergraduate, psychology).

In the examples related to the verification function of citation, most stated the need for citing in general, or specifically the need for proper citation. In most cases, the students did not explain why citations should be made, or why it was necessary to make them properly. The first quote below was a typical example. In the second example, the student has elaborated slightly more on why citations should be made appropriately (i.e. to prevent plagiarism from occurring).

Can be an ethical issue if it is not done properly (Female graduate, psychology).

Others' work must be cited carefully. Plagiarism can occur if works are not cited appropriately (Female graduate, psychology).

Table 1 Student conceptions of the citation of others' work

Citation of others' work		Examples	n
Acknowledgement function	Plagiarism and failure to cite	<ul style="list-style-type: none"> -Plagiarism can occur if others work is not cited. -Others' work must be cited carefully. Plagiarism can occur if works are not cited appropriately. -Plagiarism is not a good thing. -Does plagiarism mean anything? lol -If you do not cite others work it is plagiarism which is highly unethical. 	55
	Recognition of others' work	<ul style="list-style-type: none"> -If there is no citation of other's work or not proper citation then whosever work it is, is not getting credit. - People need to be given credit for their work. -If credit is not given to the proper entities than there would be an ethical issue -You can't take full credit for research that is not your own. -A researcher should not take credit for another person's work. 	32
	Stealing	<ul style="list-style-type: none"> -If it's not cited correctly, could look like stealing someone else's work. -If not cited; you've stolen. -If you don't cite another person's work, you're plagiarising and that's definitely an ethical issue because it's stealing from another person. -Stealing is unethical. When you use someone else's work without citing them, it's stealing. -Stealing someone else's work and benefiting from it (possibly financially) is highly unethical. 	10
Legal and other consequences		<ul style="list-style-type: none"> -Plagiarism is illegal. -You need to give the person who actually did the work the credit so that you do not deal with plagiarism suits. -Using another's intellectual property is illegal, as it is misrepresentation of oneself. -Stealing someone else's work could result in problems. -The researcher must have adequate knowledge of how to cite the works of others; little mistakes such as putting authors in incorrect order of contribution or not citing work that was referenced to can be consequential. 	7
	Honesty/ Dishonesty	<ul style="list-style-type: none"> -If not cited, it is academic dishonesty. -If things are not cited correctly or if the researcher lies about the source of the information. -if the citation is wrong or made up. -You must be honest and cite all other research you use. -A failure to cite others' work represents a form of lying or dishonesty, because in the absence of citation, there is an implicit understanding that the work represents novel ideas. Similarly, it represents theft, if one accepts the idea of intellectual property. 	6

Table 1 (continued)

Citation of others' work		Examples	n
Verification function	The need for proper citing	-Unethical if others' work is not properly cited.	29
		-If the others' work is not properly cited, it is an ethical issue.	
		-All references should be properly cited. -Everything must be properly cited. Proper citation needs to be completed.	
Citation as a necessity	Citation as a necessity	-Teachers really lose their minds on the topic of plagiarism. Nobody can say or write anything without proper APA citation anymore. Damn you!	13
		-Citation of other's work a must.	
		-Others' work should always be cited. -Work should always be cited. -All work must be cited. -You must always use citation of others' work!	
Credibility of research	Credibility of research	-Can become an ethical issue if citations are taken out of context and applied to other information that has no similarities or relation....leads to skewed, bias, and misinformed information....	7
		-Integrity drives the role of research and misrepresenting others' work or not giving proper credit undermines credibility.	
		-this could lead to manipulation, discredibility etc. if not done. -Must provide evidence by giving proper citation. -One must not use any citations out of context.	
Misconceptions		-Mention the private information of someone.	6
		-People should know all of the risks and benefits to make an informed decision. -informed consent.	
		-Needs to know that the person(s) conducting the research are accredited to do so. -If you cite something that belong to others, you have to get permission before putting them in you work.	

The sub-category Credibility of research (category Verification function of citation) included the need to provide evidence for one's statements, and the need to use supporting evidence from prior research in a convincing and appropriate way. The following quote conveys the latter idea:

One must not use any citations out of context (Male graduate, psychology).

In the following sophisticated example, citation issues are viewed more broadly as a misrepresentation of others' work, and the response is connected to the general principle of research integrity and the credibility of research:

Integrity drives the role of research and misrepresenting others' work or not giving proper credit undermines credibility (Male graduate, psychology).

Misconceptions, few in number, were related to confidentiality (“Mention the private information of someone.”) and obtaining informed consent (“Informed consent”, “People should know all of the risks and benefits to make an informed decision.”) Citation was also confused with copyright (“If you cite something that belong to others, you have to get permission before putting them in you works,”) and the status or position of the researchers (“Needs to know that the person(s) conducting the research are accredited to do so.”)

Assignment of Credit to Those Involved in Conducting Research

The students’ conceptions were grouped into the following five categories: Acknowledging the contributors (55 examples); Order/amount of recognition (12); Claiming ownership of others’ work (8); Confusion (25), and Misconceptions (7). The misconceptions were further categorized into two sub-categories: Acknowledgement of research participants (4), and Failure to cite sources (3) (See Table 2).

Students commonly related the assignment of credit to the acknowledgement of all contributors. They emphasized the principle that all involved should be acknowledged as contributors. While the following quote is an example of this, at the same time, the student interestingly distinguishes between ethical and legal questions:

It is a matter of personal ethics rather than law. People should be given credit despite the size of their contribution (Female graduate, psychology).

This category also included a number (8) of idiomatic expressions on giving credit where credit is due emerged.

The second largest category contained the confusing of credit for doing the research with the credit as an incentive for participation. In the following example, the student makes a valid point about how the use of credit incentives may skew the direction of research participation. This example, however, pertains to the use of incentives and not to an assignment of credit to those who contributed to the research:

While it may be a minor issue, it does compromise true randomness (Male graduate, psychology).

A more obvious misconception, although minor, was that of acknowledging the research participants as conductors of the research. This means that some students confused the tasks of the researcher and the participant. The student responses categorised as misconceptions (sub-category Failure to cite sources) also included examples, such as plagiarism, which in themselves were correct examples of ethical issues, but not relating to what was asked for in the question (i.e. assignment of credit to those involved in *conducting* the research). Instead, the student examples were related to the use of sources, citing and referencing.

The third largest category was the Order/amount of recognition in which the examples, such as the following one, typically dealt with the order in which authors should be listed, i.e. those who contributed the most should be listed first. The responses in this category reflect a sense of the need for fairness.

The person or persons who did the most work in the research get(s) the most credit, and their names should be listed first on any publications (Female undergraduate, psychology).

Table 2 Student conceptions of the assignment of credit to those involved in conducting the research

Assignment of credit to contributors	Examples	n
Acknowledging the contributors	<ul style="list-style-type: none"> -Credit should always be given to those who conducted the research. -Yes, everyone who worked conducting the experiment deserves credit for their part. -Only fair for everyone involved in conducting research to receive recognition. -No work = no name. -Unethical if people are not included who did work in the study or if people are included who did not work on the study. 	55
Order/amount of recognition	<ul style="list-style-type: none"> -All who help with the research need to be credited, even students. If the information did not come solely from one researcher's work then others should be listed in order of their contribution. -The author who does the most comes first. Those who did the least come last. I don't care what letter your last name starts with or how much rank you have. -The person or persons who did the most work in the research gets the most credit, and their name should be listed first on any publications. -The person who did the most work should have his or her name first and receive the most credit. -If there are disagreements over the order there might be problems especially when the authors are in a student/teacher relationship. 	12
Claiming ownership of others' work	<ul style="list-style-type: none"> -That's not fair if they did not do the work. -It wasn't your work. -If they didn't actually conduct the research. -If they did not do the work. -If you take credit that does not belong to you, or don't give credit to someone that deserves it, that is a form of deception, and is not ethical. 	8
Confusion	<p>Credit as an incentive for participation</p> <ul style="list-style-type: none"> -I think this is just extra incentive, don't think it's really a matter of ethics. -Participant may only perform the research just for extra credit and may provide false info. -Need to also offer something to those who don't participate. -They may feel that they have to do this experiment to receive a passing grade. -While it may be a minor issue, it does compromise true randomness. 	25
Misconceptions	<p>Acknowledgement of research participants</p> <ul style="list-style-type: none"> -All in research may be given credit unless they choose to remain anonymous. -People deserve the credit if they put a considerable amount of time into the research. -A researcher has to give credit to all the people involved in the experiment. 	4

Table 2 (continued)

Assignment of credit to contributors	Examples	n
Failure to cite sources	<ul style="list-style-type: none"> -Make sure their identity is not traced back to their answers. -Plagiarism. -If due credit isn't mentioned then it is plagiarism. - If the work isn't cited correctly, it could be plagiarism. 	3

The students detested practices that undermined the contributions by students in their faculty members' research. They pointed to an ethical dilemma involving power relations and status, as in the following examples:

All who help with the research need to be credited, even students. If the information did not come solely from one researcher's work then others should be listed in order of their contribution (Female undergraduate, psychology).

I feel like students often do a lot of work and are not given the credit that they deserve because they currently don't have a masters or PhD so the professor gets most of the recognition. This needs to change and everyone involved needs to get the same credit (Male graduate, psychology).

One category pertained to the unethical nature of claiming ownership for others' work and failing to acknowledge other contributors in the research. The examples in this category went beyond simply stating that one should not claim credit for others' work. These students made an effort to explain why something should or should not be done, seeking to explain the connection between the practical phenomenon and an ethical perspective. In the quote below, the student links the issue to deception as a form of unethical behavior:

If you take credit that does not belong to you, or don't give credit to someone that deserves it, that is a form of deception, and is not ethical (Female undergraduate, psychology).

Dissemination of the Research

The students' conceptions were grouped into twelve categories named Anonymity (14 respondents), Confidentiality (8), Protection of participants (7), Reliability (6), Availability of findings (6), Altering purpose or findings (4), Selective reporting (3), Informed consent (3), Adherence to guidelines (2), Beneficence/nonmaleficence (2), Responsibility for interpretation and consequences (1), Data ownership (1), and Indirect relationships and uncertainties (4) (See Table 3).

The main concerns that the students had pertaining to ethical issues in dissemination of research findings were maintaining anonymity and confidentiality. The students also provided examples on the altering of the purpose or findings, or of selective reporting.

Both anonymity and confidentiality concerns are related to the protection of individuals. The following is an example in which the student sees this type of ethical issue as the only potential problem in dissemination. As there are various other forms of ethical

Table 3 Student conceptions of the dissemination of research

Issues in dissemination	Examples	n
Anonymity	<ul style="list-style-type: none"> -Can be an ethical issue if the participants can be identified. -If people's identities are revealed. -If information could be used to identify participants. -Findings have to be presented without participant information, not linked to any one person. -Participants' names should not be reported. 	14
Confidentiality of data	<ul style="list-style-type: none"> -All data of participants identity must be kept confidential. -If disseminations interfere with confidentiality. -Depending on what information is given out relating to participant identifying characteristics could be an ethical issue of privacy/confidentiality. -Yes, you cannot give the information to just anyone. Especially if there is confidential information involved. -Some things should be withheld. 	8
Protection of participants	<ul style="list-style-type: none"> -Information may affect a specific population or stigmatize a group. -If the data came from a small sub-group and can be linked to the participant. -Participants treated fairly, given findings. -If the information gathered is presented incorrectly or with links to participants. -Does the recipient of the participants' info present a conflict of interest? 	7
Reliability	<ul style="list-style-type: none"> -Can be an ethical issue if participants are given information about the findings before their participation is over. -Explanation must not be skewed. -You have to publish results so others can run it again looking at your Methods section and then expose you as a fraud like the man at Notre Dame. -If results are revealed prematurely it could result in false findings and only those to whom the information is professionally required should have access to anything sensitive. 	6
Availability of findings	<ul style="list-style-type: none"> -Have a right to know what the research found. -The findings must be made broadly available to the public. -Should be able to have access to overall results, not necessarily individual results. -If not everyone who wants the findings gets them. -The findings of a study should be shared with the school of research, for the benefit of everyone, and participants should be allowed to know the results of a study. 	6
Altering purpose or findings	<ul style="list-style-type: none"> -Findings shouldn't be altered. -If findings are altered by researchers to show significance that does not truly exist. -Unethical if findings are not reported truthfully. -If it is not for the original purpose of the study. 	4

Table 3 (continued)

Issues in dissemination	Examples	n	
Informed consent	<ul style="list-style-type: none"> -They need to know how the information they helped give will be used and that it will not be used in a way they would disapprove of, such as supporting an organization they hate. -Participants should give permission for disclosing their results. -If participants learned that they didn't previously know but had consented prior to full disclosure to whomever the results would be viewed. 	3	
Selective reporting	<ul style="list-style-type: none"> -Restricted dissemination of negative (or positive) findings can be utilized to skew or manipulate public perception of (and laws pertaining to) drugs or treatments being investigated. This is a form of lying. -If not everything is reported and some is withheld then that is a disadvantage to the entire scientific world, especially if it is against popular belief. -Can be subjective sometimes. 	3	
Adherence to guidelines	<ul style="list-style-type: none"> -If it is not done to specifications of the APA. -Must follow the correct guidelines of APA when publishing research/must continue to use confidentiality. 	2	
Beneficence/ Nonmaleficence	<ul style="list-style-type: none"> -Not right to keep important info from others especially if it can cure, help or harm them. e.g., cancer research findings. -If findings support that a certain drug is actually harmful, then the researcher must publish information. 	2	
Data ownership	<ul style="list-style-type: none"> -Researcher must consider who owns the data and only disseminate with approval. 	1	
Responsibility for interpretation and consequences	<ul style="list-style-type: none"> -Can become an ethical issue if the dissemination leads to a skewed interpretation and misuse of the data collected....can lead to wrong conclusions.....data can be spread out and analyzed from many different angles, but the conclusion has to come about in such a way that the information is not used in a slanderous way to support something that the information was not intentionally collected for. 	1	
Indirect relationships and uncertainties	Methodological	<ul style="list-style-type: none"> -Appropriate statistics need to be used. -That's what Statistics IS, but depends on the context of the situation. 	2
	Confidentiality of findings	<ul style="list-style-type: none"> -Results are to remain confidential unless otherwise specified. 	1
	Sharing findings	<ul style="list-style-type: none"> -I am unsure if the findings need to be shared with others. 	1

considerations, this kind of view could also be said to represent a limited conception, a misconception even:

Dissemination can be an ethical issue only if the findings in some way allow individual participants to be identified and their input compromised (Male graduate, psychology).

The protection of participants was a concern raised by seven students. Their responses dealt with the risks of stigmatization and the results harming the research participants. The main message appeared to be when taking the results into account, participants should be considered in a fair manner:

Participants treated fairly, given findings (Female graduate, psychology).

A handful of examples concerned the reliability of research and its reporting (6), and the availability of findings (6). Alteration of the purpose of the findings was a concern raised by four students. All but one of the examples was related to altering findings (one to altering the research purpose). The following is a typical example:

Dissemination can be an ethical if findings are altered by researchers to show significance that does not truly exist (Female graduate, psychology).

Informed consent and selective reporting were also issues, each raised by three students. Participants having to have information about how the data they provide will be reported and disseminated, was one of the examples of informed consent. The following is typical of a well-elaborated example on selective reporting, in which the concern is tied to both an ethical principle, i.e. lying as a form of dishonesty, and the consequences, i.e. public perception:

Restricted dissemination of negative (or positive) findings can be utilized to skew or manipulate public perception of (and laws pertaining to) drugs or treatments being investigated. This is a form of lying (Male graduate, psychology).

A category closely related to the principle of not doing harm was that of Responsibility for interpretation and consequences. The following is a well-elaborated example in which the researcher's responsibility is extended beyond mere reporting to at least partly understanding the consequences of the research. Here the researcher must anticipate the areas of potential misinterpretation and the misuses of the findings, and therefore, in his or her reporting, be as clear and unambiguous as possible:

Dissemination can become an ethical issue if the dissemination leads to a skewed interpretation and misuse of the data collected....can lead to wrong conclusions..... data can be spread out and analyzed from many different angles, but the conclusion has to come about in such a way that the information is not used in a slanderous way to support something that the information was not intentionally collected for (Female undergraduate, other major).

One category that stood alone was the benefitting and not causing harm to the participants through the reporting of findings (Beneficence/nonmaleficence). The examples in this category pertained to the unethical nature of not reporting findings that might cause harm, or of not disseminating findings that would benefit people. The examples in this category were concerned with people beyond the group of research participants. Students tended to limit their views to the research participants and not necessarily to looking at the consequences beyond that immediate group. These examples in which the students managed to look beyond the particular research and generalize the ethics to broader principles appeared to reflect a more elaborate conception of research ethics. These are, however, rare in the data. Further, two students mentioned data ownership and an adherence to APA guidelines.

There were no evident misconceptions pertaining to dissemination. Rather, there were a few examples that are better described as indirect relationships with dissemination. These tended to diffuse the ethical and methodology issues. Moreover, none of the examples are misconceptions in the sense that they would be entirely incorrect, but they were only partially correct, or they pertained to other ethical aspects than dissemination directly. For instance, the following assertion is perfectly true, but it is more an issue of the ethics pertaining to methodological and analytical choices. It is true that analytical tools can be adopted to manipulate outcomes in a desired direction, which puts the selection of the methods of analysis and dissemination in an indirect relationship:

Appropriate statistics need to be used (Male, undergraduate, psychology).

One student was unsure as to the researcher's obligation to report the findings, which reflects more the student's uncertainty rather than a misconception. It is true that there might be ethical issues that restrict the researcher's reporting without making him or her guilty of selective or biased reporting. Another student provided an example that illustrated the confidentiality of results:

Results are to remain confidential unless otherwise specified (Male, undergraduate, psychology).

It is true that results may be kept confidential, but typically this would not be the case in the behavioral and social sciences. The student appears to think this is always the case. It is also possible that the student has confused the confidentiality of data with the confidentiality of results, in which case this would be an evident misconception.

Discussion

Although an overwhelming number of the examples related to the ethical issues in citation dealt explicitly with plagiarism, the examples demonstrate that students also associated a range of other, and perhaps less evident ethical issues to citation. Plagiarism, failure to cite, and stealing, which are interconnected and overlap, were related to the acknowledgement function (cf. West and Stenius 2008). Examples illustrating this category were the most frequent ones. However, the depth of the students' understanding of plagiarism could generally not be determined as the students simply used the concept "plagiarism" without defining whether they meant sham paraphrasing, copying material verbatim, purloining (cf. Walker 2010), or all of these. The findings support the idea that the most common definition students would provide is copying material verbatim and presenting it as one's own. In addition to the ethical concerns, legal viewpoints were expressed as well, indicating that students may not be able to distinguish research ethics and law (cf. also Gullifer and Tyson 2010). The finding suggests that the research ethics may not have been understood in terms of the ethical principles that it promotes. Misconceptions related to the citation of others' work were not particularly common.

Of the three ethical aspects investigated, the question concerning the dissemination of findings produced the broadest variety of different responses, and the least number of misconceptions. Simultaneously, only 23% of the students provided an example, however, these tended to be quite sophisticated and well-elaborated. The students tended to view the dissemination of research findings through the need to maintain anonymity and confidentiality, or more broadly, as a matter of protecting the research participants, which is one of the central questions in research ethics, and thus an encouraging finding.

Assignment of credit to those involved in conducting the research was mostly associated with acknowledging the contributors in general. Some students produced examples related to the finer aspects of acknowledgment, such as the order of recognition. The student contributions while assisting in faculty research was used as an example to illustrate the point of acknowledging contributions regardless of the formal status of the contributor in the research group. This finding illustrates that personal experiences may have an impact on the degree of awareness of different sides of research ethics. Simultaneously, it emphasizes the importance of fairness and recognition.

Relatively many students confused giving credit to the conductors of the research with providing incentives for participation in research. Retrospectively, it is quite understandable that some students would primarily associate the word "credit" with study points earned in class, as this is something that students encounter in their daily life as course participants and university students. Worded in another way the question may have produced fewer misconceptions of this type. Misconceptions pertained to acknowledging the research participants, which indicated that the students confused the roles and responsibilities of researcher and participants.

Quite understandably students tended to view the questions about both the assignment of credit to those involved in conducting the research and the dissemination of research findings from the research participant's perspective, which may be much more familiar to them than the researcher perspective. This is not to say that the research participant perspective is less valuable. On the contrary, this is a good basis for broadening student understanding of ethical issues to include the perspectives of the various stakeholders. In order to help the students to expand their notions beyond their own immediate experience to general ethical principles, it is desirable that students be provided with opportunities to participate in authentic research projects, not only as respondents and informants, but also as research assistants.

The measures suggested above might help students to imagine the perspectives and viewpoints of other people triggering empathetic understanding and making the research ethics a more personalized experience. Empathy, as the individual's ability to imagine how another person feels or how oneself might feel in a similar situation, and role-taking are considered as two aspects of moral sensitivity (Bebeau et al. 1999) necessary in ethical judgment. Prior research supports the notion that ethical sensitivity is a skill that can be taught and learned; educational interventions on research ethics have proven successful in this regard (Fisher and Kuther 1997; Clarkeburn 2002a; cf. also Clarkeburn 2002b; Sirin et al. 2003).

To reach higher levels of understanding, i.e. a relational or extended abstract level (cf. Biggs 1999), students need to be confronted with ethical content and to be exposed to moral language (cf. Butterfield et al. 2000). Echoing King and Kitchener, Fisher and Kuther (1997) based on their study on case-based ethics training, point out that university education may facilitate development in moral judgment, but in order to actually change students' epistemic assumptions, immersion in ethics education may be needed.

Students could be given opportunities to cooperate with researchers "shadowing" them as they design their research, plan their data-collection and perform the analyses. Essentially such encounters with researchers would help make research ethics personal making it more meaningful to the individual students. Simultaneously, student contributions need to be recognized so that the students do not experience being taken advantage of, which was also a type of ethical issue raised in some examples, and recognized in the study by Goodyear et al. (1992) as well.

The sample was collected within a single institution and the data should not be generalized to apply to all the students affiliated with psychology programs. Nevertheless,

the study provides insights into the variety of conceptions, and can serve to raise the awareness of students' thinking. It is important that the faculty be familiar with the nature of their students' conceptions and the types of misconceptions the students harbor so that they can be prepared to address these issues in their teaching.

Conclusions

The following points synthesize the research findings and make suggestions for research ethics training:

- The research participant's perspective was the most familiar for the students. When vignettes, cases and other materials are used in ethics training, it is recommended that the materials encourage students to think of various perspectives, even contradictory views, in order to help students to learn to analyze issues in research ethics holistically involving the views of a range of stakeholders.
- Working towards the same goal of expanding the perspectives, involvement in the staff's research may be beneficial in providing the researcher's view in addition to the participants' perspective, which students are much more familiar with.
- There may be various underlying beliefs and assumptions related to "plagiarism" or "giving credit to those involved in the research." Explicit misunderstandings of research ethics appeared rare, yet there may be limited or partially accurate understandings despite the fact that the students confidently use the concepts.
- Research ethics and legal viewpoints appeared to be either confused or thought of as the same thing. Research ethics may not have been understood in terms of the ethical principles that it promotes. This finding reminds us of the importance of discussing with the students the very basic questions, such as why do we have research ethics, and what are the values researchers promote by committing to high standards of research ethics.

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