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White-collar crime in academia: Trends in digital academic dishonesty over time and their effect on penalty severity

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ABSTRACT

This study explored patterns of change over time in penalties for conducting academic dishonesty (AD), following a previous study (Friedman Blau & Eshet-Alkalai, 2016) that reported lower penalties for digital AD offenses compared to analog ones across two years. In the present study, we examined whether this trend changes over time, and what could explain it. We offered two contradicting hypotheses: *the regulations hypothesis* suggests that the gap between penalties for analog and digital AD caused since it takes time for academic institutes to adjust their regulations to digital dishonesties. Therefore, this gap will diminish and eventually disappear. *The perception hypothesis* suggests that the penalty gap will remain stable, since it reflects the perception of digital AD as a "white-collar" offense. Contrary to previous studies that used self-reported measurements of AD perceptions, this study analyzed Disciplinary Committee's protocols, which contains a more objective descriptions of type of AD, student's explanations, and penalty types. These protocols provide information about the actual behavior of students and faculty, and not about their opinions. We analyzed the entire volume of 628 university's protocols collected during four consecutive years. Findings clearly demonstrated that the trend of lower penalties for digital offenses remained stable across four years. Results support the perception hypothesis, suggest that this phenomenon relates to the perception of digital AD as a "white-collar crime". Like other white-collar crimes, is perceived as less harmful and therefore, punished less severely than other crimes. This claim is also supported by our findings that motivations to behave unethically, which students reported to the Discipline Committee, influenced penalties' severity in analog, but not in digital settings. Unexpectedly, a consistent gender-gap was found in penalties' severity for both digital and analog offenses, indicating that women were punished more severely than men. This dissimilarity in penalizing AD offenses remained stable over the studied period. We discuss theoretical and practical implications of these findings.

1. Introduction

The phenomenon of academic dishonesty (AD) has been a concern for educators and researchers for generations. As illustrated in a study by James (1933), even in the beginning of the 20th Century, high-school students and undergraduates frequently conducted

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unethical academic behaviors, such as “helping” a friend during an exam (94%) and illegally copying at least half of an exam's answers when possible (94%–100%). Unfortunately, today, more than eighty years later, the picture does not seem to have changed and AD behaviors continue to challenge education systems. For example, about 95% of Israeli students, 69% of Korean students, and 60% of Kenyan students admitted to conducting AD offenses (Cheshin, 2006; Ledesma, 2011; Musau & Boibanda, 2018, respectively). Similar trends were reported in surveys conducted in the US and Canada, where many undergraduates and graduate students admitted they were involved in more than one AD behavior (McCabe, 2005). A similar picture is revealed in more recent surveys, indicating that AD is a world-wide phenomenon, common in the USA (e.g., Hensley, Kirkpatrick, & Burgoon, 2013), in Israel (Peled, Eshet, Barczyk, & Grinautski, 2019), in the Gulf Cooperation (Ahmed, 2018), in South Africa (Finchilescu & Cooper, 2018), in Russia (Maloshonok & Shmeleva, 2019), and in the Far Eastern countries (Kam, Hue, & Cheung, 2018).

What can be perceived as AD offenses? Pavela's (1997) conceptual framework distinguished between four types of AD offenses: (1) Cheating-using any material or information in a way which was not permitted; (2) Plagiarism-presenting content of others as your own, without referencing; (3) Fabrication-citing non-existent sources or inventing data\information; (4) Facilitation-assisting others to commit AD behavior. It should be noted that Pavela's model was suggested without differentiation between AD conducted in analog versus digital settings.

With the ever-changing technologies, ways of conducting AD offenses have changed considerably over time. In recent years, the availability of a wide range of digital devices, as well as the proliferation of digital technologies in both the academia and school systems, has led to a new type of AD – *digital academic dishonesty*. Digital AD refers to offenses in which digital technologies and devices (e.g., the Internet, smartphones) are employed (Blau & Eshet-Alkalai, 2014; 2016; 2017; Stephens, Young, & Calabrese, 2007; Stogner, Miller, & Marcum, 2013). Although relatively new, reports indicate that digital AD is already taking up a considerable portion of dishonest behaviors acts in the academia. For example, findings suggest that in universities, about 40% of cheating (Stogner et al., 2013), and about 31% of all types of AD offenses (i.e., cheating, plagiarism, and facilitation AD of other students) are digital (Friedman, Blau & Eshet-Alkalai, 2016). Nowadays, many school students perceive digital plagiarism and digital facilitation as legitimate behaviors (Blau & Eshet-Alkalai, 2017), and an increasing amount of students report that they would have chosen to use electronic devices for conducting an AD (Ahmed, 2018; Best & Shelley, 2018). Thus, it can be assumed that digital AD will increase as technologies become more prevalent in teaching, learning and assessment, unless special prevention measures are taken (Reisig & Bain, 2016; Knapp & Hulbert, 2017).

Since AD existed long before the digital era (e.g. James, 1933), the increasing usage of technologies should not be regarded as a major *cause* for AD behaviors, but rather as a new platform for executing dishonest activities (Stephens et al., 2007). However, in light of the constant increase in AD behaviors in the past two decades, it is reasonable to assume that technologies did play a pivotal role in facilitation of this phenomenon (McCabe & Pavela, 2004; Waters, 2013).

Although digital dishonesty has become more common in recent years (Blau & Eshet-Alkalai, 2017; McCabe, Butterfield, & Trevino, 2012), it is yet unclear from the research literature how its severity is perceived by academic faculty. From one hand, some studies report that faculty believed that dishonest academic behavior is perceived as one of the major problems in current academic life (Frost, Hamlin, & Barczyk, 2007), and perceived digital and analog AD as equally severe and as deserving equal penalties (Blau, Eshet-Alkalai & Friedman, 2017). On the other hand, examination of the *actual* penalties for (rather than *perceptions* of) AD, clearly indicates that penalties for analog AD offenses were much more severe than penalties for digital ones (Friedman et al., 2016).

Importantly, the cause for the difference in penalties' severity between digital and analog AD behaviors remains unclear. This study aims to examine in depth this paradoxical gap: while digital AD increases, its punishment remains lower, compared to similar analog AD offenses (Friedman et al., 2016). Understanding the roots of this penalties' gap is crucial, since only by understanding the cause of this gap, it will be possible to gradually diminish and finally eliminate it. Therefore, the current study will further explore two contradicting hypotheses that may explain this gap: The *regulations hypothesis* and the *perception hypothesis*.

The regulations hypothesis suggests that changes in regulations and social norms lag behind the fast technological changes and consequently, people and institutions approach ethical offenses in a more traditional manner (McCabe & Pavela, 2004). Accordingly, it takes time for academic institutes to adjust their regulations and norms for the “innovative” digital dishonesty – an adjustment that requires establishing new integrity codes and regulations for each digital offense (McCabe & Pavela, 2004) and developing effective strategies to cope with digital unethical behaviors (Shier, 2005). The regulations hypothesis suggests that the differences in penalties' severity for analog and digital AD offenses is temporary, and would diminish and eventually disappear over time, after the norms of digital ethics are fully integrated.

The perception hypothesis for the observed analog-digital penalties' gap is that digital offenses are perceived as “white-collar” offenses of AD. Contrary to the fierce “street crimes”, white-collar crimes are non-violent illicit acts (Sutherland, 1983). These crimes are usually perceived as less harmful, sentenced less, and usually receive lower penalties, compared to “street crimes”, regardless of the damage they cause (Brightman & Howard, 2009; Perri, 2011; Richman, 2013). In line with this hypothesis, recent research clearly indicates that digital offenses are indeed perceived as “white-collar crimes” (e.g., Garg & Camp, 2015). Since the wide Internet access is perceived as being responsible for the growing amount of white-collar crimes (Brightman & Howard, 2009; Cliff & Desilets, 2014), it is reasonable to assume that digital AD, which is considered the “high-tech” version of this phenomenon (Waters, 2013), would be perceived by decision makers and Disciplinary Committees as the “white-collar” AD offense. Consequently, according to this hypothesis, although digital and analog ADs can cause similar damage, digital AD “enjoys the benefits” of being perceived as less harmful and therefore receives lighter penalties, similar to other white-collar crimes. This hypothesis predicts that as long as the perception differences between digital and analog offenses persist, the difference in penalties' severity between them will be retained.

The main aim of the current study is to explore the causes for the observed difference in penalty's severity imposed for digital and analog AD behaviors in academia, using these two contradicting hypotheses. If the regulations hypothesis is correct, then an increase

over time in penalties' severity for digital dishonesty offenses would be found, as a result of regulations' adjustment to this type of dishonesty offenses. If, however, the perception hypothesis is correct, then no change over time in penalties' severity for digital AD is expected.

In order to examine these contradicting hypotheses, the current study is designed as a follow-up of Friedman et al.'s (2016) research, in which protocols from a university's Discipline Committee were analyzed for a year and a half. In order to identify trends of change over time in penalties for AD offenses, we looked at a longer period of time, namely four years, and analyzed protocols of the same Discipline Committee using the methodology as used in Friedman et al.'s study. Therefore, this study suggests a wider time perspective than the Friedman et al.'s original study. Such a perspective is essential to explore trends and tendencies over time.

a. The role of motivation in penalizing academic dishonesty

Research indicates that motivation plays a pivotal role in learners' readiness to conduct acts of AD and may differ between analog and digital AD offenses (Jordan, 2001; Murdock, Hale, & Weber, 2001). The motivational model for conducting AD (Murdock & Anderman, 2006) describes three different types of individual and contextual dimensions, each of which consists of two types of motivations, i.e., a total of six motivations that predict AD. The first dimension is the *student's goal*. If a student has either (1) extrinsic learning goals or (2) performance-oriented motivation to learn (as opposed to mastery-oriented motivation), then his/her motivation to behave unethically is predicted to be high. The second dimension is the *student's self-expectation* of achieving his/her goal. If s/he has (3) low self-efficacy of academic performance or (4) low expectation from the learning outcomes, then his/her motivation to behave unethically is expected to be high. The last dimension is the *cost of behaving unethically*. If a student estimates (5) that there is a low chance to get caught and punished, or (6) that it is possible to behave unethically and yet maintain a positive self-perception, then the motivation to conduct an unethical behavior increases. All of Murdock and Anderman's (2006) motivations for conducting AD offenses were found in Friedman et al.'s (2016) study, as explanations offered by students for their unethical behavior to the university's Disciplinary Committee. However, Friedman et al.'s study examined neither the association of these motivations to the technological factor (analog vs. digital), nor their influence on penalties' severity. In order to further understand the impact of motivations on the phenomenon of AD in higher education, both topics were examined in the current study.

The motivation that is especially interesting for the current study's aim is the motivation to maintain a positive self-perception. This motivation can be explained by the Self-Concept Maintenance theory (SCM; Mazar, Amir, & Ariely, 2008), which suggests that people can behave dishonestly only up to the point they can still maintain their positive self-perception as honest people. When the positive self-perception is threatened by unethical behavior, an “ethical dissonance” arises (Barkan, Ayal, Gino, & Ariely, 2012). To cope with this dissonance, people employ self-justification mechanisms, such as self-conviction that they acted fairly, changing their own moral values and beliefs, or blaming situational factors for their behavior (Ayal & Gino, 2011, pp. 149–166; Barkan et al., 2012). For a review of strategies for to reduce ethical dissonance see: Barkan, Ayal, and Ariely (2015).

The SCM explanation can provide interesting insights regarding the contradicting regulations versus perception hypotheses for conducting digital AD. In other types of white-collar offenses, offenders can easily perceive themselves as not doing harm (Chambliss, 1967; Gottschalk & Smith, 2011). In terms of the SCM theory, they can easily commit an offense and, at the same time, maintain their self-perception as honest people. Therefore, if the perception hypothesis is supported, we can expect that compared to analog AD, digital AD would be associated with a stronger positive self-perception motivation. In contrast, based on the regulations hypothesis, as institutional regulations concerning digital AD will become clearer over time, it will become harder to behave unethically and feel honest. Thus, we would expect to find a decrease in the use of positive self-perception motivation as explanation for conducting digital AD offenses.

b. Gender and penalty severity

Another issue of interest is gender differences in penalties' severity. As reported in many studies (e.g., Ahola, Hellström, & Christianson, 2010; Wilczynski, 1997), women are usually penalized *less* severely than men, even for similar offenses, and if imprisoned, women spend less time in jail than men (Ahola, Christianson & Hellstrom, 2009; Hughes, Wilson, & Beck, 2001). A similar trend occurs in the educational settings, where girls are usually reported to be punished less severely than boys (Erickson, 2016).

However, an opposite trend concerning penalties' severity imposed by a university's Disciplinary Committee was reported by Friedman et al. (2016), who surprisingly found that penalties imposed on female students were *more* severe than those imposed on males. In the present study, we explored two explanations that may clarify this gap: (1) Since digital devices and environments are perceived as having a “masculine nature” and involve higher numbers of male compared to female users (Hyde, 2014; Poster, 2013), men might be involved in more digital ADs than women. Since digital AD relates to lower penalties' severity, it may lead to a misleading perception of harsher penalties to women, due to the connection between gender and technological AD. To examine this issue, we explored the combined role of gender and type of AD on penalties' severity. (2) Since men and women use different types of moral reasoning (Walker, 2014), they might also be using different motivational explanations to justify their offenses. Accordingly, the use of different types of motivation might be the cause of more severe penalties imposed on women for AD behaviors. To examine this possibility, we explored gender differences in the variety of motivations for conducting AD presented by students to the Disciplinary Committee.

1.1. Research goals and questions

In this study, we analyzed protocols from an ethics committee to examine changes over time in penalties for AD offenses, with respect to penalties for analog versus digital offenses, to the motivations for conducting these offenses, and to gender-related issues of penalizing AD. We examined the following questions:

1. Is the gap in penalties between digital and analog academic dishonesty decreasing over time?
2. How do different motivations for dishonest behaviors affect penalties' severity? Is there an interaction effect between motivation and the technological factor (digital/analog), which can explain differences in penalties' severity?
3. Is there a gender gap in the severity of penalties? Could it be explained by an interaction effect between gender and the technological factor? Could it be explained by an interaction effect between gender and different motivation types?

2. Method

2.1. Research population

We analyzed 628 protocols of a large Israeli university's Disciplinary Committee, covering the period of 2012–2015 years. These protocols are records of the Disciplinary Committee that are open to the public in the university's website, without exposing students' personal information. These protocols describe the course of each committee discussion, and are written by an objective observer of the committee. They all have an identical format (see a protocol example in Appendix A). Thus, unlike previous recent studies of AD, which were based on self-reports (e.g. Ahmed, 2018; Blau & Eshet-Alkalai, 2017; Musau & Boibanda, 2018), the records used in this study provide a more objective measurements of AD behaviors and penalties. This allows us to explore what are the students' and faculty's *actual behaviors*, instead of their *opinions*.

We collected 314 protocols from the period of 2012–2013 and 314 additional protocols from the period of 2014–2015. These are all of the Discipline Committee's protocols representing AD behaviors that were judged during this period (after excluding cases of other disciplinary offenses). The identical number of protocols for each period was incidental.

To be judged by the Disciplinary Committee, a suspicious case should be reported by a faculty member or exam observer to the committee coordinator. Each report is examined by the university's complainant and s/he decides whether to close the case or to bring it to the Disciplinary Committee. Suspected students are invited to explain their behavior in front of the committee and answer questions arouse by the complainant and committee members. After receiving a decision, student can appeal to the appellation committee.

Also note, that disciplinary committee members are partially changed between committee meetings. Each committee is composed of three members: (a) head of the committee, (b) the university representative, and (c) students' representative. The committee's head is a senior faculty member (Associate Professor of Full Professor), chosen by the university president and s/he is permanent for a two year period. The university representatives are faculty members chosen by the Dean of academic studies, while students' representatives are chosen by the students' union. In the periods investigated in this study, the committee head's position was always hold by a man. In contrast, other committee members are not permanent and several people of both genders served as university's and students' representatives during each period examined in this study. As a result, gender composition of committee members' varies across discussions, even within each period.

2.2. Research tools

All of the Disciplinary Committee's protocols analyzed in the study have an identical structure, and contain information about the type of offense, students' explanations of their behaviors and the penalty imposed by the Discipline Committee. An example for a protocol and the way it was coded can be found in Appendix A.

2.2.1. Independent variables

Technological factor. This variable refers to the medium that was employed to execute the dishonesty offense. It was coded as either digital (e.g. texting answers, copying from an online source) or analog (e.g. using notes during exams, copying from other students).

Research periods. To examine trends of change over time in penalties, we distinguished between the 2012–2013 period, which has already been discussed by Friedman et al. (2016), and the 2014–2015 period, which is analyzed in this study.

Motivation for conducting AD. The motivations to commit AD offenses were extracted from the protocols. These are reasons provided by students to explain their unethical behavior. The motivations were coded based on the Murdock and Anderman's (2006) motivational model for conducting AD behaviors as described above: (1) extrinsic learning goals; (2) high performance orientation; (3) low self-efficacy of academic performance; (4) low expectation from the learning outcomes; (5) estimation that there are low chances to get caught and punished; and (6) maintaining a positive self-perception. No additional types of motivations emerged from the data. Since students sometimes provided more than one motivation to their behavior, each motivation was binary coded as a separate variable in the dataset.

Gender. As stated above, the protocols posted at the university's website were anonymous. The only personal information available to the researchers was the *gender* of the students who committed the offenses, as protocols were originally written in a

gender-sensitive language. Verbs and Nouns, including the word “student”, are determined by gender, therefore revealing each student's gender.

2.2.2. Dependent variables

Penalty severity. Similar to Friedman et al. (2016), both actual and suspended penalties were scaled from least to most severe, on a scale that ranged from 0 (acquittal) to 40 (permanent exclusion) (see Friedman et al., 2016, p. 204, for the full index). In the case of multiple penalties, the penalty severity was calculated by summing up the severity of all the penalties. Similar to Friedman et al., in this study, we distinguished between *actual penalties*, and *suspended penalties*, as two different dependent variables.

2.2.3. Control variables

Types of academic dishonesty behaviors. We distinguish between four types of AD offenses, according to Pavela (1997) conceptual framework: cheating, plagiarism, fabrication, and facilitation AD of other students.

2.3. Procedure

The variables from the Discipline Committee's protocols were coded based on the categorization scheme used by Friedman et al.'s (2016). Two independent raters read all 628 Discipline Committee's protocols from the studied period and coded the variables. The inter-rater agreement rate was high, Cohen's Kappa $\varkappa = .92$. In cases of disagreement between raters, another independent rater was asked to discuss the case and reach agreement between raters. The analyzed dataset reflects complete agreement between the raters. The analysis was conducted using SPSS 22 version.

3. Results

3.1. Descriptive statistics

Academic dishonesty types. The entire sample consisted of 543 cases of cheating (86.5%), 63 cases of plagiarism (10%) and 19 facilitation cases (3%). No case of fabrication was found in any of the protocols.

Technological factor. Three hundred and ninety-three (62.6%) of the AD cases were analog, while the rest, 232 (36.9%) of the cases, were digital.

Motivations for dishonesty behavior. Table 1 shows the amount and percentage of cases in which each type of motivation to commit an AD was used. The table clearly shows that the two major motivations – covering ~70% of the total are ethical (Maintaining positive self-perception - 60.2%) and practical (Low estimation of being caught and punished – 18%).

The use of “low estimation to be caught and punished” motivation for conducting academic dishonesty had increased between the first period (10.2%) and the second period of investigation (25.8%), $X^2(1) = 25.9, p < .001$. No additional changes in the frequency of using any other motivation during these two periods were found (all X^2's > 0.25).

Gender. Three hundred and eighty-eight of the offenses (61.8%) were conducted by women, while the rest, 240 cases (38.2%) were conducted by men. In the first period, 56.1% of the offenses were conducted by women, while at the second period, it significantly increased to 67.5% $X^2(1) = 8.74, p < .01$. Note that gender distribution of students at this specific university is also not equal: 57% women and 43% men.

Penalties. Severity of actual penalties ranged between 0 and 40, with an average of 7.93, $SD = 6.56$, median = 7. In addition to the actual penalties, the analyzed protocols included 408 (65%) cases in which suspended penalties were imposed (average severity of 7.47, $SD = 8.87$, median = 5, range: 0–40).

3.2. Change over time in digital versus analog academic dishonesty types

Our findings reveal a clear growth in the frequency of digital dishonesty offenses over time. In the 2012–13 period, 97 (31.2%) of the dishonesty cases were digital whereas in the 2014–15 period it increased to 135 (43%) cases. The growth in digital dishonesty was statistically significant ($X^2(1) = 9.33, p < .01$).

There were also changes in frequencies of dishonesty behavior types over time. As can be seen in Table 2, the percentages of

Table 1
Number and percentage of cases in which each type of motivation was used.

Motivation type	Number of cases	% of cases
(1) Extrinsic learning goals	2	0.3%
(2) Performance orientation	63	10%
(3) Low self- efficacy	60	9.6%
(4) Low outcome expectations	25	4%
(5) Low estimation of being caught and punished	113	18%
(6) Maintaining positive self- perception	378	60.2%

N = 628. In each protocol, more than one motivation could have been mentioned.

Table 2
Frequencies of different dishonesty behaviors, by periods.

	Cheating	Facilitation	Plagiarism
2012- 13 period	243 (78.1%)	14 (4.5%)	54 (17.4%)
2014- 15 period	300 (95.5%)	5 (1.6%)	9 (2.9%)

cheating increased, while facilitation and plagiarism decreased over time. These trends were significant (X^2 (2) = 42.38, $p < .001$).

However, these differences seems to be a result of changes between the two periods in the distribution of digital dishonesty behaviors $X^2(2) = 72.13$, $p < .001$, while there wasn't any change in the distribution of analog dishonesty behaviors $X^2(2) = 3.47$, $p = .18$. As Table 3 indicates, the amount of digital cheating increased during the second period (2014–2015), while the amount of digital facilitation and digital plagiarism dramatically decreased.

In Addition, we found a significant relationship between the type of dishonesty and the technological factor. Cheating was analogical at 65.6% of the cases, plagiarism in 47.6% of the cases, while facilitation was analog only in 36.8% of the cases ($X^2(2) = 13.47$, $p < .001$).

3.3. Penalties for digital versus analog academic dishonesty: change over time

To investigate our first research question, regarding changes in AD over time, we conducted a two way ANOVA with period (2012-13/2014-15) and technological factor (analog/digital) as independent variables, and the actual penalty as a dependent variable. We found a surprising main effect for the period, suggesting that during the 2014-15 period the Discipline Committee was more lenient than the 2012-13 one (2012-13: $M = 9.66$, $SD = 7.72$, 2014-15: $M = 6.27$, $SD = 4.61$, $F(1, 621) = 32.94$, $p < .001$). We also found a main effect for the technological factor, revealing that across the entire sample, analog dishonesty ($M = 9.31$, $SD = 6.71$) received more severe penalties than digital dishonesty ($M = 5.67$, $SD = 5.64$), $F(1,621) = 40.18$, $p < .001$). However, the interaction was not statistically significant ($F < 1$), suggesting that the relative penalty severity for both analog and digital dishonesty has not changed over time.

Since these results could be impacted by the relationship between the type of AD and the technological factor (analog/digital), we conducted a two-way ANCOVA with the same independent and dependent variables, and the type of AD as a dummy-coded covariate. Results were similar to those found in the analysis above: a significant main effect for the period ($F(1, 619) = 19.14$, $p < .001$) and for the technological type ($F(1, 619) = 45.70$, $p < .001$), without a significant interaction effect ($F(1, 619) = 1.17$, $p = .28$). Thus, this strengthen the effect of technology, which goes beyond time and type of AD.

Results revealed a similar pattern for the suspended penalties. We conducted another two-way ANOVA with period (2012-13/2014-15) and technological factor (analogical/digital) as independent variables, with the suspended penalties as a dependent variable. As for the actual penalties, we found a main effect for the period, suggesting that in the second period the committee was more permissive than in the first period (2012-13: $M = 11.24$, $SD = 9.90$, 2014-15: $M = 3.73$, $SD = 5.68$, $F(1, 621) = 122.58$, $p < .001$). Similarly, we found a main effect for the technological factor, according to which the analog dishonesty offenses ($M = 8.32$, $SD = 9.50$) received more severe suspended penalties than the digital ones ($M = 6.02$, $SD = 7.54$, $F(1, 621) = 4.00$, $p < .05$). There was no significant interaction effect between the variables ($F < 1$).

As for the actual penalties, we also conducted a two-way ANCOVA for the suspended ones, with the same independent and dependent variables, and the type of AD as a dummy-coded covariate. Once again, similar patterns were found: a significant main effect for the period ($F(1, 619) = 83.33$, $p < .001$) and for the technological factor ($F(1, 619) = 7.20$, $p < .01$), while a non-significant interaction effect ($F < 1$).

Across all these analyses, the same pattern was revealed: penalties for the digital AD dishonesty offenses were less severe than penalties for the analog ones, and this difference remained stable over time.

3.4. Motivations and their impact on penalty severity for digital and analog AD

Although all types of motivation described by the Murdock and Anderman's (2006) model were found in the protocols, only in two cases (0.6%), external motivation was used as the motivation for the offense. Therefore, we excluded this motivation from the analyses.

To examine the second research question, regarding the role of motivations in the severity of penalties, as a main effect and in an interaction with the technological factor, we conducted a series of five two-way ANOVAs, with the technological factor and one of the motivation types as independent variables and the actual penalty as a dependent variable. Note that we could not analyze different

Table 3
Frequencies of different digital dishonesty behaviors, by periods.

	Cheating	Facilitation	Plagiarism
2012- 13 period	53 (54.6%)	11 (11.3%)	33 (34%)
2014- 15 period	134 (99.3%)	1 (0.7%)	0 (0%)

Table 4
ANOVAs results for actual penalties: the main effect for each motivation, and for the interaction effect with technological factor.

Motivation type	Motivation - main effect	Motivation * technological factor
Performance orientation	$F(1, 621) = 2.47$, $p = .18$	$F(1, 621) = 2.33$, $p = .13$
Low self- efficacy	$F(1, 621) = 3.96$, $p < .05$	$F(1, 621) = 4.43$, $p < .05$
Low outcome expectations	$F(1, 621) = 8.85$, $p < .01$	$F(1, 621) = 1.40$, $p = .24$
Low estimation of being caught	$F < 1$	$F < 1$
Maintaining positive self- perception	$F(1, 621) = 24.15$, $p < .001$	$F(1, 621) = 4.02$, $p < .05$

motivations as a single between-subjects variable, since each motivation was dichotomous (absent/present) and protocols included many cases of multiple motivations. Across all the five ANOVAs, there was a main effect for the technological factor (all p's < 0.001). Table 4 presents the main effect for each motivation, and the interaction between each motivation and the technological factor.

As can be seen in Table 4, the motivation of low outcome expectations led to a main effect, according to which students expressing this motivation received more severe penalties ($M = 10.8$, $SD = 7.38$) than the rest of the students, who did not express this motivation ($M = 7.84$, $SD = 6.51$).

Similarly, the self-efficacy motivation had a main effect on the penalties' severity, suggesting that expressing low self-efficacy motivation resulted in more severe penalties ($M = 9.18$, $SD = 7.43$) in comparison to not expressing this motivation ($M = 7.83$, $SD = 6.46$). Moreover, there was an interaction between self-efficacy and the technological factor, as can be seen in Fig. 1. Simple effects analysis showed that for analog offenses, penalties were significantly more severe when combined with expression of low self-efficacy, compared to analog dishonesty without expressing self-efficacy as a motivation for conducting dishonesty acts ($p < .01$). However, there was no statistically significant difference between expressing or not expressing this motivation when the offense was digital ($p = .937$).

As Table 4 demonstrates, using the positive self-perception motivation was the only motivation that related to decrease in penalties ($M = 6.97$, $SD = 5.96$) compared to not using it ($M = 9.47$, $SD = 7.16$). In addition, there was a significant interaction effect between this motivation and the technological factor ($F(1, 621) = 4.02$, $p < .05$). Both effects are presented in Fig. 2. Simple effects analysis suggested that for the analog offenses using this motivation was related to lower penalties, compared to not using it ($p < .001$), while for digital offenses there was no significant difference between using or not using this motivation ($p = .067$).

3.5. Gender and penalties severity

In order to shed light on our third research question, regarding the gender gap in penalties' severity, we examined whether there is a change over time in penalties' severity as a function of gender. A two-way ANOVA was conducted, with period (2012-13/2014-15) and gender as independent variables and the actual penalty's severity as a dependent variable. In addition to the significant effect for period described above, we found a significant main effect for gender, in which women ($M = 8.54$, $SD = 6.78$) received more severe penalties than men ($M = 6.96$, $SD = 6.09$, $F(1, 624) = 14.86$, $p < .001$). No interaction was found ($F < 1$), indicating that the observed gender gap in the severity of actual penalties remained stable over time.

A similar ANOVA test was conducted with suspended penalty as a dependent variable. There was neither gender difference in the suspended penalties ($M_{men} = 7.56$, $SD_{men} = 9.32$, $M_{women} = 7.42$, $SD_{women} = 8.59$, $F(1, 624) = 1.55$, $p = .21$), nor an interaction between period and gender ($F(1, 264) = 1.73$, p = .19). Altogether, these findings imply that women are punished more severely than men, as they receive more severe actual penalties than men, and similar suspended penalties do not compensate women for the harsher actual penalties.

Could this effect be explained by gender differences in dishonesty behaviors? Our findings indicate that gender was not related to dishonesty type ($X^2(2) = 1.21$, $p = .55$), but, as we suspected, it was related to the technological factor, indicating that women tended to conduct less digital offenses (34.1%) than men (42.0%) ($X^2(2) = 3.95$, $p = .05$).

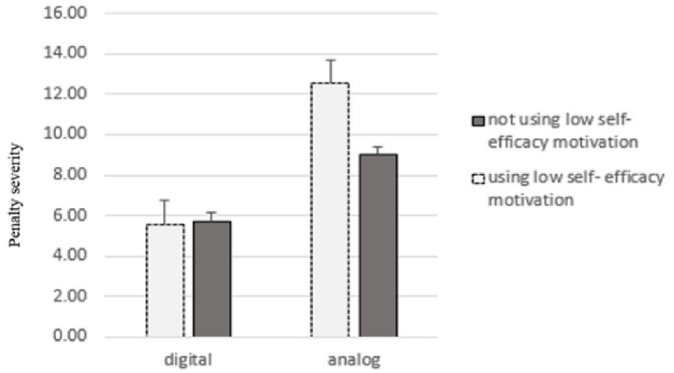

Fig. 1. Actual penalties as a function of the technological factor and self-efficacy motivation.

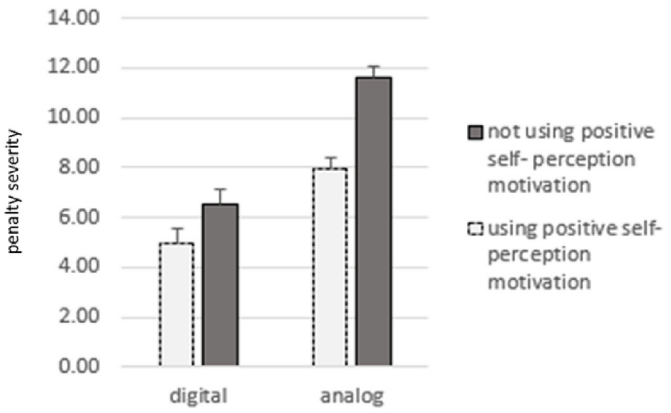

Fig. 2. Actual penalties as a function of the technological factor and positive self-perception motivation for digital and analog academic dishonesty.

To examine our assumption that the technological factor can explain the gender gap in penalties, we conducted an ANCOVA test, with the same variables as before, and the technological type as a covariate. Results indicate that even while controlling for the technological factor, there was still a main effect for the period ($F(1, 620) = 37.30$, $p < .001$), a main effect for gender ($F(1, 620) = 10.50$, $p < .01$), and no interaction between the variables ($F < 1$). Namely, the technological factor cannot explain the gender gap in penalties. We ran a similar ANCOVA for suspended penalties as a dependent variable. Here as well, results did not change after controlling the technological factor: neither a significant main effect for gender ($F(1, 620) = 1.06$, $p = .30$) nor an interaction ($F(1, 620) = 1.34$, $p = .25$) were found.

Another possible explanation for the gender gap in penalties was that men and women used different motivations to explain their dishonest behaviors, thus they received different penalties. To examine this explanation, we ran a series of five ANCOVAs that included gender and one motivation at each analysis as independent variables, the technological factor as a covariate, and the actual penalty as a dependent variable. None of the motivations interacted with gender (all p's $> .14$), indicating that men and women do not defend themselves differently in front of the Disciplinary Committee, and this could not explain the gender gap reported above.

4. Discussion

4.1. Penalties' gap between digital and analog dishonesty: change over time

To examine *the first research question* regarding change over time in the penalties' gap between digital and analog dishonesty, we offered in this paper two contradicting hypotheses. According to *the regulations hypothesis*, the gap between penalties for analog and digital AD will diminish with time and eventually disappear. In contrast, *the perception hypothesis* suggests that this gap in penalties will remain stable, since it is related to the perception of digital AD as a "white-collar" offense. The findings indicate that while digital AD became more frequent over time, penalties for digital offenses remained less severe than penalties for the traditional, analog AD offenses. These findings are consistent with the perception hypothesis, suggesting that like all other white-collar offenses, digital AD is perceived as a less severe offense and therefore, receives more forgiving penalties (Brightman & Howard, 2009; Garg & Camp, 2015).

Interestingly, the pattern revealed in this study, of perceiving digital dishonesty as a "white-collar" offense by the University's Discipline Committee, was not found in previous studies among faculty members' (Blau et al., 2017; Frost et al., 2007) or teachers' (Rotem, Blau & Eshet-Alkalai, 2016) attitudes towards digital AD. The different findings may reflect the fact that both studies reported participants' *perceptions*, while the current study is based on *actual decisions* of the Disciplinary Committee. In this case, the difference in findings between the current and previous studies would suggest that decision-makers might be unaware of the gap in the penalties they imposed on students as a factor of technology.

It should be noted that to our knowledge, this study is the first to examine trends of change over time in penalties for AD behaviors. Digital AD is a common and global problem nowadays, and many studies explore ways to cope with this relatively new phenomenon (Ahmed, 2018; Blau & Eshet-Alkalai, 2017; Best & Shelley, 2018; Knapp & Hulbert, 2017; McCabe et al., 2012; Reisig & Bain, 2016).

4.2. Motivations to engage in digital and analog AD behaviors

The second research question dealt with motivations to engage in AD behaviors. The only motivation that was found to be associated with decreased penalty severity was a positive self-perception - when the offender sincerely believed that her/his dishonest behavior was legitimate. The behavior of offenders stating a positive self-perception motivation is consistent with the SCM explanation (Mazar et al., 2008). A threat to the positive self-perception that can arouse during dishonesty behavior creates an "ethical dissonance" that can be solved by self-justifications (Ayal & Gino, 2011, pp. 149–166; Barkan et al., 2012; Sidi, Blau & Eshet-Alkalai,

2019). As mentioned, in the study of AD among school students, Blau & Eshet-Alkalai (2017) established, and replicated (Sidi et al., 2019), the Ethical Dissonance Index (EDI), which enabled measuring the ethical dissonance of learners as a difference between conducting AD and perceiving such behaviors as legitimate. In our study, using a positive self-perception motivation might have diminished the ethical dissonance of students, which could be perceived by the Disciplinary Committee members as a reflection of students' confidence in their innocence, and accordingly, might result in less severe penalties. Further study can examine this explanation by comparing the motivations that AD offenders specified to their EDI score. In addition, future research can interview members of several disciplinary committees in order to understand why a positive self-perception motivation affects the severity of penalties.

On the other hand, the ethical dissonance concept suggests that being involved in unethical behaviors and yet maintaining a positive self-perception could only happen in relatively negligible dishonest behaviors, otherwise its self-justification would be difficult (Gino, Ayal, & Ariely, 2009). Therefore, positive self-perception might be used as a "justifiable" motivation only in cases of minor AD behaviors. In such cases, the dishonest behavior, not the motivation, may be the main factor for the lower penalty. Future studies are required to further explore the relations between specific AD behaviors, self-perception motivation, and penalty severity.

Interestingly, results indicated that for both self-efficacy and positive self-perception, using these motivations in the context of analog AD influenced the penalties' severity. However, using these motivations in the context of digital AD had no influence on the penalty severity and the penalties remained less severe than analog AD. This provides additional support to the perception hypothesis: if digital dishonesty is perceived as less harmful in general, presenting the motivation to conducting such acts is irrelevant, as justifications of non-harmful acts are needless.

4.3. Gender gap in penalties for digital and analog academic dishonesty

Our *third research question* explored the gender gap in penalties. We found a gender gap in penalties' severity, namely that, on average, women were penalized more severely than men. Moreover, this gender gap remained stable over time. Importantly, our findings indicate that this gap could be explained neither by the technological factor, nor by the type of motivation for conducting the dishonesty offense. A possible explanation to this gap can be found in the Shifting Standard model (Biernat, 2012; Biernat, Manis, & Nelson, 1991), which suggests that when individuals from a stereotyped group (e.g. women) are being judged, they are compared to their own group's standard, and not to a general, common, standard. For instance, the reason that a 5.9 feet woman would be judged as tall, while a 5.9 feet man will be judged as average, is that each of them is compered to their own group's standards (Biernat & Manis, 1994). The Shifting Standard model has been applied to a wide range of social comparisons (Biernat, 2012; Biernat et al., 1991) and may also be the case in the current study. Namely, compared to men, women are expected to hold higher moral standards (Reichel, Brandl, & Mayrhofer, 2010; Ross, 2002), and be more honest and loyal (Kahn, 2017; Vandello, Cohen, Grandon, & Franiuk, 2009). Accordingly, each individual is judged by the Disciplinary Committee members in comparison to the perceived expectations from his/her gender. Since, as stated above, moral expectations from women are higher than from men, when judged in comparison to women's standards, women's unethical behaviors are perceived as more problematic. Consequently, they are punished more severely than men for similar offenses. Future studies may explore the merit of this explanation for the surprising gender penalty gap found in our study.

5. Pedagogical implications

Several practical implications can be derived from this study. First, the study supports the perception hypothesis as explaining the gap in penalties between digital and analog AD offenses. This highlights the importance of designing educations intervention that would change the perceptions of digital AD offenses as being less severe than analog offenses by both faculty members and students. We recommend raising the awareness of students, professors and especially members of Disciplinary Committees to the phenomenon of "white-collar offense" and the way it can affect their judgments of digital AD severity.

Second, it is our recommendation to use pedagogical models that help prevent AD behaviors. One of them is the flipped classroom model, in which the teacher scaffolds the learning processes and helps the students' to build their knowledge through discussions and guided practice (Blau & Shamir-Inbal, 2017; Sohrabi & Iraj, 2016). As such, this model is beneficial for a more flexible and individualized learning (Akçayır & Akçayır, 2018). When learning is meaningful and customized for each learner's abilities, one's opportunities to engage in AD are decreasing (Blau & Eshet-Alkalai, 2015).

Another educational recommendation is to require students to sign an ethical statement while starting courses, as well as before submitting their assignments and papers. The current study demonstrated that the motivation of positive self-perception during an unethical behavior was the most frequent motivation in the Disciplinary Committee protocols, and that using it by students led to less severe penalties. As mentioned, to use this motive, one should justify her/his own unethical behavior (Barkan et al., 2015). Therefore, making this justification more difficult by drawing strict ethical boundaries could decrease the possibility of acting unethically and at the same time maintaining positive self-image as an honest person.

From the faculty's point of view, our findings emphasize the importance of maintaining concrete, clear, and well-defined regulations and standards for the work of a university's Discipline Committee. This research found unexpected differences in penalizing as a function of time, student's gender, and technologies involved in conducting offenses. These inconsistencies illustrate the necessity of delineating clear standards that will guide the Discipline Committee in achieving fair and unbiased judgments for AD offenses.

6. Limitations

This study has two main limitations. First, the information analyzed in this study (attained from a public domain) was limited. The only personal information we had about the offenders was their gender. We believe that other variables, such as age, having learning disabilities, appertaining to cultural\ethnical minorities, studying in a certain department, might be related to penalty severity and should be further explored in future studies. Moreover, the committee composition may also be related to penalty severity. The current data does not provide information regarding gender of the committee members involved in each decision-making process. Thus, we are not able to examine its influence on the gender gap in penalties imposed.

Second, to the best of our knowledge, this study is the first to examine protocols of the Discipline Committee as a research method, and we only explored protocols of one academic institution. Different academic institutions might have different organizational culture and different ethical codes and regulations. Future studies that will analyze protocols of discipline committees from other academic institutions are required.

7. Conclusion

Digital AD has become a major educational problem (Ahmed, 2018; Blau & Eshet-Alkalai, 2017; Best & Shelley, 2018; Knapp & Hulbert, 2017; McCabe et al., 2012; Osman, Ahmad, Nor Rashidah, Mat Yatim, & Sauid, 2019; Reisig & Bain, 2016; Sidi et al., 2019). However, a previous study (Friedman et al., 2016) found that it is not panelized as severe as analog AD. Instead of self-report measurements of AD in previous studies, the current research used a measurement of actual behavior- a university's Disciplinary Committee protocols- to explore this gap. We found that this gap has remained stable over a four years period, and demonstrated that it is related to the perception of academic AD as the “white-collar crime” of the academic world. As such, it is considered as less harmful and, consequently, was penalized less harshly. Additionally, whether students' used or not in explanations to digital AD behaviors was not influenced the penalties' severity. This could also be explained by the prior perception of digital offenses as not harmful and not required any excuse. Surprisingly, we also found a gender gap, in which women were penalized harsher than men. This might be the result of different social expectations from women and men (Biernat, 2012; Saavedra, Seixas, Cameira, & Silva, 2019). As digital AD is a world-wide phenomenon that becomes more prevalent nowadays, the current study shed a new light on the magnitude and possible reasons for this phenomenon.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.compedu.2019.103621.

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