Effects of the fraud triangle on students’ risk assessments

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Abstract

This study is motivated by Bailey’s [Bailey, C. D. (2004). An unusual cash control procedure. Journal of Accounting Education, 22, 119–129]. A disappointing 89% of Bailey’s 502 students appear to have overestimated the risk of an asset misappropriation. This study presents the results of two quasi-experiments that test whether students’ risk assessments are affected by the type of model presented to them immediately preceding their risk assessments. One group was provided an overview of the widely used Committee of Sponsoring Organizations (COSO), Internal Control—Integrated Framework and the second group was provided a briefing on the Fraud Triangle, a model originally developed by criminologist, Donald R. Cressey (1973). As predicted, students who were provided an overview of the fraud triangle committed fewer Type I and Type II errors than students who were provided an overview of COSO. The results from this study contribute to the literature on risk assessment by demonstrating how the fraud triangle could, in some situations, lead to better risk assessments.

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1. Introduction

Based on studies involving in-depth interviews with more than sixteen hundred undergraduates, Light (2001) concluded that good professors effectively convey principles of...
their chosen discipline. However, professors who are remembered and valued the most are those who are able to teach students to think like professionals. For example, accounting professors who teach students to think like accountants are, according to Light, more exciting and stimulating than professors who merely review material that could easily be read in a textbook. Furthermore, if accounting students are taught to think like accountants, they should be better able to handle the complexities and uncertainties of their work environment after they graduate. Instructional resources that engage accounting students to “think like accountants” could therefore go a long way toward narrowing what Albrecht and Sack (2000, p. 3) refer to as the widening “gap between education and practice.”

Simply stated, good professors disseminate basic and valuable information. Better professors disseminate basic and valuable information, but also teach students to think like professionals. However, arguably the best professors are ones who are able to cross the boundaries of one isolated discipline (e.g., accounting) and teach students integrative and interdisciplinary perspectives.¹ For example, an interdisciplinary approach to fighting the problem of fraud could engage students to think about the problem through the lens of an accountant (teaching students to think like accountants), but also to think about the problem of fraud from alternative frames of references, such as from a lawyer’s perspective, a criminologist’s perspective, and/or a psychological perspective. Advocates of an interdisciplinary approach would claim that individuals will be better accountants if they question the inherent limitations of their own frame of reference by contrasting, reconciling, and viewing the problem of fraud from the lenses of other specialized disciplines committed to fighting the growing problem of fraud in society.² Accordingly, this study attempts to demonstrate how one such alternative perspective (i.e., a criminological perspective) can be useful in understanding two selected cases.

This study compares the risk assessments of students who were taught a criminological perspective to students who were taught only an accounting perspective. As expected, the group of students who were taught a criminological perspective made better risk assessments than the group who were taught only an accounting perspective.

2. Background

Bailey (2004) presents an interesting real case described as an “Unusual cash control idea”. The case involves a group of talented street performers who, despite the lack of explicit accounting control activities, have successfully sold their CDs without significant asset misappropriations. Neither cash nor the CDs appear to be misappropriated by spectators or anyone else who may simply be passing by. The street performers, commonly referred to as buskers, simply rely on their spectators’ honesty and expect them to leave the correct amount of cash and only remove CDs they have properly paid for. Hence,

¹ Light (2001, p. 126) states that “Many seniors single out interdisciplinary classes as the courses that meant the most to them”. In addition, he also claims that “Students praise faculty members who go out of their way to create something of a multidisciplinary experience, even in a traditional class within a discipline. To do this, a professor often creates a task that draws on the different expertise and backgrounds of class members”.

² See Newell (1998) and Dilley (2002) for a literature reviews on the professionalizing of interdisciplinary education.
Bailey’s case is an example where the risk of misappropriation is known to be quite low, despite the fact that virtually no formal accounting internal controls are in place. Given that the risk of misappropriation is known to be quite low (ex-post), the case provides an opportunity to test whether students will be able to recognize that the risk is low (ex-ante) for this particular situation. If students assess the risk of asset misappropriation as high, then they will be concluding the risk is high when in fact it is low, which, for brevity, is defined here as a Type I error.

Although Bailey (2004) did not directly ask students for their risk assessment, he did ask them whether the idea of selling the CDs using an unattended display case is worth trying. It seems reasonable to conclude that if a student does not agree that the idea is worth trying, then the student must think the risk of asset misappropriation is too high. Eighty-nine percent of Bailey’s 502 graduate and undergraduates students rejected the idea of trying to sell CDs using unattended display case and are, therefore, committed a Type I error (concluding that the risk is high when in fact it is low). These results raise questions about why so many accounting students overestimate the risk for this particular setting.

One potential reason accounting students overstate the risk of asset misappropriation is that students underestimate how honest people can be when placed in a position of trust. Bailey delves into the psychological research on honesty to explain why this honor system can work. Thus, this psychological explanation provides an opportunity to introduce some degree of interdisciplinarity into the accounting curriculum.

Bailey’s case deals with a setting where there are virtually no formal accounting controls, but the organization (street performing group) places trust on those who could have an opportunity to misappropriate assets. Wells (2004, pp. 9–10) describes another real and interesting case which appears to be quite the opposite of Bailey’s case. In Wells’s case, the employer was especially distrustful of his employees and, consequently, gave them few opportunities to misappropriate assets and presumably would also have strong internal accounting controls. In contrast to Bailey’s case, where the potential thieves (spectators) probably liked the street performers, the potential thieves in Wells’ case (employees) all strongly disliked the employer. Thus, this organization’s control environment is the opposite of Bailey’s case and the results were the opposite as well—employees stole inventory items and, through collusion with one another, even stole a large display case. Using Wells’ short case in the classroom provides an opportunity to test whether students will be able to recognize (ex-ante) that the risk of asset misappropriation can be relatively high when an employer does not trust his or her employees. Students will commit a Type II error if they assess the risk of asset misappropriation as low in this situation. The two cases are summarized in Table 1.

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3 According to Bailey (2004), the street performers he described have been selling their CDs on the honor system for years with no noticeable asset misappropriations. Thus, we know, after the fact, that the risk is actually quite low (i.e., ex-post), but do not know this to be the case before hand (i.e., ex-ante). It is likely that some students may want to argue this point, claiming that people are dishonest and will steal cash and CDs. While this challenge can be useful to stir debate and interest in the case, it can also distract the discussion away from the issue of why asset misappropriations are minimal given the facts of this particular case.
3. Development of hypotheses

As previously stated, advocates of an interdisciplinary approach (e.g., Newell, 1998 and Dilley, 2002) would claim that individuals will be better accountants if they question the inherent limitations of their own frame of reference by contrasting, reconciling, and viewing the problem of fraud from the lenses of other specialized disciplines committed to fighting the growing problem of fraud in society. The interdisciplinary approach chosen for this study is a criminological perspective based on the fraud triangle which is widely used and is strongly advocated by professionals in the field of fraud examination. For example, Biegelman and Bartow (2006, p. 33) write, “Every corporate executive needs to understand the fraud triangle and why employees commit various kinds of fraud”.

Albrecht, Albrecht, and Albrecht (2006) describe the fraud triangle by using an analogy to the three essential elements for fire to occur; i.e., (1) oxygen, (2) fuel, and (3) heat. According to the fraud triangle, fraud will occur only if there is (1) a perceived opportunity to commit the fraud and not get caught, prosecuted and convicted; (2) a perceived pressure to commit the fraud (e.g., financial pressures, work-related pressures, egotistical pressures) and (3) an ability to rationalize the wrong-doing. If any of these three elements is eliminated, then fraud is not likely to occur. Although the fraud triangle does not contradict the COSO framework, it does tend to emphasize three different elements (i.e., constructs) and focuses on the individuals who could have the opportunity to misappropriate assets, rather than on characteristics of the organization and its surrounding environment. In other words, books and records do not commit fraud; people do. Therefore, the fraud triangle suggests that it is helpful to concentrate on people who could commit fraud, rather than focusing on the organization alone.

In contrast to the fraud triangle, the COSO framework is broken down into five constructs: (1) the control environment, (2) risk assessment, (3) control activities, (4) information and communication, and (5) monitoring. Accountants, who are experts in understanding accounting systems and designing control activities and procedures to help prevent and detect fraud, will understandably emphasize these items for which they have expertise. Thus, the COSO framework has five constructs that are rather different from the three constructs of the fraud triangle and could, therefore, lead to a different way of thinking about the problem of fraud and, hence, lead to a different conclusion about the risk of fraud occurring.

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Internal accounting control</td>
<td>Weak</td>
<td>Strong</td>
</tr>
<tr>
<td>Trusting relationship</td>
<td>Trustful</td>
<td>Distrustful</td>
</tr>
<tr>
<td>Rapport</td>
<td>Potential victim liked</td>
<td>Potential victim strongly disliked</td>
</tr>
<tr>
<td>Outcome</td>
<td>Assets were minimally misappropriated</td>
<td>Assets were substantially misappropriated</td>
</tr>
<tr>
<td>Risk of asset misappropriation</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Potential error*</td>
<td>Type I</td>
<td>Type II</td>
</tr>
</tbody>
</table>

* Type I error is defined as concluding the risk is high when in fact it is low. Type II error is defined as concluding the risk is low when in fact it is high.
Neither the COSO framework nor the fraud triangle will likely be superior for all situations and, accordingly, the objective of this study is not to promote either model as the single best method to be used by professionals in practice. Rather, this study is simply meant to test whether an interdisciplinary approach, based on the fraud triangle, can lead to students’ better understanding of the risk of fraud occurring in two individual cases purposely selected to document the potential advantage of using an interdisciplinary approach. In other words, are there situations where viewing the problem of fraud from the perspective of the fraud triangle can improve students’ assessment of the risk? In this study, the COSO framework proxies for the accountants’ professional frame of reference and the fraud triangle proxies for a criminologist’s professional frame of reference.

Central to understanding both Bailey’s (2004) and Wells’s (2004) cases is the ability for a potential thief to rationalize their asset misappropriation (i.e., theft). In Bailey’s case, successful street performers will, in addition to providing enjoyable entertainment, establish a connection and good rapport with the audience. Speaking directly to the audience, telling jokes, and other types of audience interactions are all techniques good street performers use to connect with their audience. Indeed, one of the primary ways to obtain a sizable hat (larger cash collections) is for the performers to get the audience to like them. Hence, the ability for a potential fraudster to rationalize stealing from someone they like and who has just provided free entertainment is minimal. If the ability to rationalize stealing assets is minimal, then the potential for asset misappropriation is also minimal, especially if there is little pressure to motivate committing the asset misappropriation. Perceived opportunity to misappropriate cash or inventory items is also reduced to the extent that the street performers have gathered a large and supportive audience that can act as an external monitoring system. Hence, from the framework of the fraud triangle, it is relatively easy to explain why asset misappropriation is unlikely in this environment. Although the low risk of asset misappropriation could possibly be explained using the COSO framework (e.g., good control environment), the essential constructs and how they interact are not as salient as they are in the fraud triangle.

The risk of asset misappropriation in Wells’s (2004) case can also be fairly easily explained in the framework of the fraud triangle, but not so easily explained in the COSO framework. Since employees in this case strongly dislike their employer, they all experienced at least some work-related pressure to motivate stealing from the employer just to get even. In addition, the ability to rationalize is relatively easy when the employer is so disliked. Finally, the perceived opportunity to misappropriate assets would be greatly increased if the control system broke down because of its reliance on separation of duties to prevent any asset misappropriations. The assumption that separation of duties will deter asset misappropriation simply would not be valid where employees would willingly collude with one another. Even if the employees’ personal ethics would prevent them from colluding, they may be reluctant to use a hotline or other mechanism to report wrongdoing of their coworkers to appropriate authorities. Thus, the appropriate application of the fraud triangle would suggest that the risk of asset misappropriation would be high in this situation because all three elements (perceived pressure, perceived opportunity, and ability to rationalize) are present.

If students are able to understand the three elements of the fraud triangle and apply the fraud triangle to the specifics of these two cases, they should be able to properly evaluate the risk of assets being misappropriated. However, the COSO framework is considerably more complex and is somewhat ambiguous in terms of how the five constructs...
relate to one another or which constructs are most dominant. The fraud triangle is not likely to be so ambiguous to students. In contrast, applying the COSO framework to a specific set of circumstances is much more subjective and will not likely result in any clear prediction. If control activities (including such procedures as separation of duties, proper authorizations, physical safeguards, and an elaborate accounting system) are emphasized more than, say the control environment, then it seems likely that students could easily commit more Type I and Type II errors than they would if they were using the fraud triangle. This discussion leads to the following primary hypothesis stated in the alternative form:

**Hypothesis 1.** In evaluating the risk of an asset misappropriation, students who have been provided an overview of the fraud triangle will commit fewer Type I and Type II errors than students who have been provided an overview of the COSO framework.

Teaching from an interdisciplinary perspective is not easy. Stated another way, it is often difficult to get students to drop their default lens (e.g., through the lens of an accountant) and then deliberately attempt to view the cases from alternative lenses, such as from the lens of a criminologist. Regardless of an instructor’s attempt to force students to think outside their own default lenses, many students will continue to view the cases from the perspective of the discipline for which they are most familiar. It seems reasonable to predict that the more ingrained the default lens, the less able the instructor will be to get students to drop that default lens and preconceived opinions and to take a fresh look at the case from an alternative perspective.

It also seems reasonable to predict that accounting majors will be the ones with the more ingrained accountants’ lens and preconceptions about the most important determinants of risk. Hence, to the extent that accounting majors have more experience viewing problems from the viewpoint of an accountant, they would be less able and less willing to ignore what they learned from their accounting courses and think only in terms of the elements of the fraud triangle. Furthermore, if the accountants’ viewpoint has unrecognized weaknesses and blind spots, then accounting students could perform worse than non-accounting majors. This discussion leads to the following secondary hypothesis stated in the alternative form:

**Hypothesis 2.** In evaluating the risk of an asset misappropriation, students majoring in accounting will commit more Type I and Type II errors than students not majoring in accounting.

4. Method

4.1. Pilot test

Bailey’s (2004) case, without any modifications, was pilot tested in one section of a Fraud Examination course in the fall semester of 2004. All 37 students were provided a description of the fraud triangle before reading the case. This procedure took approximately 30 minutes. The expectation was for these students to overwhelmingly decide that the risk of asset misappropriation would be low and would, therefore, accept the idea of trying the honor system. However, less than half (49%) of the students believed the honor system would be worthwhile. This percentage is significantly more that the 11% obtained
from Bailey’s students, who were not exposed to the fraud triangle. However, these results were still disappointing because the expectation was that virtually all of the students would (1) properly understand the fraud triangle, (2) be able to apply those constructs of the fraud triangle to the circumstances of Bailey’s case, and (3) correctly respond that the honor system would be worth trying.

In hindsight, the above expectations were clearly too optimistic and the case was modified to include more explicit and relevant information about the rapport established between a successful street performer and his or her audience. Hence, this added information should better enable students to evaluate the rationalization construct of the fraud triangle. In addition, the response was changed to more directly measure students’ risk assessment, but was kept as a binary response to force students into a decision on whether risk was high or low. This binary response variable also permits classification of the error rates as Type I or Type II. The modified cases are included in the Appendix.

4.2. Subjects

Participants in the two experiments were undergraduate business students enrolled in six sections of a fraud examination course offered at a state university. The only prerequisite to this course is a course in financial accounting, so most students had little formal education in accounting and rather limited exposure to internal accounting control activities. The advantage of using inexperienced students is that preconceived notions that relate to preventing fraud are not as established as they might be if the students had more extensive knowledge of internal controls. Thus, it would be more likely for these students to alter their beliefs as a result of the experimenter’s intervention. A total of 214 students participated in both experiments, of which 96 (45%) were accounting majors and the remaining 118 (55%) were non-accounting majors. An accounting course that has both accounting majors and non-accounting majors facilitates comparisons between two groups and could potentially rule out that the results documented by Bailey (2004) could be generalized to only accounting majors. With only a few exceptions, students were between the ages of 20 and 26.

4.3. Tasks

Bailey’s case was used for experiment 1 and Wells’s case was used for experiment 2. Experiment 1 is designed to measure the extent of Type I errors and Experiment 2 is designed to measure the extent of Type II errors. The task for both experiments was to read the short case and then evaluate the risk that a material asset misappropriation would occur. Specifically, the subjects were asked to indicate whether asset misappropriation was either “high risk” or “low risk”.

4 The internal validity of comparing Bailey’s results to the pilot test is likely weak because the two groups probably differ in a number of other important respects besides exposure to the fraud triangle. The students had different instructors, were enrolled in different courses and universities, and may have other significant uncontrolled differences as well.

5 The addition of some specific information about the industry (street performing) also underscores the importance for auditors and fraud examiners to understand the business before designing an audit or proactive fraud prevention and detection program.
The binary response, as used by Bailey (2004), forces the subject to take a specific position. As future professionals, these students will be faced with decisions to act or not act. Thus, forcing the students to choose a position is an attempt to get them to think like professionals.

An advantage to using short cases is that the setting is clearly defined and simplified enough so the task is also clearly defined and the subjects would be less likely to get diverted away from the task and have irrelevant questions about the facts of the cases. In addition, a short case can have the methodological advantage of holding the facts constant across groups and it is, therefore, unlikely that groups will vary due to reliance on different sets of facts rather than different treatments. Both the Bailey (2004) case and the Wells (2004) case can be fit onto one page.

### 4.4. Procedure

Each student was asked to read the cases before class to gain an understanding of the facts of the cases. Students were asked to avoid forming an opinion until the cases were reviewed and questions about the case were answered in class. To encourage the students to take the task seriously, they were informed that there were “right” and “wrong” answers to the questions. They were also informed that students before them at another university had performed rather poorly on the cases and they were expected to do better than the other, unnamed, university. The facts of the cases were discussed openly in class, but students were asked to form their own opinion, rather than a group opinion, on whether the risk was high or low. Students were asked not to discuss their decision with other students until after the assignment was handed in.

Both experiments were conducted during one 50-minute class. Three sections consisting of 111 students discussed the facts of the cases and were provided with a description of the fraud triangle in the preceding 50 minute class. Three other sections, consisting of 103 students, also discussed the facts of the case, but were provided with a description of the COSO framework. Following the approximate 30 min of class discussion, students were asked to form a final conclusion on the assessment of the risk and then to briefly state the reasons for their responses. Since the brief writing assignment requires more effort than merely checking a couple of boxes, the chance of idiosyncratic or random responses caused by insufficient attention to the task is reduced. The brief writing requirement could also encourage students to explain their answers in terms of either the fraud triangle or the COSO framework.

Despite efforts to get one group of students to “think like accountants” by using the COSO framework and the other group to “think like a criminologist” by using the fraud triangle, it seems likely that at least some of the students would have formed opinions based on other factors such as their own life experiences, preconceptions about the honesty of other employees and spectators of street performers, and other factors not directly controlled in these experiments. However, these possibilities would bias against finding a significant difference between the groups and, hence lower the power of the tests to detect such differences.

There is a potential demand effect. However, students were not told in advance as to what was being hypothesized and they were not even informed they were participating in an experiment. Hence, it does not seem likely that any demand effect would be different across groups.
5. Results

Chi-square univariate tests of independence were performed to test both hypotheses and for both experiments. Results of the experiments testing Hypothesis 1 are presented in Table 2 and results of the experiments testing Hypothesis 2 are presented in Table 3.

5.1. Hypothesis 1

Panel A of Table 2 shows the results of experiment 1 and Panel B shows the results of experiment 2. In addition, the full sample was also partitioned into two groups (with one group representing accounting majors and the other group representing non-accounting majors) to determine whether the results obtained from the full sample could have been driven by only one of these partitions. In experiment 1, 54% (60 out of 111) of the full sample who were presented with the fraud triangle concluded that the risk of asset misappropriation would be high, thereby committing a Type I error. While this error rate is still quite high, it compares favorable to the 82% error rate (84 out of 103) of those students who were presented with the COSO framework. The chi-square statistic indicates that this difference is highly significant \( p < .0001 \). Partitioning the sample shows that the results from the full sample were not driven solely by either the accounting or non-accounting majors. This suggests that both groups commit fewer Type I errors when presented with the fraud triangle rather than the COSO framework. The chi-square statistics for the accounting majors and non-accounting majors indicate that differences are significant for both groups \( p = .0013 \) and \( p = .0012 \), respectively.

Results from experiment 2 are shown in Panel B of Table 2 and are consistent with the results of experiment 1, but are not as strong. In experiment 2, 23% (26 out of 111) of the full sample who were presented with the fraud triangle concluded that the risk of asset misappropriation would be low, thereby committing a Type II error. Students who were presented with the COSO framework performed even worse, with 40% (41 out of 103) committing a Type II error. The chi-square statistic indicates that this difference is significant \( p = .0049 \). The chi-square statistics for the accounting major and non-accounting majors indicate that differences are marginally significant for both groups \( p = .0303 \) and \( p = .0382 \), respectively.

Overall, these results strongly support Hypothesis 1, suggesting that the fraud triangle (an interdisciplinary approach) is superior to the COSO framework for these two selected cases in terms of both Type I and Type II error rates.

5.2. Hypothesis 2

Panel A of Table 3 shows the results of experiment 1 and Panel B shows the results of experiment 2. In experiment 1, 70.8% (68 out of 96) of all the accounting majors committed a Type I error. In comparison, 64.4% (68 out of 96) of the non-accounting majors committed a Type I error. The chi-square statistic indicates that this difference is not significant \( p = .1595 \). Results from partitioning the sample by the type model presented to them (fraud triangle vs. COSO) also failed to support Hypothesis 2. Both partitions show that accounting students committed more Type I errors, but the high significant levels \( p = .2808 \) and \( p = .1972 \) suggests that these results could have happened by chance.
Table 2
Results of tests of hypothesis 1: the association between model type and students’ risk assessment

<table>
<thead>
<tr>
<th>Evaluation model</th>
<th>Accounting majors</th>
<th>Non-accounting majors</th>
<th>Full sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Response Totals</td>
<td>Response Totals</td>
<td>Response Totals</td>
</tr>
<tr>
<td></td>
<td>High risk Low risk</td>
<td>High risk Low risk</td>
<td>High risk Low risk</td>
</tr>
<tr>
<td>Panel A: Experiment 1 (Bailey’s (2004) case)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fraud Triangle</td>
<td>28(57%) 21(43%) 49(100%)</td>
<td>32(52%) 30(48%) 62(100%)</td>
<td>60(54%) 51(46%) 111(100%)</td>
</tr>
<tr>
<td>COSO</td>
<td>40(85%) 7(15%) 47(100%)</td>
<td>44(79%) 12(21%) 56(100%)</td>
<td>84(82%) 19(18%) 103(100%)</td>
</tr>
<tr>
<td>Totals</td>
<td>68 28 96</td>
<td>76 42 118</td>
<td>144 70 214</td>
</tr>
</tbody>
</table>

Chi-square = 9.08, P-value = .0013
Chi-square = 9.33, P-value = .0012
Chi-square = 18.34, P-value < .0001

Panel B: Experiment 2 (Wells’s (2004) case) | |
| Fraud Triangle   | 37(76%) 12(24%) 49(100%) | 48(77%) 14(23%) 62(100%) | 85(77%) 26(23%) 111(100%) |
| COSO             | 27(57%) 20(43%) 47(100%) | 35(63%) 21(37%) 56(100%) | 52(60%) 41(40%) 103(100%) |
| Totals           | 64 32 96         | 83 35 118             | 147 67 214   |

Chi-square = 5.52, P-value = .0303
Chi-square = 3.14, P-value = .0382
Chi-square = 6.67, P-value = .0049
Table 3
Results of tests of hypothesis 2: the association between students’ major and students’ risk assessment

<table>
<thead>
<tr>
<th>Student Major</th>
<th>Fraud Triangle</th>
<th>COSO</th>
<th>Full sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Response</td>
<td>Totals</td>
<td>Response</td>
</tr>
<tr>
<td></td>
<td>High risk</td>
<td>Low risk</td>
<td>High risk</td>
</tr>
<tr>
<td>Panel A: Experiment 1 (Bailey’s (2004) case)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounting</td>
<td>28(57.1%)</td>
<td>21(42.9%)</td>
<td>40(85.1%)</td>
</tr>
<tr>
<td>Non-accounting</td>
<td>32(51.6%)</td>
<td>30(48.4%)</td>
<td>44(78.6%)</td>
</tr>
<tr>
<td>Totals</td>
<td>60 51</td>
<td>111</td>
<td>84</td>
</tr>
<tr>
<td>Chi-square</td>
<td>.337, P-value</td>
<td>.2808</td>
<td>Chi-square</td>
</tr>
<tr>
<td>Panel B: Experiment 2 (Wells’s (2004) case)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounting</td>
<td>37(75.5%)</td>
<td>12(24.5%)</td>
<td>27(57.4%)</td>
</tr>
<tr>
<td>Non-accounting</td>
<td>48(77.4%)</td>
<td>14(22.6%)</td>
<td>35(62.5%)</td>
</tr>
<tr>
<td>Totals</td>
<td>85</td>
<td>26</td>
<td>111</td>
</tr>
<tr>
<td>Chi-square</td>
<td>.056, P-value</td>
<td>.4068</td>
<td>Chi-square</td>
</tr>
</tbody>
</table>
Results from experiment 2 are shown in Panel B of Table 3. Again the accounting students seemed to do a little worse; committing slightly more Type II errors than non-accounting students, but again the results are not significant for the full sample ($p = .1595$), nor for the partitions ($p = .4068$ and $p = .3009$).

A possible explanation for the failure to find significant results could be that the accounting students have not yet been sufficiently exposed to thinking like accountants and, therefore, do not yet have ingrained ways of thinking only through the lens of an accountant.

6. Limitations

Limitations of this study suggest avenues for further research. One such limitation is that the students were provided with only introductory levels of understanding of the fraud triangle and the COSO framework. Therefore, it would be inappropriate to generalize these findings to subjects who have more expertise in understanding and applying both the COSO framework and the fraud triangle. In addition, the subjects for the two experiments were asked to provide individual responses. This does not necessarily imply that the individual responses could not have been influenced by group processes going on when the class discussed the facts of the cases. Thus, the experimental evidence on the superiority of the fraud triangle may not replicate in other types of groups with different sets of norms, structures, and leadership styles.

7. Conclusion

The results of this study show that students who were provided with an interdisciplinary perspective (e.g., the fraud triangle) performed better on these two cases than students who were not provided with an interdisciplinary perspective. The importance of understanding people (their motivations, possible rationalizations, and perceived opportunities) is also demonstrated by using the fraud triangle. Thus, the primary teaching implication is that students can learn that there are potential benefits from deliberately trying to step outside the boundaries of their own discipline and attempt to view problems through the lenses of other professionals. Indeed, individuals can be better accountants if they question the inherent limitations of their own frame of reference.

The results of this study also suggest that students should be warned that auditing is fundamentally a different activity from fraud examination. Therefore, using models and techniques initially designed primarily for auditing and financial reporting (such as the COSO’s Internal Control—Integrated Framework) can be less useful than models and techniques specifically designed for fraud examination. To use a metaphor, fraud examination is like looking for the needle in the haystack while auditing is more concerned about whether the overall assertions about the entire haystack are materially misstated. Therefore, auditing students who wish to learn more about fraud examination should be encouraged to enroll is such a course and accounting curriculum committees may want to consider offering such a course.

Appendix

Case 1: Tick & Tack are exceptionally talented street performers who have developed an award-winning and wonderfully entertaining act that combines high-level acrobatics
with break dancing moves. While they are primarily based in New York City, they also travel the world performing their act in the streets of Paris, France; Frankfurt, Germany; Japan and at the International Busker’s Festival in Halifax, Nova Scotia. On a good day, they can easily earn up to $300 per one-hour set; amounting to well over $1,000 in one afternoon.

The first 10 min of the one-hour set is spent gathering a large and noisy crowd. The next 30 min is devoted entirely to their performance art and the final 20 min is spent passing the hat; that is, selling their DVDs and asking for donations. Not only are Tick & Tack exceptionally good street performers, they also know how to establish excellent rapport with their audience. Audiences of all ages enjoy the act and, therefore, usually feel obligated to make a donation and/or purchase a DVD. Tick & Tack are so good at getting the audience to like them; most people cannot walk away without making a donation or feeling really guilty.

Recently, Tick has suggested that rather than spending a full 20 min selling their DVDs and asking for donations, they should consider setting up a table where the audience can serve themselves by purchasing the DVDs and making donations while Tick & Tack are performing their act. However, Tack is concerned that leaving a table unattended for the 30 plus minutes could be risky. Tick, on the other hand, believes that the overwhelming majority of their audience is extremely honest and would be grateful for the convenience of being able to serve themselves without close monitoring. Hence, there would be absolutely no formal internal accounting controls.

Case 2: J.T. Brooks Men’s Fashions sells top of the line fashionable and trendy men’s designer clothes. Mr. J.T. Brooks, the owner and operator, does not trust his employees and has, therefore, established exceptionally strong internal accounting controls. These controls include; close monitoring of his employees, creating an expectation of severe punishment for any infraction of the internal accounting controls, segregation of duties, a system of authorizations, independent checks on performance and physical safeguards with surveillance cameras and two-way mirrors. The Company has enjoyed many years of good profits, but has recently seen a declining trend in reported profits. The company’s owner, J.T. Brooks, is cheap beyond all reason, condescending toward his employees, sore tempered, paranoid, autocratic, and seems to resent having to pay employees who were generating his sales. The sales staff is constantly being pressured to meet increasingly difficult to obtain sales goals. J.T. distrusts his employees. However, given the opportunity, he will deliberately overcharge his customers and underpay his suppliers.

Questions:

A. What is the likelihood of asst misappropriation in Case 1? □ High risk □ Low risk
B. What is the likelihood of asst misappropriation in Case 2? □ High risk □ Low risk
C. Briefly state the reasons for your answers for both cases.

References


