Does the HyFlex Learning Environment Affect Student Likelihood to Whistle-Blow on Academic Dishonesty?

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The reality of possible disruptions in daily life such as the COVID-19 pandemic has necessitated increased adoptions of flexible hybrid learning, namely the HyFlex modality. With greater use of online or hybrid learning, concerns about academic dishonesty are more prevalent. Despite the empirical evidence that shows that whistleblowing reduces academic dishonesty, accounting education empirical literature on whistleblowing has mostly focused on traditional classroom modalities. This paper administered a survey to 232 students in HyFlex accounting classes and provides empirical evidence that HyFlex learning environment's characteristics of engagement and campus connectedness are positively linked to whistleblowing likelihood, whereas HyFlex students who prefer in-person attendance are less likely to whistle-blow. Open-ended questions analyzing ways to increase whistleblowing revealed that students who feel engaged in HyFlex classes are more likely motivated to report on misconduct when they are incentivized and provided protected anonymity.

Keywords: whistleblowing, classroom cheating, ethics, hybrid, HyFlex

INTRODUCTION

Colleges and universities across the world have adapted course delivery methods to accommodate the disruptions brought about by the coronavirus disease pandemic (COVID-19), and because of this, many programs have incorporated various forms of learning environments, including online or hybrid modalities (Davis, et.al., 2022). Another circumstance that campuses faced from closures due to COVID-19 was the reality that a chosen modality that started in one semester could face the real possibility of having to pivot to another form. For example, some campuses in California declared prior to the start of the fall 2021 semester that it was safe for students, staff, and instructors to return to campus and resume in-person classes,

but university authorities then rescinded that advice as the semester commenced and cases of Covid-19 infections grew. These classes, initially started and meant for face-to-face instruction, were again converted to online or virtual modes. Incidents such as this one and others have given rise to the increased adoption of the HyFlex modality, a form of a hybrid learning method that incorporates both traditional face-to-face and online modalities simultaneously (Beatty, 2019; Miller, et.al., 2013; Abdelmalak & Parra, 2016).

In HyFlex courses, students choose to attend the class in-person, online synchronously through live streaming, or asynchronously (Calafiore & Giudici, 2021). On our campus, we adopted a form of HyFlex that allows students the choice of attending the class either online synchronously through *Zoom* or in a face-to-face format, and to choose their preference at any time during the semester. The student choice of instruction mode is one differentiating factor between HyFlex and other hybrid options (Miller, et.al., 2013). Various researchers have documented the benefits of online and hybrid modalities (e.g., Kohnke & Moorhouse 2021; Dowling et.al., 2003); however, some studies show that despite the positive results that students benefit within these environments, such as increased accessibility, convenience and savings in travel time and costs, there is the challenge to curb academic dishonesty while using online or hybrid instructions (Sithole, et.al., 2019).

With respect to accounting education, the prevalent concern for ethical misconduct is related to academic dishonesty (Boyle, et.al., 2016) and these concerns are seen by accounting faculty as exacerbated by technology use, particularly in online or hybrid learning environments (Sayed & Lento, 2016; Singh, et.al., 2011). The reality is that technological advances are not going away and online, hybrid environments continue to gain popularity among students (Lederman, 2018); therefore, solutions to curb academic dishonesty within these environments are a growing concern (Sithole, et. al., 2019; Reyneke, et.al., 2021; Lux & Knight, 2021). Whistleblowing is seen as an action that can serve as a detective measure to curb academic dishonesty (Bernardi, et.al., 2011), and most academic honor codes imply an expectation that students will report academic misconduct (Yachison, et.al., 2018). In spite of these supports for whistleblowing, studies have shown that students are generally reluctant to blow the whistle on other students who they witness practicing academic dishonesty (Bernardi, et.al., 2016; Yachison, et.al., 2018) and therefore, researchers in accounting education have sought to identify conditions that might best lend their students to whistleblowing (Brink, et.al., 2017; Bernardi, et.al., 2013; Gao & Brink 2017; and others). However, among the available literature, there is limited research on whistleblowing to curb academic dishonesty in online or hybrid environments.

The primary focus of the current study is to bridge the gap in accounting education literature by providing empirical evidence on the conditions that students experience within HyFlex environments that would render them more amenable to blowing the whistle when they witness academic dishonesty. Specifically, we employ a survey method using a framework mostly outlined by Green (2021) to determine students' perception of the HyFlex learning environment in terms of engagement, connectedness, and lecture modality, and how such conditions impact students' likelihood of whistleblowing when they witness cheating behavior. Furthermore, using an open-ended question, we determined students' opinions on what their institution can do to encourage whistleblowing among the student body, providing important strategies that future HyFlex courses may find useful.

LITERATURE REVIEW

Academic Dishonesty and Professional Misconduct

Academic dishonesty in college has been linked to subsequent professional misconduct (Bernardi, et.al., 2011), and with the string of corporate collapses that have occurred over the last few decades owing to ethical scandals, such as Enron, WorldCom, and HealthSouth, it is unsurprising that the occurrence of professional misconduct in accounting continues to be a subject of concern. In a recent scandal, one of the Big Four accounting firms, KPMG, was charged a 50-million-dollar settlement by the U.S. Securities and Exchange Commission (SEC) for manipulating audit reports using illegally obtained information on audit inspections that were to be conducted by the Public Company Accounting Oversight Board (SEC, 2019).

Furthermore, the SEC complained that KPMG's audit professionals who had previously taken and passed continuing professional education (CPE) training exams gave answers to colleagues: "They sent images of their answers by email or printed answers and gave them to colleagues. This included lead audit engagement partners who not only sent exam answers to other partners, but also solicited answers from and sent answers to their subordinates" (SEC, 2019, p.1). In another revelation, the SEC again charged another of the Big Four accounting firms, Ernst & Young (EY), a fine of 100 million dollars for the occurrence of EY's audit professionals who cheated on the Certified Public Accountant (CPA) exams (SEC, 2022). The SEC's findings included charges of EY not only being aware of the cheating but also failing to disclose the misconduct: "EY further admits that during the Enforcement Division's investigation of potential cheating at the firm, EY made a submission conveying to the Division that EY did not have current issues with cheating when, in fact, the firm had been informed of potential cheating on a CPA ethics exam" (SEC, 2022, p.1).

Amidst recent incidents such as these, there is a need to further stem the rise of ethical misconduct, and there is no better time to do so than when the students who will be the professionals of the future are in training. Indeed, recent studies urge the need for more ethical training in accounting programs (Blanthorne, 2017; Shaub, 2017), and many states have included ethics in their CPE examinations for public accountants (NASBA, 2018). In addition to ethical training, an effective solution that has been used to stem misconduct in past ethical scandals is whistleblowing, or, "the disclosure by organization members (former or current) of illegal, immoral or illegitimate practices under the control of their employers, to persons or organizations that may be able to effect action" (Near & Miceli, 1985, p.4). In the academic context, "cheating is a type of organizational wrongdoing, so reporting cheating is the academic equivalent of whistle-blowing" (Burton & Near, 1995, p.1). For the rest of this article, we refer to whistleblowing in the context of the classroom interchangeably with terms of similar meaning, including "reporting on," academic dishonesty, misconduct, and cheating.

The Use of Whistleblowing to Curb Ethical Misconduct

The use of whistleblowing as a measure to curb ethical misconduct, such as academic dishonesty, is well-supported in accounting education and practice. For example, accounting studies have examined individuals' perceptions of ethical values and their relation to whistleblowing (Shawver & Clements, 2007; Shawyer & Clements, 2017; Bernardi, et.al., 2011; Bernardi, et.al., 2016), the perceived degree of the misconduct and how it affects an individual's propensity to blow the whistle (Brink, et.al., 2015; Brink, et.al., 2017; Clements & Shawver, 2017), as well as anonymity in reporting (Curtis & Taylor, 2009). In an extensive review of whistleblowing studies in accounting literature, Gao and Brink (2017) discuss the work of more than 50 studies ordered around five determinants of whistleblowing, including the characteristics of a) the whistleblower, b) the report recipient, c) the wrongdoer, d) the wrongdoing, and e) the organization. Their study concludes by stating that "there has been extensive research in accounting literature investigating ways to encourage whistleblowing. However, our understanding of the determinants of whistleblowing intentions is still limited in several areas" (Gao & Brink 2017, p.12).

Some of the reasons for these limitations include that, historically, whistleblowing has a mixed reputation. On one hand, the action of whistleblowing entails that the person reporting a perceived wrongdoing would have to take on the impetus to judge the behavior of another (Taylor & Curtis, 2009) who is likely a colleague, or at least a person known to them within a professional setting, rendering it typically an uncomfortable situation. In addition, the whistleblower may have to face retaliation or alienation from peers who may then see the person as a troublemaker (Bernardi, et.al., 2011). On the other hand, whistleblowing is seen as a means of protecting organizations and the public from the repercussions of unethical misconduct (Brink, et.al., 2017; Clements & Shawver, 2017; Taylor & Curtis, 2009). Research has also found that the incidence of whistleblowing is positively significant when the public has a consensus that an action is unethical (Clements & Shawver, 2011). Similarly, according to the Ethics & Compliance Initiative (2021), 86 percent of the surveyed employees in ten countries indicated that they had reported ethical misconduct. Whistleblowing as a measure to curb misconduct is therefore well-supported in society and likely to be increasingly used, as suggested by research asserting that "however uncomfortable we are

with the notion of reporting on the behavior of others, whistleblowing is an important organizational control" (Taylor & Curtis, 2009, p.22).

Whistleblowing in organizations is regarded as similar to whistleblowing in the classroom (Bernardi, et.al., 2011). The incidence of corporate scandals such as Enron and WorldCom have led to a greater focus on accounting education's role in shaping leaders, and future employees. Thus, accounting educators have registered growing concerns about the state of academic misconduct (Sayed & Lento, 2016) as it is regarded as a predictor to workplace misconduct (Lawson, 2004; Elias, 2009; Teixeira, 2013). Studies that have sought to minimize this problem by investigating whistleblowing in the classroom have included assertions that a disproportionately low number of students report academic misconduct compared to those who witness it (Bernardi, et.al., 2011; Bernardi, et.al., 2013). Such studies and others (Shawver & Clements, 2007; Shawver, 2008; Bernardi, et.al., 2016) also explore accounting students' motivation to whistle-blow; however, many of these studies are within traditional face-to-face classroom environments, despite the growing use of online and hybrid learning environments. Therefore, as will be explained further, this study focuses on exploring the intent to whistle-blow in HyFlex learning environments.

HYFLEX LEARNING ENVIRONMENTS

Online and hybrid learning environments are expected to grow in use by many educational programs and institutions (Lederman, 2018). The occurrence of the COVID-19 pandemic has increased the use of these environments, and HyFlex as a hybrid environment has gained wider adoption following this occurrence (Lederman, 2020; Miller, et.al., 2021; Kohnke, et.al., 2021). Since then, HyFlex has been defined in academic studies (Beatty, 2019; Liu & Rodriguez, 2019) and others have called for research on effective conditions for HyFlex (Miller, et.al., 2021; Jordan & Samuels, 2020). Studies find comparable performance of HyFlex learners with traditional face-to-face and online learners (Green, 2021: Liu & Rodriguez, 2019).

HyFlex is also associated with positive impacts on students' psychological needs when students rate their instructor relatedness (Mentzer, et.al., 2023). These attributes support the notion that HyFlex satisfies the needs of modern-day students and therefore can generate increased student engagement (Miller, et.al., 2013), particularly as learner choice implies that HyFlex students take responsibility for their own learning (Nelson, et.al., 2022). Since instructors in a HyFlex environment must manage dual learning spaces, it is important to improve student engagement. To that end the HyFlex classes in this study adapted four key features identified by Beatty (2019), which are that learner choice is prioritized; equivalent outcomes such as performance comes out of equivalent learning activities; elements of the learning mode are reusable in each participant mode; and technology provides equitable experiences (Beatty, 2019). Consequently, we expect that these inherent benefits, which lead to HyFlex being described as a more learner-centered and flexible approach than other modalities (Liu & Rodriguez, 2019; Malczyk, 2019), will result in motivational outcomes for students to support their institution's goals, related to whistleblowing. This ties in with research on whistleblowing in the workplace, which supports the notion that subordinates in an organization may exhibit organizational commitment stemming from satisfactory situations that they experience within a firm, and when that is the case, employees are likely to report misconduct (Taylor & Curtis, 2009). Therefore, we propose the following hypothesis:

H1: *In a HyFlex environment, perceived student engagement is positively related to whistleblowing when students witness academic dishonesty.*

In our HyFlex environment, students are provided with the choice and flexibility to make attendance decisions that best suit their own situations. Students who benefit from this service may consider such features of HyFlex a form of institutional support. Increasing institutional support generally improves students' sense of connectedness (Hertz, et.al., 2021; Krause, et.al., 2022). During the shutdown from COVID-19, a study concerning students who switched to an online environment and interacted more with their instructors found that students felt more connected with their campus than with their peers as a result

of being offered support by their instructors (Boardman, et.al., 2021). Campus (school) connectedness has been widely defined and "refers to the belief students may hold that adults and peers in their school care about them, their safety, and their success" (Krause, et.al., 2022, p. 2). Studies have found that employees who feel connected to their organizations are more likely to make decisions that align with their organizational goals (Fernando, et.al., 2022). Extrapolating this employee-employer dynamic to student-institution, it is plausible to expect that in an environment where students feel campus connectedness, they are more inclined to contribute to their campus's goals. Therefore, we propose:

H2: *In a HyFlex environment, perceived campus connectedness is positively related to whistleblowing when students witness academic dishonesty.*

Anonymity in reporting is critical for whistleblowing behavior (Bernardi, et.al., 2016). People are more likely to be whistleblowers if their identities can be concealed because of fear of retaliation (Taylor & Curtis, 2009). Compared with in-person communication, online communications and activities can provide higher levels of anonymity. One can witness many harsh comments on social media because people are able to conceal their true identities for online activities. The HyFlex online component can increase feelings of anonymity. For example, if some students choose to attend lectures online-only while having their cameras off, it may prove more challenging for others to know them, and therefore, the sense of anonymity may make it easier to voice their concerns as in reporting a misconduct. Moreover, such students are less likely to form bonds and unity due to lack of in-person interactions. Fewer connections and personal relationships can lead to less group conformity. On the contrary, students tend to make more friends with their classmates when attending in-person classes. Research shows that students are less likely to whistle-blow for fear of losing friendship with the person who had committed the misconduct (Bernardi, et.al., 2012). Therefore, we propose the following hypothesis:

H3: *HyFlex students who prefer in-person environments are less likely to whistle-blow when they witness academic dishonesty.*

In some cases, demographics play a role in whistleblowing intentions. For example, Yachison, et.al. (2018) analyzed the reasons that students might whistle-blow and found that, despite gender not being a predictor of reporting on misconduct, gender differences in peer reporting occurs when grading criteria is included in the opportunity to report the misconduct. To that end, we ask the following research question: hypothesis:

R1: *Will HyFlex students' demographic makeup affect their suggestions on what can increase whistleblowing?*

Among students, situational factors have also been known to influence whistleblowing intentions. Examples include such factors as students' considerations of how the potential reporting of witnessed misconduct could benefit or cost them (Shawver & Clements, 2007), the belief that detecting misconduct is the responsibility of the institution (Bernardi, et.al., 2013), and the perceived materiality of the misconduct (Shawver, 2008). Students indicate that when whistleblowing occurs, the incidence of cheating reduces (McCabe, et.al., 2001). With this in consideration, deciphering student-driven solutions on how to encourage whistleblowing has the potential to provide more actionable solutions that could be used in HyFlex classes. Therefore, we ask the following research question:

R2: *Will students' perceptions of the HyFlex learning environment affect their suggestions on what can increase whistleblowing?*

METHODOLOGY

Sample and Descriptive Statistics

To conduct this study, we invited students attending accounting HyFlex courses at an AACSB-accredited business school in the U.S. to participate in an IRB-approved survey[1]. Table 1 reports the instrument variables used in this study. The Cronbach's Alpha was 0.842, indicating good reliability of the scale.

The survey was administered in one graduate and ten undergraduate accounting courses across four semesters. A total of 298 students were invited to participate. 255 students voluntarily responded to the survey. 17 incomplete responses and 6 responses from non-accounting undergraduate students were eliminated, yielding a total of 232 valid responses. Participants were asked to disclose their gender, GPA, class standing status, and employment status. Table 2 presents the descriptive statistics of the sample.

TABLE 1
INSTRUMENT VARIABLES AND SCALE MEASUREMENT

Questions	Scale
Whistleblowing Intention	
† Would you report someone else who you witnessed cheating on an examination?	Binary 0/1
Cheating Perception	
† Do you believe cheating is wrong, dishonest, or unethical?	Binary 0/1
† Do you think more should be done to stop cheating?	Binary 0/1
HyFlex Learning Environment Outcomes (Cronbach's alpha=0.842)	
Student Engagement	
†† While attending this course I felt engaged with the lectures	5-point Likert Scale
†† I did not find distractions to be an issue when attending lectures for this course via zoom	5-point Likert Scale
Campus Connectedness	
While attending the course, I felt connected to my campus community	5-point Likert Scale
In Person Attendance	
††Prior to this semester my preferred lecture mode was in person	5-point Likert Scale

† Adapted from Bernardi et al. (2016)
†† Adapted from (Green 2021)
5-point Likert Scale is scaled as 1 (Strongly Disagree) to 5 (Strongly Agree)

TABLE 2
SAMPLE DESCRIPTIVE STATISTICS

	Frequency	Percentage
Gender		
Male	118	50.9%
Female	113	48.7%
Non-Binary	1	0.4%
Class Standing		
Junior	120	51.7%
Senior	83	35.8%
Graduate	29	12.5%

	Frequency	Percentage
Age		
<20	3	1.3%
20-29	185	79.7%
30-39	32	13.8%
40+	11	4.8%
Not-Disclosed	1	0.4%
GPA		
=< 2.00	2	0.9%
2.01 - 2.50	8	3.4%
2.51 - 3.00	48	20.7%
3.01 - 3.50	81	34.9%
3.51 - 4.00	93	40.1%

Empirical Model

Since our dependent variable, "*WBIntent*" (intention to whistle-blow), is binary with values of 0 or 1, we employed binomial logistic regression to analyze the relationship between the student's whistleblowing intention, feelings of engagement, feelings of campus connectedness, and preference for in-person lecture attendance (*InPersonAttendance)* while in HyFlex. The empirical model is specified as follows:

$$Log\left(\frac{P(WBIntent)}{1-P(WBIntent)}\right) = \beta_0 + \beta_1 StudentEngagement + \beta_2 CampusConnectedness + \beta_3 InPersonAttendance + \beta_4 SDB + \beta_5 Gender + \beta_6 GPA + \beta_7 AGE \quad (1)$$

where the dependent variable *P(WBIntent)* is the probability that a student will blow the whistle when academic dishonesty is witnessed. We used *StudentEngagement, CampusConnectedness* and *InPersonAttendance* to test our hypotheses. *StudentEngagement* measures overall engagement (H1). We created *StudentEngagement* by combining survey answers related to student engagement. We used two assessments to measure student engagement in different aspects[2]. Responses to *StudentEngagement* were provided on a five-point scale anchored at strongly disagree (1) and strongly agree (5). *CampusConnectedness* measures students' feelings of connectedness to the campus (H2), and responses were on a five-point scale anchored at strongly disagree (1) and strongly agree (5). *InPersonAttendance* measures the student's preference for attendance mode in HyFlex classes (H3), and responses were on a five-point scale anchored at strongly disagree (1) and strongly agree (5).

Research finds that individuals have the tendency to "deny socially undesirable actions and behaviors and to admit to socially desirable ones" (Chung & Monroe, 2003, p. 291), which implies that participants who are asked to provide responses related to ethically sensitive questions such as intentions to report on misconduct may exhibit socially desirable bias (*SDB*) overestimating their ethicality. As such we include *SDB* controls following guidance from prior research (Chung & Monroe, 2003; Geng & Flemming, 2021), calculated as the difference between the assessments on "Do you believe cheating is wrong, dishonest, or unethical?" and "Do you think more should be done to stop cheating?". Both assessments are binary variables. We also controlled for student characteristics such as gender, GPA, and age, which may influence students' whistleblowing decisions.

RESULTS AND ANALYSIS

Table 3 presents the variable descriptive statistics for the 232 students who completed the survey. The average age of the students in our sample was 25.28, with a standard deviation of 6.76. Additionally, the average GPA in our sample was 3.39, with a standard deviation of 0.44.

TABLE 3
VARIABLE DESCRIPTIVE STATISTICS

	Mean	Median	SD	Min	Max
WBIntent	0.46	0.00	0.50	0.00	1.00
StudentEngagement	0.81	1.00	0.39	0.00	1.00
CampusConnectedness	0.50	0.00	0.50	0.00	1.00
InPersonAttendance	0.51	1.00	0.50	0.00	1.00
SDB	0.46	0.00	0.52	-1.00	1.00
Gender	0.48	0.00	0.51	-1.00	1.00
GPA	3.39	3.40	0.44	1.98	4.00
Age	25.28	23.00	6.76	19.00	54.00

Variable Definition

WBIntent	=	1 if student responds yes to assessment on whistleblowing intention.
StudentEngagement	=	Responses were provided on a five-point scale anchored at strongly disagree (1) and strongly agree (5)
CampusConnectedness	=	Responses were provided on a five-point scale anchored at strongly disagree (1) and strongly agree (5)
InPersonAttendance	=	Responses were provided on a five-point scale anchored at strongly disagree (1) and strongly agree (5)
SDB	=	The difference between the assessments on "Do you believe cheating is wrong, dishonest, or unethical?" and "Do you think more should be done to stop cheating?". It measures participants' social desirability bias following guidance from prior studies (Geng and Flemming 2021; Chung and Monroe 2003).
Gender	=	1 if student is female, 0 if male, -1 if student is non-binary[3].
GPA	=	Students GPA.
Age	=	Age of student

Table 4 shows the Pearson correlation results for all the primary variables in our study to examine whether there were significant multicollinearity issues.

TABLE 4
PEARSON CORRELATION MATRIX

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) WBIntent	1.00							
(2) StudentEngagement	0.21***	1.00						
(3) CampusConnectedness	0.18***	0.23***	1.00					
(4) InPersonAttendance	-0.17***	-0.22***	-0.13**	1.00				
(5) SDB	-0.05	-0.003	0.00	-0.04	1.00			
(6) Gender	0.01	0.016	-0.06	0.02	0.01	1.00		
(7) GPA	0.02	-0.07	-0.02	0.06	-0.01	-0.01	1.00	
(8) Age	-0.01	0.07	0.02	0.00	0.06	0.11*	0.00	1.00

Spearman's correlations are equivalent; all p-value are 2 tailed.
*Significant at the 10% level
**Significant at the 5% level
***Significant at the 1% level

The results indicate a statistically significant correlation coefficient between the dependent variable *WBIntent* and our predictor variables: *StudentEngagement* ($p < 0.001$), *CampusConnectedness* ($p < 0.001$), and *InPersonAttendance* ($p < 0.011$). Notably, *StudentEngagement* shows a positive correlation with *CampusConnectedness* and a negative correlation with *InPersonAttendance*. This suggests that students who exhibit high levels of engagement also tend to have a stronger connection with the campus, while their preference for in-person attendance in a Hyflex class is negatively associated with it. No other variables in the study exhibit correlations greater than 0.3. Overall, all variables demonstrate correlations in the expected directions, providing insights into the anticipated results of the multiple regression analysis.

Table 5 presents the logistic regression results. Consistent with our hypotheses, we find that positive student engagement and campus connectedness in a HyFlex class tend to increase students' whistleblowing intention when they witness academic dishonesty. In contrast, a preference for in-person attendance tends to decrease students' whistleblowing in a HyFlex class. The coefficient of *StudentEngagement* is positive and statistically significant (Coeff. = 0.964, p-value = 0.02). This suggests that for students who express positive engagement, the log odds of whistleblowing when they observe academic dishonesty (compared to not blowing the whistle) increases by 0.964. In other words, the corresponding odds ratio for *StudentEngagement* is 2.62, indicating that the odds of whistleblowing when witnessing academic dishonesty is 2.62 times higher for students who feel engaged than those who do not[4]. The coefficient for *CampusConnectedness* is also positive and significant (Coeff. = 0.551, p-value = 0.05). The corresponding odds ratio is 1.73, indicating that students who feel a stronger connection with the campus have a higher intent to report when witnessing academic dishonesty, with odds 1.73 times higher[5]. Lastly, we observe a negative and significant coefficient for *InPersonAttendance* (Coeff. = -0.526, p-value = 0.06). The corresponding odds ratio for *InPersonAttendance* is 0.59, suggesting that the odds of blowing the whistle when witnessing academic dishonesty are approximately 0.59 times lower for students who prefer to attend HyFlex classes in-person, compared to those whose preference is to attend virtually[6].

TABLE 5
LOGISTIC REGRESSION OF STUDENTS' HYFLEX OUTCOMES AND LIKELIHOOD OF WHISTLEBLOWING INTNETION

	Coefficient	Std. Err.	z-stat	p-value
StudentEngagement	0.964	0.41	2.37	0.02
CampusConnectedness	0.551	0.28	1.96	0.05
InPersonAttendance	-0.526	0.28	-1.87	0.06
SDB	-0.216	0.27	-0.81	0.42
Gender	0.109	0.27	0.4	0.69
GPA	0.215	0.32	0.68	0.50
Age	-0.006	0.02	-0.37	0.71
Constant	-1.509	1.24	-1.21	0.23
Observations		232		
Model Chi-squared		0.35		
p-value		0.005		
Pseudo R^2		0.063		

Dependent variable = WBIntent

Table 6 presents the findings of the open-ended questions regarding ways to increase whistleblowing in the classroom. We received 194 responses related to increasing whistleblowing out of the sample of 232 students. Among the suggestions entered, we found that some students did not respond or provided "no comment." The classification of the responses excluded these entries. The remaining responses that were not excluded were very similar, and as such, we categorized them into six groups: *protected anonymity*,

incentivization, *instructor encouragement*, *ethics instruction*, *built-in prevention*, and *other*, similar to Bernardi et al. (2016).

The *protected anonymity* category comprises suggestions indicating the need for guaranteed anonymity on the part of the whistleblower. Comments included responses such as "having an anonymous reporting system," "ability to remain anonymous," and "maybe creating an app or something that could be discreet." For the *incentivization* category, students made suggestions such as "incentives would likely encourage a student to whistle-blow," "extra credit incentives," "incentives like extra credit, or money," and so on. The *instructor encouragement* category includes responses such as, "have the instructor encourage it and make it a safe place for students to be able to do that," "instructor should mention something in the syllabus about this action to allow students to feel comfortable bringing this to their attention," and "bringing up the subject more is important." In the category of *ethics instruction* students indicated that ethics should be taught in the curriculum and included suggestions such as "learning the ethics that cheating is wrong," or "incorporate the teaching of ethics to let students know that cheating is unethical behavior." For *built-in prevention*, responses included suggestions such as "for online classes you could have a lock down browser, or just have open book open notes and adjust the exam accordingly," and "just make sure students are not sitting next to each other, or using phones," etc.

In the *other* category we included the rest of the suggestions which did not fit into the aforementioned categories and which were not enough to have their own individual categories, including comments such as "I think some students will speak up and some won't, regardless of encouragement or incentives," "anyone that takes college courses seriously should not be worried about what others are doing but instead should focus on learning the material," "when I take an exam, I focus on myself only, not on others," and "make sure the rest of the class is not affected by the one person cheating. Many students don't say anything because many professors punish the entire class by becoming extremely strict or creating more difficult exams," and so on.

Among the respondents, 56 students suggested *protected anonymity*, 64 students suggested *incentivization*, 11 students suggested *instructor encouragement*, 13 students suggested *built-in prevention*, and 32 students provided suggestions falling under *other* tactics. We employed various methods to further analyze the sample group and used chi-square tests to determine whether there were significant differences between the two groups. The results are indicated in bold if the p-value was less than 5%.

Panel A of Table 6 breaks down ways to increase whistleblowing by student characteristics, including gender, GPA, and age answering our first research question (R1). Notably, 70.3% of the students who preferred incentivization to increase whistleblowing were male, while 29.7% were female. This difference is statistically significant, suggesting that male students are more likely to engage in whistleblowing when incentivized than female students. Additionally, students with above-average GPA were more likely to engage in whistleblowing when exposed to ethics instruction. However, owing to the small sample size of 13 students in the ethics instruction category, future research may provide more insight. Regarding age, we do not find a significant difference between student age groups in terms of ways suggested to increase whistleblowing.

Our second research question (R2) is answered in Panel B of Table 6, which breaks down the ways to increase whistleblowing using our main variables of interest: *Student Engagement*, *Campus Connectedness*, and *InPersonAttendance*. Among the students who provided ways to increase whistleblowing, those who expressed positive engagement had a higher likelihood of whistleblowing if their anonymity was protected (82.1% of respondents) and if they were offered incentivization (81.3% of respondents).

CONCLUSION

The use of hybrid learning environments is expected to increase. As these environments become part of the fabric of accounting education, concerns about academic dishonesty will likely increase as advances in technology are incorporated into online and hybrid learning environments (Sayed & Lento, 2016). Whistleblowing as a solution to curb academic dishonesty has been lauded as an effective means of curbing misconduct within academic classrooms, even by student admissions (McCabe et.al., 2001). Despite that,

there are few empirical studies that have analyzed whistleblowing in hybrid environments. Furthermore, to the best of our knowledge, no study has investigated the relationship between HyFlex learning environment outcomes and students' whistleblowing intentions. This study assessed student outcomes in accounting HyFlex classes, engagement, campus connectedness and lecture modality preference and analyzed the link to students' intention to whistleblowing when they witnessed academic dishonesty.

The findings indicate that feelings of engagement and campus connectedness in HyFlex classrooms are linked to the likelihood of whistleblowing. Furthermore, HyFlex students who prefer in-person lecture attendance are less likely to whistleblow. This finding has significant implications for educators implementing HyFlex learning. While studies show that students are very unlikely to voluntarily report on academic dishonesty unprompted (Bernardi, et.al., 2013), providing learning conditions that might encourage students to feel motivated to report on academic misconduct can help bridge the gap between action and inaction. The findings of this study suggest that the conditions that can achieve whistleblowing by HyFlex students are measures to increase student engagement and their sense of connectedness to their institution. Since our study also provides evidence that students who prefer to attend HyFlex lectures in-person are less likely to report another student whom they witness engaged in cheating behavior, the findings in this study suggest that campuses may need to use somewhat different strategies to curb academic dishonesty for in-person classes.

TABLE 6
STUDENT-SUGGESTED WAYS TO INCREASE WHISTLEBLOWING IN THE CLASSROOM

Panel A: Breakdown by Student Characteristics

		Gender		χ^2	**GPA (Avg.=3.39)**		χ^2	**Age (Avg.=25.2)**		χ^2
		M	F	*p-value*	Below Avg	Above Avg.	*p-value*	Below Avg.	Above Avg.	*p-value*
Protected Anonymity (56)	(n)	20	35	4.09	23	33	1.79	23	33	1.79
	%	*36.4*	*63.6*	*NS*	*41.1*	*58.9*	*NS*	*41.1*	*58.9*	*NS*
Incentivization (64)	(n)	**45**	**19**	**10.56**	28	36	1.00	36	28	1.00
	%	***70.3***	***29.7***	***0.005***	*43.8*	*56.3*	*NS*	*56.3*	*43.8*	*NS*
Instructor Encouragement (11)	(n)	5	6	0.09	3	8	2.27	5	6	0.09
	%	*45.5*	*54.5*	*NS*	*27.3*	*72.7*	*NS*	*45.5*	*54.5*	*NS*
Ethics Instruction (13)	(n)	6	7	0.08	**2**	**11**	**6.23**	9	4	1.92
	%	*46.2*	*53.8*	*NS*	***15.4***	***84.6***	***0.044***	*69.2*	*30.8*	*NS*
Built-in Prevention (18)	(n)	10	8	0.22	9	9	0.00	8	10	0.22
	%	*55.6*	*44.4*	*NS*	*50.0*	*50.0*	*NS*	*44.4*	*55.6*	*NS*
Other (32)	(n)	22	10	4.50	18	14	0.50	14	18	0.50
	%	*68.8*	*31.3*	*NS*	*56.3*	*43.8*	*NS*	*43.8*	*56.3*	*NS*

Note: Bold: where the two groups differ significantly; NS, not significant.

Panel B: Breakdown by Students' HyFlex Outcomes

		Student Engagement		χ^2	**Campus Connectedness**		χ^2	**In Person Attendance**		χ^2
		0	1	*p-value*	0	1	*p-value*	0	1	*p-value*
Protected Anonymity (56)	(n)	**10**	**46**	**23.14**	28	28	0.00	29	27	0.07
	%	***17.9***	***82.1***	***< .001***	*50.0*	*50.0*	*NS*	*51.8*	*48.2*	*NS*
Incentivization (64)	(n)	**12**	**52**	**25.00**	29	35	0.56	28	36	1.00
	%	***18.8***	***81.3***	***< .001***	*45.3*	*54.7*	*NS*	*43.8*	*56.3*	*NS*
Instructor Encouragement (11)	(n)	3	8	2.27	5	6	0.09	6	5	0.09
	%	*27.3*	*72.7*	*NS*	*45.5*	*54.5*	*NS*	*54.5*	*45.5*	*NS*
Ethics Instruction (13)	(n)	1	12	9.31	6	7	0.08	9	4	1.92
	%	*7.7*	*92.3*	*NS*	*46.2*	*53.8*	*NS*	*69.2*	*30.8*	*NS*
Built-in Prevention (18)	(n)	6	12	2.00	12	6	2.00	8	10	0.22
	%	*33.3*	*66.7*	*NS*	*66.7*	*33.3*	*NS*	*44.4*	*55.6*	*NS*
Other (32)	(n)	**7**	**25**	**10.13**	20	12	2.00	15	17	0.13
	%	***21.9***	***78.1***	***0.006***	*62.5*	*37.5*	*NS*	*46.9*	*53.1*	*NS*

Note: Bold: where the two groups differ significantly; NS, not significant.

Another important contribution of this study is the collected evidence on such alternative means, specifically, student opinions on what might encourage them to report on academic misconduct, furthering previous findings by Bernardi, et.al. (2016). Student opinions indicate that measures such as implementing technology into the processes students already use (e.g., *Canvas* portals, apps, syllabus links) to streamline anonymous reporting may help students feel safe in reporting, as they would not have to take additional measures that might make them feel exposed. Gainful insights into students' reasons for not reporting include fear of retaliation, not from peers, but from overzealous instructors who, when they receive a report on academic misconduct, may inadvertently punish an entire class for the action of a few. Instead, providing incentives in the form of extra credit or other grade advantages is popular as a means of encouraging whistleblowing.

It is worthy of note that students who feel engaged in their HyFlex classes are more motivated to blow the whistle when they have both an assurance of anonymity and the opportunity to obtain some form of reward through incentives. This finding implicates that engaged students are watching to see if their institutions are ready to demonstrate fairness and provide students with a level playing field, and when they do, students would be willing to reciprocate by taking actions that the institutions encourage. This is consistent with studies asserting that when educators show that they want student involvement by asking students to report academic dishonesty, students are more likely to do so (McCabe, et.al., 2001; Yatchison, et.al., 2018). Additionally, this study finds that males are likely to respond to incentives as a motivator to whistleblowing, while also finding that, in order to motivate students to report misconduct, higher-achieving students would welcome the incorporation of ethics training as part of their curriculum. Therefore, a multifaceted approach would be highly beneficial for institutions that implement HyFlex learning programs.

Finally, this study is not without limitations. As we conducted the study on upper-level undergraduate accounting students and graduate students in HyFlex accounting courses, this study could be expanded to examine the motivations of introductory accounting students in HyFlex classes to examine whether perceptions of their classroom environment may provide more insight into whistleblowing motivation or support the current study. For example, as ethics instruction is seen as a motivator for a very small sample

within this study and higher-achieving students are most significant within that sample, an introductory accounting class may provide more insight into the linkage between academic performance and students' response to ethics in instruction. Another limitation of the study is that the analysis was conducted based on survey responses. As HyFlex is increasingly used, it may provide more opportunities for researchers to use other research methods such as experiments, focus groups, and case studies, and in so doing, provide more insights that will benefit accounting education and academia in general.

ENDNOTES

1. IRB approval was obtained prior to embarking on this study. The study was classified under Exempt Status.
2. The two assessments that measure student engagement are: "While attending this course I felt engaged with the lectures" and "I did not find distractions to be an issue when attending lectures for this course via zoom." Both assessments are measured from 1 (strongly disagree) to 5 (strongly agree).
3. We have one student select gender as "non-binary" in survey. Our empirical results are robust with and without this observation.
4. The odds ratio for student engagement is calculated as $e^{0.964}$=2.62.
5. The odds ratio for student engagement is calculated as $e^{0.551}$=1.73.
6. The odds ratio for student engagement is calculated as $e^{-0.526}$=0.59.

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