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Hi-tech cheating: a study of student attitudes on academic dishonesty involving the use of information technology

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HI-TECH CHEATING: A STUDY OF STUDENT ATTITUDES ON ACADEMIC
DISHONESTY INVOLVING THE USE OF INFORMATION TECHNOLOGY

A Thesis

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
Requirements for the degree of
Master of Science

In

The Department of Information Systems
and Decision Sciences

By
Michael P. Smith
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Abstract

Despite the fact that research into cheating has continued for several decades, cheating in higher education appears to be widespread and endemic. This may be particularly troublesome for business school students, who, according to some research, appear to cheat more than students in other curriculums.

Technology is giving students new opportunities to cheat. Companies are developing products specifically designed to help students cheat. Although there are some resources and tools to help faculty monitor things such as plagiarism, technology is providing a continuous stream of new opportunities for students to cheat, oftentimes without a high likelihood of being caught.

Beliefs and norms are one indicator for why students cheat. Understanding how students perceive cheating using technology versus cheating using traditional means may provide valuable insights and may form the basis for additional research.

This study tested the hypothesis that students tend to view cheating via technology with more leniency than cheating with traditional means. It did this by examining the results of survey data that asked 148 students to rate the acceptability of behavior in a series of scenarios that included a version using information technology and one using more traditional means. The results of the survey were mixed, leading to the conclusion that the general hypothesis is not supported and that researchers should look into other factors for the reasons behind cheating with information technology.

Chapter 1 - Introduction

Cheating and academic dishonesty are old subjects in higher education research, with studies going back more than 70 years (Etter, Cramer, & Finn, 2006). However, in recent years it appears that cheating in higher education has become widespread and endemic (Spangenberg & Obermiller, 1996).

An article in People Magazine (Heyman, 2005) talks about teachers' concerns about technology, mixed with "old-fashioned sneakiness," making cheating easier and more widespread than in the past. The article discusses several cases such as that of a student using high-tech devices to steal a teacher's computer password and access tests and answers stored on a computer. It goes on to mention that downloading material from the Internet and incorporating it into academic work without attribution has become much more common. This trend exists despite the availability of tools such as TurnItIn.com to help detect plagiarism. According to the article, all of this is exacerbated by the stigma once associated with cheating being in decline.

Another article (Beck, 2007) talks about the cheating scandal which has rocked Duke's school of business. The article notes that despite the increased emphasis by many business schools on ethics since corporate scandals such as Enron, cheating is still a problem and continues to show that modern business culture requires that laws such as Sarbanes-Oxley be maintained at full strength. Some are claiming that degrees are losing their value because of cheating and that universities should be doing more to prevent it (Gulli, 2007).

Business school students appear to cheat more than students in other curricula (McCabe, Butterfield, & Trevino, 2006). Goshal (2005) argued that this may be because of economic theories, laissez-faire market philosophies, "ideologically inspired amoral theories", emphasis on

shareholder wealth over other societal stakeholders, and other concepts that modern business curricula are often founded on.

Technology is giving students new opportunities to cheat and companies are developing products specifically designed to help students with their academic dishonesty (7 Technical Gadgets That Can Help You Cheat at Exams, 2007) (Clark, 2007). Examples would be the text messaging and the built-in camera features included with many cell phones, tiny MP3 players to playback pre-recorded notes, calculators that can hold text, formulas, and images, miniature wireless earpieces, Pocket PCs and Palms, and Invisible Ink Pens. While there are resources and tools to help faculty detect and monitor things such as plagiarism, technology is providing new opportunities for students to cheat without being caught.

Why is cheating so prevalent? According to an Academic Dishonesty guide (Whitley & Keith-Spiegel, 2002), beliefs and norms can be an indicator for why student's cheat. There is currently a dearth of research in this area (Boutte & Phipps, 2006). Understanding how students perceive cheating using technology versus cheating using traditional means may provide valuable insights and may form the basis for additional research. The hypothesis that this study tested was that students are inclined to view academic dishonesty using information technology with more leniency than academic dishonesty with more traditional means.

Chapter 2 – Literature Review

As mentioned in the previous section, research on student cheating goes back more than 70 years (Etter, Cramer, & Finn, 2006). Etter, et al. cite two major reviews in the 90's of prior work that have set the groundwork for research in recent years. Both of these studies were reviews of work done in the years before the Internet came into dominance so neither includes the effects of modern information technology on academic dishonesty. These studies focused on two domains for causes of cheating. The first was situational factors. The second was individual factors such as sociological and psychological issues.

The first study (Crown & Spiller, 1998) reviewed research done during the period from 1970 through 1995. Among their findings were that the effects of gender on academic dishonesty appeared to lessen over time (Ward & Beck, 1990) as the role of women in society has changed. They also found that students with lower GPAs and business majors tended to cheat more than other students.

The second study (Whitley, 1998) reviewed nearly the same 25 year period as Crown and Spiller. Whitley found that two factors dominated the reasons for cheating. These were a perception of social norms that tolerated cheating and overall attitudes toward cheating. The review also noted individual factors that had moderate effects on cheating such as age, course task behavior, and deviant behavior. Whitley later followed up on the initial research, (Whitley, Bichmeier Nelson, & Jones, 1999) focusing exclusively on the role of gender. This study found that while women had lower tolerance for cheating, their actual incidence of cheating was still similar to that of men.

Etter, et al. (2006) noted in their review that much of the research in the last ten years has focused on the effectiveness of honor codes in reducing academic dishonesty (Browne &

Howell, 2001; McCabe & Trevino, 2002; McCabe, Trevino, & Butterfield, 2001; Zabihollah, Elmore, & Szendi, 2001).

Recent research has been oriented toward individual factors that influence whether or not students cheat. These include studies that have looked into the social acceptability of cheating (Smyth & Davis, 2003), the probability of being caught (Buckley, Wiese, & Harvey, 1998), and cross-cultural differences (Salter, Guffey, & McMillan, 2001).

Students are confused about what constitutes plagiarism and other techniques and whether or not they are academically dishonest (Allmon, Page, & Roberts, 2000).

In this review of prior research on academic dishonesty, the only study found that examined the role of information technology in academic dishonesty was conducted by Etter, Cramer and Finn (2006). The study cataloged many scenarios of students' use of information technology for academically dishonest use. Some examples of scenarios that were found include:

- “Buying a paper online and submitting it as your own.”
- “Copying and pasting an essay from the Internet and submitting it as your own”
- “Copying and pasting one sentence from an online source without acknowledging the source.”

These scenarios were then rated ethically using surveys. After analyzing the results, Etter, et al. noted that overall personality factors and ethical principles seemed to have the same effect on both traditional forms of cheating and those involving the use of technology. They went on to conclude that “there is considerable evidence that both idealism and disinhibition are consistent correlates of attitudes about students using information technology dishonestly” but

that “the number of correlations exhibited by the relativism and the thrill and adventure seeking scales were surprisingly few”(p. 149).

Chapter 3 - Research Method

3.1 Previous Work

This study was based on preliminary work by two LSU students as part of LSU's Pre-Doctoral Scholar's Institute, Jason Boutte and Aaron Phipps (2006). As a first step in the research, Boutte and Phipps conducted a focus group session to: 1) develop an initial set of scenarios of academic dishonesty by undergraduate students using information technology, 2) to understand the perceptions that students had regarding the prevalence of these scenarios, and 3) to gain an initial understanding of their attitudes toward these scenarios as compared to scenarios that did not involve information technology.

The focus group had approximately 10 participants, with the session lasting approximately 1 hour. No identifying information was associated with the students' individual contributions. The student's participation was completely voluntary. The sessions were conducted by Mr. Boutte and Mr. Phipps, both undergraduate students at that time. No faculty were present during the session, so that students would be open and candid about their views on the topic.

The result of the focus group session was a catalog of ten scenarios involving academic dishonesty. Each scenario has a version involving the use of information technology and a version using more traditional means.

3.2 Survey

The scenarios developed in the first part of the research provided the content for the survey instrument to test whether students' attitudes toward academic honesty involving information technology were different than academic honesty that did not involve information

technology. This was done by asking the student's to read a series of scenarios and then answer questions about them.

As previously mentioned, each scenario had a version that included the use of information technology, termed the "technical" version, and a version that did not involve the use information technology, termed the "traditional" version. The following is an example:

- **Technical Version**

A student is working on a homework assignment for an Engineering class and is having difficulty doing the problems. This assignment is worth a high number of points, so the student joins an on-line discussion group for engineers. The student tells group members that they need advice on how these types of engineering design issues could be solved. The student copies the problem solutions suggested by the members of the on-line group and turns this in for the assignment.

- **Traditional Version**

A student is working on a homework assignment for an Engineering class and is having difficulty doing the problems. This assignment is worth a high number of points, so the student approaches a group of graduate engineering students having coffee together at the Library and tells the graduate students that they are trying to learn how these types of engineering design issues could be solved and asks for help. The student copies the problem solutions suggested by the graduate students and turns this in for the assignment.

The wording in the scenarios was carefully crafted to avoid using gender specific pronouns such as "he" or "she" in order to avoid any chance of gender bias. The wording also did not include any explicit names, again to avoid any potential bias.

After review, the wording of some of the original scenarios was changed slightly to give them a more neutral tone to avoid leading the student to a particular conclusion about the scenario. For example, in the above sample, the original scenario had the student misrepresenting why they were asking advice on the engineering problems, not admitting that they were seeking answers for a homework assignment. This slight change made the scenario's tone more neutral and perhaps more morally ambiguous.

In addition, new scenarios, like the one below, that had a more overall moral ambiguity were added.

- **Technical Version**

A student is exploring the computer file system that they do their homework on when they come across tomorrow's test that has accidentally been filed to a public folder and discover that they have access to it. The student downloads the test and reads it.

- **Traditional Version**

A student walks into the instructor's office for study advice but the instructor has left, neglecting to lock the door. The student sees tomorrow's test on the desk. The student quickly scans through the test before the instructor returns.

Each survey had both versions of each scenario. However, the scenarios were presented far enough apart from each other to lessen the chance of the student realizing that they were two versions of the same scenario. In addition, the scenarios generally alternated between technical and traditional ones so that a technical one was followed by a traditional one and so on.

Each scenario was followed by two multiple choice questions. One question pertained to the ethics of the described situation and the other to the student's perception on whether or not it constituted cheating.

- **How acceptable is it for a student to behave this way?**

- Very Acceptable
- Somewhat Acceptable
- Neither Acceptable Nor Unacceptable
- Somewhat Unacceptable
- Very Unacceptable

- **Is this cheating?**

- This is definitely cheating.
- This is unethical, but it is not cheating.
- This is neither unethical, nor cheating.

There were a total of ten scenarios, each with a technical version and a traditional version. Each version of each scenario was followed by the two questions described above, for a total of 40 questions. In addition, there were demographic questions pertaining to age, student classification (freshmen, sophomore, junior, senior, graduate), gender, and a fill in the blank question on major.

To avoid tainting the answers, students were not told that the precise goal of the survey was to measure the difference in their perceptions between cheating with information technology versus traditional means, only that they were taking a survey on their attitudes toward cheating.

The survey was conducted online. Doing so made it easier to invite large numbers of students to take the survey and saved considerable work afterward since the data was already largely recorded in a manner suitable for analysis. The survey was constructed using a software package, WebSurveyor Desktop 4.1, and then uploaded and hosted on a Vovici EFM Continuum Server. After conducting a pilot with a class of graduate students, the survey was fine tuned with the feedback received.

Two versions of the online survey were then created. One allowed for complete anonymity for the respondent, collecting no identifying information. The second version also allowed for anonymity by not collecting personal information, but at the end, redirected the user's web browser to a second small survey to collect name, course, and section information. The second survey was designed to allow instructors to give students extra credit for taking the survey. Having the identifying information in a separate survey made it impossible for the researcher to connect the identifying information with specific answers, allowing respondents to have a comfort level that their responses would remain anonymous.

Once the surveys were finalized, students were solicited to take the survey. An effort was made to obtain a cross section of undergraduate students in different majors, with different classifications, age, and gender. Groups solicited included student workers in LSU's IT department and several large classes within the College of Business that included students from variety of majors. The students solicited from the classes were generally offered extra credit to take the survey.

3.3 Analysis

At the time that the data was analyzed, there were a total of 148 respondents across both surveys. The results were exported from the Vovici EFM Continuum into SPSS data files which were then merged and analyzed in SPSS. The survey answers were coded so that the Likert scale in the first question translated as "Very Acceptable" = 0 to "Very Unacceptable" = 4 with the scale in the second question translated as "This is definitely cheating" = 0 to "This is neither unethical, nor cheating" = 2.

Statistical tests were performed to see if there were any significant differences across the demographic variables of age, gender, student status (freshmen, sophomore, junior, senior, graduate). None of these demographic variables showed a significant difference. Since previous studies had indicated a greater incidence of cheating among business school students, the major field was coded to classify students as either business students or non-business students. Statistical tests were then performed but again, no statistically significant difference was found between business and non-business majors. Table 1 shows the demographics of the respondents.

Table 1. Demographics of Respondents.

Demographic	Count	Percentage
<u>Age</u>		
Under 18	1	0.68%
18-19	38	25.68%
20-21	67	45.27%
22-23	30	20.27%
24-25	7	4.73%
26-30	3	2.02%
Over 30	2	1.35%
<u>Gender</u>		
Male	82	55.41%
Female	66	44.59%
<u>Student Classification</u>		
Freshmen	1	0.68%
Sophomore	43	29.05%
Junior	45	30.41%
Senior	56	37.84%
Graduate Student – Master’s	2	1.35%
Graduate Student – Doctoral	1	0.68%
<u>Business Major?</u>		
Yes	111	75.00%
No	34	22.97%
No answer	3	2.03%

To test the main hypothesis, that students view academic dishonesty with technology more leniently than with traditional methods, the difference in question scores between the technical and traditional scenario versions were then examined.

Table 2 below is a summary of the results. Each question was given a code. The code was composed such that questions pertaining to technical scenarios (NEW) began with an N. Questions pertaining to traditional scenarios (OLD) began with an O. The questions about acceptability of the behavior were coded with an A as the second letter while the questions asking if the behavior was cheating were coded with a C. Finally, the last character of the code referred to the scenario number.

For example, the first acceptability question of the first technical scenario would be NA1 and the first cheating question of the first traditional scenario would be OC1. Since each scenario had a traditional (OLD) version and a technical (NEW) version, each had an NA, an NC, an OA, and finally an OC question.

The left most column of table 2 lists the scenario number.

For each scenario number, the second column lists the average of the Likert ratings for the technical acceptability question, followed by the average ratings for the traditional acceptability question, then by the same averages for the corresponding cheating question.

The third column shows the difference between the average technical and traditional ratings. Note that for the acceptability questions, if the difference is negative, it indicates that the technical version is more acceptable, while a positive difference indicates more acceptability for the traditional version. This relationship is reversed for the cheating question, where a positive difference indicates more acceptability for the technical version and a negative one indicates more acceptability for the traditional one.

The remaining columns are the results of statistical tests, the t-value and p-value respectively.

As can be seen in the results table, two scenarios, 4 and 8, showed a statistically significant difference in the hypothesized direction. Two other scenarios, 5 and 7, did show a significant difference, but in the opposite direction from what was hypothesized. The remaining six scenarios did not show a statistically significant difference in ratings between the technical and traditional versions.

Table 2. Results Summary

CODING LEGEND:

How acceptable is it for a student to behave this way?

- Very Acceptable (value = 0)
- Somewhat Acceptable (value = 1)
- Neither Acceptable Nor Unacceptable (value = 2)
- Somewhat Unacceptable (value = 3)
- Very Unacceptable (value = 4)

{lower value = more acceptable}

Is this cheating?

- This is definitely cheating. (value = 0)
- This is unethical, but it is not cheating. (value = 1)
- This is neither unethical, nor cheating. (value = 2)

{lower value = more perceived as cheating/unethical}

Paired Scenario 1 – Exam – Camera Phone/Images to Friends (NOT SIGNIFICANT):

NEW (Technical): While they are taking a test, a student uses a camera phone to take pictures of the entire test. They show the images to their friends who are in another section taking the same test later in the day.

OLD (Traditional): Following a test, a student sneaks a copy of the test out of the classroom when they leave. They show the test to their friends in another section of the course who will take the same test later in the day.

(table continued)

Scenario	Question	Rating	Difference	t-value	p-value
		Mean	in Rating Mean		
1	NA1	3.66	0.00	0.00	1.00
	OA1	3.66			
	NC1	0.08	-0.02	-0.73	0.47
	OC1	0.10			

Paired Scenario 2 – Exam – Text Messaging (NOT SIGNIFICANT):

NEW (Technical): While taking a test, a group of students uses Text Messaging to ask for and send answers to exam questions.

OLD (Traditional): While taking a test, a group of students passes paper notes to ask for and send answers to exam questions.

Scenario	Question	Rating	Difference	t-value	p-value
		Mean	in Rating Mean		
2	NA2	3.73	-0.05	0.82	0.41
	OA2	3.78			
	NC2	0.05	0.02	-0.90	0.37
	OC2	0.03			

Paired Scenario 3 – Exam – Cellphone/Internet (NOT SIGNIFICANT):

NEW (Technical): A student is taking a History test. When the professor isn't looking, the student uses their cellphone to access the Internet to find various facts, dates and events needed to answer the questions.

OLD (Traditional): A student is taking a History test. They bring a 'cheat sheet' to the class with various facts, dates and events and refer to it to answer questions when the professor isn't looking.

Scenario	Question	Rating	Difference	t-value	p-value
		Mean	in Rating Mean		
3	NA3	3.80	0.10	-1.79	0.08
	OA3	3.70			
	NC3	0.03	-0.03	1.68	0.10
	OC3	0.06			

(table continued)

Paired Scenario 4 – Exam – Accidental Computer Access (SIGNIFICANT)

NEW (Technical): A student is exploring the computer file system that they do their homework on when they come across tomorrow’s test that has accidentally been filed to a public folder and discover that they have access to it. The student downloads the test and reads it.

OLD (Traditional): A student walks into the instructor’s office for study advice but the instructor has left, neglecting to lock the door. The student sees tomorrow’s test on the desk. The student quickly scans through the test before the instructor returns.

Scenario	Question	Rating	Difference	t-value	p-value
		Mean	in Rating Mean		
4	NA4	2.32	-0.99	-9.77	0.00
	OA4	3.31			
	NC4	0.80	0.51	9.27	0.00
	OC4	0.29			

- Significant difference in acceptability – Technical < Traditional
{ Technical more acceptable }

Paired Scenario 5 - Assignments – Hacking – SIGNIFICANT – (But opposite from what was hypothesized):

NEW (Technical): A student hacks into a computer in a computer lab, finds files with other students' source code for programming assignments and copies their work.

OLD (Traditional): A student goes dumpster diving through the trash from a computer lab, finds printouts of other students' source code for programming assignments and copies their work.

Scenario	Question	Rating	Difference	t-value	p-value
		Mean	in Rating Mean		
5	NA5	3.78	0.28	-4.02	0.00
	OA5	3.50			
	NC5	0.10	-0.13	3.68	0.00
	OC5	0.23			

(table continued)

- Significant difference in acceptability – Technical > Traditional {Traditional more acceptable}
- Significant difference in cheating/ethicality – Technical < Traditional {Perceive Traditional less as cheating/unethical}

Paired Scenario 6 – Assignment – e-mail/IM collaboration (NOT SIGNIFICANT):

NEW (Technical): Students are given an assignment that they are expected to complete independently without discussion. The students use e-mail and instant messaging to work together on the assignment.

OLD (Traditional): Students are given an assignment that they are expected to complete independently without discussion. The students get together at the library to collaborate on the assignment.

Scenario	Question	Difference		t-value	p-value
		Rating Mean	in Rating Mean		
6	NA6	2.54	0.17	2.12	0.04
	OA6	2.37			
	NC6	0.75	-0.09	-1.68	0.10
	OC6	0.84			

Paired Scenario 7 – Assignment – On-line discussion group – SIGNIFICANT – (But opposite from what was hypothesized)

NEW (Technical): A student is working on a homework assignment for an Engineering class and is having difficulty doing the problems. This assignment is worth a high number of points, so the student joins an on-line discussion group for engineers. The student tells group members that they need advice on how these types of engineering design issues could be solved. The student copies the problem solutions suggested by the members of the on-line group and turns this in for the assignment.

OLD (Traditional): A student is working on a homework assignment for an Engineering class and is having difficulty doing the problems. This assignment is worth a high number of points, so the student approaches a group of graduate engineering students having coffee together at the Library and tells the graduate students that they are trying to learn how these types of engineering design issues could be solved and asks for help. The student copies the problem solutions suggested by the graduate students and turns this in for the assignment.

(table continued)

Scenario	Question	Rating	Difference	t-value	p-value
		Mean	in Rating Mean		
7	NA7	2.51	0.35	-4.39	0.00
	OA7	2.16			
	NC7	0.81	-0.22	3.95	0.00
	OC7	1.03			

- Significant difference in acceptability – Technical > Traditional {Traditional more acceptable}
- Significant difference in cheating/ethicality – Technical < Traditional {Perceive Traditional less as cheating/unethical}

Paired Scenario 8 – Assignment – FLY pen (SIGNIFICANT – Support Hypothesis):

NEW (Technical): A student needs to write an essay for their Spanish class. They write the essay in English and then use a FLY pentop computer to translate the essay into Spanish.

OLD (Traditional): A student needs to write an essay for their Spanish class. They write the essay in English and ask a friend who is an international student from Spain to translate the essay to Spanish for them.

Scenario	Question	Rating	Difference	t-value	p-value
		Mean	in Rating Mean		
8	NA8	2.59	-0.34	-3.98	0.00
	OA8	2.93			
	NC8	0.73	0.20	3.80	0.00
	OC8	0.53			

- Significant difference in acceptability – Technical < Traditional {Technical more acceptable}
- Significant difference in cheating/ethicality – Technical > Traditional {Perceive High-tech less as cheating/unethical}

Paired Scenario 9 – Assignment – Copy from Website – NOT SIGNIFICANT:

OLD (Traditional): A student is working on a paper and copies a section, word for word, from a book they checked out from the library. No reference to the book is provided in the paper.

(table continued)

NEW (Technical): A student is working on a paper and copies and pastes a section of text from a public web site. No reference to the site is provided in the paper.

Scenario	Question	Rating	Difference	t-value	p-value
		Mean	in Rating Mean		
9	NA9	3.63	-0.05	0.94	0.35
	OA9	3.68			
	NC9	0.16	-0.02	0.73	0.47
	OC9	0.18			

Paired Scenario 10 – Assignment – E-mail copy/paste – NOT SIGNIFICANT:

NEW (Technical): A student's friend emails them in a panic. The friend does not have enough time to complete the assignment and asks the student to send them their completed assignment so the friend can copy and paste from it to save time. The student emails the friend a copy of their assignment.

OLD (Traditional): A student's friend comes to them in a panic. The friend does not have time to complete the assignment and asks to look at and copy from the student's answers to save time. The student agrees to help.

Scenario	Question	Rating	Difference	t-value	p-value
		Mean	in Rating Mean		
10	NA10	3.14	0.24	2.88	0.01
	OA10	2.90			
	NC10	0.35	-0.09	-1.84	0.07
	OC10	0.44			

Chapter 4 – Discussion

A review of the results shows that the general hypothesis is not supported. While four of the scenarios did show statistically different results between the technical and traditional version, only two of the scenarios showed statistically different results in the direction of the hypothesis.

Examining the four scenarios that showed statistical differences, one pattern that seems to emerge is that the majority of these scenarios had more moderate ratings than the majority of the scenarios that did not show a significant difference. In other words, the scenarios that did have a significant difference seemed to be generally more morally ambiguous. Scenarios 4, 7 and 8 had ratings of under 3.0 on the acceptability question and over 0.5 on the cheating question, at least on the technical versions, with scenario 4 being the only one with traditional scores far less moderate.

Scenarios 5 and 6 stand out as exceptions to this pattern. Scenario 5 showed a significant difference but did not have a moderate score while 6 did not show a significant difference but did have a moderate score. Scenario 5's language may be a factor for its exception status. The scores may have been influenced by the terms "hack" versus "dumpster diving" with "hack", given the tumult of the last few years with computer security issues, having a more negative connotation. The other exception, scenario 6, seems to show that students have a relatively lenient view of collaboration and do not see technology making a difference.

It may be worth noting that in three of the four scenarios that showed a difference, the differences, while statistically significant, do not seem very large. The one scenario that did show a large difference in the direction of the hypothesis, scenario 4, was perhaps the most morally ambiguous one in the collection, involving instructor negligence that led to a potentially tantalizingly tempting situation for the student.

The other scenario that supported the hypothesis, 8, involved the use of a fairly novel device, a FLY pen computer. The novelty of the scenario may be a factor in students' attitudes with scenario 4 being a fairly novel situation and 8 involving a somewhat novel device. The other scenarios with a significant difference seemed to involve more common technologies or uses of these technologies.

Three of the four scenarios that showed a difference involved the use of a full personal computer. None of the scenarios using cell phones, scenarios 1, 2 and 3, showed a significant difference. Only one scenario that did not involve the use of a personal computer, scenario 8, showed a significant difference. However, it should be noted that the scenarios using cell phones also involved cheating on tests as opposed to cheating on an assignment, which might be a more significant factor.

While the results of this study seem to show that students' tolerance or attitude toward cheating is not affected generally by the use of information technology, there remains a widespread perception that students are more likely to cheat with information technology. Nothing in this study disproves this perception. The reason for students' likelihood of using information technology to cheat may simply be that students perceive a lower chance of being caught than when using traditional means. One possibility for future research may be to verify this supposition. There has been research into the effects of perception on the probability of being caught (Buckley, Wiese, & Harvey, 1998) but a study of students' perception with information technology seems called for.

Other possibilities for further research may be to explore the relationship between the degree of moral ambiguity and attitudes toward technology and the effect of specific types of technology such as cell phones, laptops, FLY pens, and other devices.

In conclusion, cheating or academic dishonesty continues to be an important subject. While this study shows that attitudes toward cheating are generally not affected by information technology, the fact remains that information technology has become a substantial factor in academic honesty and more research in this important area seems warranted.

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Appendix – Survey

Note that the coding above each question number was not visible to the survey respondents.

Survey on Student Attitudes Toward Cheating

We are a team of researchers at Louisiana State University who are trying to learn more about the student attitudes toward academic dishonesty.

Please be very candid in your responses and try to go with your initial reaction to the described scenario. You cannot get into any trouble for your responses. Individual answers will not be matched with any identifying information. The survey is completely confidential and voluntary and should take about 10-15 minutes to complete.

If you have any questions about this study or the survey, please contact us using the email addresses given below.

Thanks for your time and participation!

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This survey is based on preliminary work completed by Aaron Phipps and Jason Boutte.

INFORMED CONSENT

(LSU Institutional Review Board (IRB) Contact: Dr. Robert C. Mathews, Chairman, at 203 B-1 David Boyd Hall, Phone (225) 578-8692.)

This survey questionnaire is intended to provide information about student attitudes toward cheating. Responses to this questionnaire are confidential. Your individual responses will not be shared with anyone other than the researchers. Furthermore, all data collected from this questionnaire will be presented in summary form only. Your participation in this study is purely voluntary, and you may stop at any time.

Please select 'Next Page' below to indicate your consent to voluntarily participate in this study. (If you choose not to participate, simply close your browser.)

While they are taking a test, a student uses a camera phone to take pictures of the entire test. They show the images to their friends who are in another section taking the same test later in the day.

NA1

1) How acceptable is it for a student to behave this way?

- Very Acceptable
- Somewhat Acceptable
- Neither Acceptable Nor Unacceptable
- Somewhat Unacceptable
- Very Unacceptable

NC1

2) Is this cheating?

- This is definitely cheating.
- This is unethical, but it is not cheating.
- This is neither unethical, nor cheating.

While taking a test, a group of students passes paper notes to ask for and send answers to exam questions.

OA2

3) How acceptable is it for a student to behave this way?

- Very Acceptable
- Somewhat Acceptable
- Neither Acceptable Nor Unacceptable
- Somewhat Unacceptable
- Very Unacceptable

OC2

4) Is this cheating?

- This is definitely cheating.
- This is unethical, but it is not cheating.
- This is neither unethical, nor cheating.

A student is taking a History test. They bring a 'cheat sheet' to the class with various facts, dates and events and refer to it to answer questions when the professor isn't looking.

OA3

5) How acceptable is it for a student to behave this way?

- Very Acceptable
- Somewhat Acceptable
- Neither Acceptable Nor Unacceptable
- Somewhat Unacceptable
- Very Unacceptable

OC3

6) Is this cheating?

- This is definitely cheating.
- This is unethical, but it is not cheating.
- This is neither unethical, nor cheating.

A student is exploring the computer file system that they do their homework on when they come across tomorrow's test that has accidentally been filed to a public folder and discover that they have access to it. The student downloads the test and reads it.

NA4

7) How acceptable is it for a student to behave this way?

- Very Acceptable
- Somewhat Acceptable
- Neither Acceptable Nor Unacceptable
- Somewhat Unacceptable
- Very Unacceptable

NC4

8) Is this cheating?

- This is definitely cheating.
- This is unethical, but it is not cheating.
- This is neither unethical, nor cheating.

A student goes dumpster diving through the trash from a computer lab, finds printouts of other students' source code for programming assignments and copies their work.

OA5

9) How acceptable is it for a student to behave this way?

- Very Acceptable
- Somewhat Acceptable
- Neither Acceptable Nor Unacceptable
- Somewhat Unacceptable
- Very Unacceptable

OC5

10) Is this cheating?

- This is definitely cheating.
- This is unethical, but it is not cheating.
- This is neither unethical, nor cheating.

Students are given an assignment that they are expected to complete independently without discussion. The students use e-mail and instant messaging to work together on the assignment.

NA6

11) How acceptable is it for a student to behave this way?

- Very Acceptable
- Somewhat Acceptable
- Neither Acceptable Nor Unacceptable
- Somewhat Unacceptable
- Very Unacceptable

NC6

12) Is this cheating?

- This is definitely cheating.
- This is unethical, but it is not cheating.
- This is neither unethical, nor cheating.

A student is working on a homework assignment for an Engineering class and is having difficulty doing the problems. This assignment is worth a high number of points, so the student approaches a group of graduate engineering students having coffee together at the Library and tells the graduate students that they are trying to learn how these types of engineering design issues could be solved and asks for help. The student copies the problem solutions suggested by the graduate students and turns this in for the assignment.

OA7

13) How acceptable is it for a student to behave this way?

- Very Acceptable
- Somewhat Acceptable
- Neither Acceptable Nor Unacceptable
- Somewhat Unacceptable
- Very Unacceptable

OC7

14) Is this cheating?

- This is definitely cheating.
- This is unethical, but it is not cheating.
- This is neither unethical, nor cheating.

A student needs to write an essay for their Spanish class. They write the essay in English and then use a FLY pentop computer to translate the essay into Spanish.

NA8

15) How acceptable is it for a student to behave this way?

- Very Acceptable
- Somewhat Acceptable
- Neither Acceptable Nor Unacceptable
- Somewhat Unacceptable
- Very Unacceptable

NC8

16) Is this cheating?

- This is definitely cheating.
- This is unethical, but it is not cheating.
- This is neither unethical, nor cheating.

A student is working on a paper and copies a section, word for word, from a book they checked out from the library. No reference to the book is provided in the paper.

OA9

17) How acceptable is it for a student to behave this way?

- Very Acceptable
- Somewhat Acceptable
- Neither Acceptable Nor Unacceptable
- Somewhat Unacceptable
- Very Unacceptable

OC9

18) Is this cheating?

- This is definitely cheating.
- This is unethical, but it is not cheating.
- This is neither unethical, nor cheating.

A student's friend emails them in a panic. The friend does not have enough time to complete the assignment and asks the student to send them their completed assignment so the friend can copy and paste from it to save time. The student emails the friend a copy of their assignment.

NA10

19) How acceptable is it for a student to behave this way?

- Very Acceptable
- Somewhat Acceptable
- Neither Acceptable Nor Unacceptable
- Somewhat Unacceptable
- Very Unacceptable

NC10

20) Is this cheating?

- This is definitely cheating.
- This is unethical, but it is not cheating.
- This is neither unethical, nor cheating.

Following a test, a student sneaks a copy of the test out of the classroom when they leave. They show the test to their friends in another section of the course who will take the same test later in the day.

OA1

21) How acceptable is it for a student to behave this way?

- Very Acceptable
- Somewhat Acceptable
- Neither Acceptable Nor Unacceptable
- Somewhat Unacceptable
- Very Unacceptable

OC1

22) Is this cheating?

- This is definitely cheating.
- This is unethical, but it is not cheating.
- This is neither unethical, nor cheating.

While taking a test, a group of students uses Text Messaging to ask for and send answers to exam questions.

NA2

23) How acceptable is it for a student to behave this way?

- Very Acceptable
- Somewhat Acceptable
- Neither Acceptable Nor Unacceptable
- Somewhat Unacceptable
- Very Unacceptable

NC2

24) Is this cheating?

- This is definitely cheating.
- This is unethical, but it is not cheating.
- This is neither unethical, nor cheating.

A student is taking a History test. When the professor isn't looking, the student uses their cellphone to access the Internet to find various facts, dates and events needed to answer the questions.

NA3

25) How acceptable is it for a student to behave this way?

- Very Acceptable
- Somewhat Acceptable
- Neither Acceptable Nor Unacceptable
- Somewhat Unacceptable
- Very Unacceptable

NC3

26) Is this cheating?

- This is definitely cheating.
- This is unethical, but it is not cheating.
- This is neither unethical, nor cheating.

A student walks into the instructor's office for study advice but the instructor has left, neglecting to lock the door. The student sees tomorrow's test on the desk. The student quickly scans through the test before the instructor returns.

OA4

27) How acceptable is it for a student to behave this way?

- Very Acceptable
- Somewhat Acceptable
- Neither Acceptable Nor Unacceptable
- Somewhat Unacceptable
- Very Unacceptable

OC4

28) Is this cheating?

- This is definitely cheating.
- This is unethical, but it is not cheating.
- This is neither unethical, nor cheating.

A student hacks into a computer in a computer lab, finds files with other students' source code for programming assignments and copies their work.

NA5

29) How acceptable is it for a student to behave this way?

- Very Acceptable
- Somewhat Acceptable
- Neither Acceptable Nor Unacceptable
- Somewhat Unacceptable
- Very Unacceptable

NC5

30) Is this cheating?

- This is definitely cheating.
- This is unethical, but it is not cheating.
- This is neither unethical, nor cheating.

Students are given an assignment that they are expected to complete independently without discussion. The students get together at the library to collaborate on the assignment.

OA6

31) How acceptable is it for a student to behave this way?

- Very Acceptable
- Somewhat Acceptable
- Neither Acceptable Nor Unacceptable
- Somewhat Unacceptable
- Very Unacceptable

OC6

32) Is this cheating?

- This is definitely cheating.
- This is unethical, but it is not cheating.
- This is neither unethical, nor cheating.

A student is working on a homework assignment for an Engineering class and is having difficulty doing the problems. This assignment is worth a high number of points, so the student joins an on-line discussion group for engineers. The student tells group members that they need advice on how these types of engineering design issues could be solved. The student copies the problem solutions suggested by the members of the on-line group and turns this in for the assignment.

NA7

33) How acceptable is it for a student to behave this way?

- Very Acceptable
- Somewhat Acceptable
- Neither Acceptable Nor Unacceptable
- Somewhat Unacceptable
- Very Unacceptable

NC7

34) Is this cheating?

- This is definitely cheating.
- This is unethical, but it is not cheating.
- This is neither unethical, nor cheating.

A student needs to write an essay for their Spanish class. They write the essay in English and ask a friend who is an international student from Spain to translate the essay to Spanish for them.

OA8

35) How acceptable is it for a student to behave this way?

- Very Acceptable
- Somewhat Acceptable
- Neither Acceptable Nor Unacceptable
- Somewhat Unacceptable
- Very Unacceptable

OC8

36) Is this cheating?

- This is definitely cheating.
- This is unethical, but it is not cheating.
- This is neither unethical, nor cheating.

A student is working on a paper and copies and pastes a section of text from a public web site. No reference to the site is provided in the paper.

NA9

37) How acceptable is it for a student to behave this way?

- Very Acceptable
- Somewhat Acceptable
- Neither Acceptable Nor Unacceptable
- Somewhat Unacceptable
- Very Unacceptable

NC9

38) Is this cheating?

- This is definitely cheating.
- This is unethical, but it is not cheating.
- This is neither unethical, nor cheating.

A student's friend comes to them in a panic. The friend does not have time to complete the assignment and asks to look at and copy from the student's answers to save time. The student agrees to help.

OA10

39) How acceptable is it for a student to behave this way?

- Very Acceptable
- Somewhat Acceptable
- Neither Acceptable Nor Unacceptable
- Somewhat Unacceptable
- Very Unacceptable

OC10

40) Is this cheating?

- This is definitely cheating.
- This is unethical, but it is not cheating.
- This is neither unethical, nor cheating.

Demographics section

41) What is your age?

- Under 18
- 18 - 19
- 20 - 21
- 22 - 23
- 24 - 25
- 26 - 30
- Over 30

42) What is your gender?

- Male
- Female

43) What is your student status?

- Freshman
- Sophomore
- Junior
- Senior
- Graduate Student - Master's
- Graduate Student - Doctoral

44) What is your major?

ATTENTION! After hitting submit, you will be briefly shown a Thank You page and then forwarded to another brief survey page. Be sure to fill out the information on this second two question survey in order to get credit.

Vita

Michael Smith was born in Baton Rouge, Louisiana, in 1966. He earned a Bachelor of Science degree in accounting from Louisiana State University in 1990. From 1990 to 1996, he worked as an Assistant Director of LSU Residence Food Services, managing the department's business office and information technology functions. In 1996, he joined LSU Information Technology Services.

For several years he worked in the enterprise applications group, involved in application development and consulting, systems integration, database and server administration, and email administration. More recently he has managed the public access labs, multimedia classroom support, and software distribution as well as development and administration of several web applications. He is currently the Manager of Technical Services within the division of User Support and Student IT Enablement in Information Technology Services at LSU.