

Academic Dishonesty among Physical Therapy Students: A Descriptive Study

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ABSTRACT

Purpose: To examine academically dishonest behaviours based on physical therapy (PT) students' current practices and educators' prior behaviours as PT students. **Method:** A Web-based questionnaire was sent to 174 students and 250 educators from the PT programme at the University of Toronto. The questionnaire gathered data on demographics as well as on the prevalence of, seriousness of, and contributing factors to academic dishonesty (AD). **Results:** In all, 52.4% of educators and 44.3% of students responded to the questionnaire over a 6-week data-collection period. Scenarios rated the most serious were the least frequently performed by educators and students. The impact of generation on attitudes and prevalence of AD was not significant. The factors most commonly reported as contributing to AD were school-related pressure, disagreement with evaluation methods, and the perception that "everyone else does it." **Conclusion:** This study parallels the findings of similar research conducted in other health care programmes: AD does occur within the PT curriculum. AD was more prevalent in situations associated with helping peers than in those associated with personal gain. The consistency in behaviours reported across generations suggests that some forms of cheating are accepted as the social norm and may be a function of the environment.

Key Words: education, professional; plagiarism; attitude; curriculum.

RÉSUMÉ

Objectif : Étudier les comportements malhonnêtes sur le plan académique à partir des pratiques actuelles des étudiants en physiothérapie (PT) et des comportements antérieurs des formateurs alors qu'ils étaient eux-mêmes étudiants en PT. **Méthode :** Un questionnaire sur le Web a été envoyé à 174 étudiants et à 250 formateurs dans des programmes de PT de l'Université de Toronto. Ce questionnaire a permis de recueillir des données démographiques ainsi que des données sur la prévalence, le degré de gravité et les facteurs contribuant à la malhonnêteté académique (MA). **Résultats :** Au total, 52 % des formateurs et 44,3 % des étudiants ont répondu au questionnaire durant la période de collecte des données, qui a duré six semaines. Les comportements considérés comme les plus graves ont été ceux que les formateurs et les étudiants ont le moins adoptés. L'influence de la génération à laquelle appartenaient les participants sur les attitudes par rapport à la MA et sur sa prévalence a été minime. Les facteurs contribuant à la MA le plus fréquemment évoqués sont les pressions liées aux études, un désaccord avec les méthodes d'évaluation et la perception que « tout le monde le fait ». **Conclusion :** Cette étude a permis de comparer les conclusions d'une étude similaire menée dans d'autres programmes de formation du secteur de la santé; il y a effectivement des cas de MA dans l'enseignement de la PT. Celle-ci est toutefois plus fréquente quand c'est pour aider des confrères ou consœurs que dans le seul intérêt personnel. La similitude des comportements des diverses générations de participants semble indiquer que certaines formes de tricherie sont acceptées parmi les normes sociales et peuvent être fonction de l'environnement.

Although completing post-secondary education without resorting to dishonest acts is considered vital to the development of ethical behaviour on the part of health professionals,^{1,2} the literature provides evidence of academic dishonesty in a multitude of professional programmes.³ For example, more than 90% of senior pharmacy students at the University of Toronto admitted to participating in at least one form of academically dis-

honest behaviour during their academic career.² Such findings call into question whether students' abilities are being accurately evaluated.^{4,5} Furthermore, students who participate in such behaviours may be inadequately prepared for future application of their knowledge.^{4,6,7} The term *academic dishonesty* (AD) refers to several behaviours associated with misconduct or misrepresentation to gain an academic advantage;⁸ commonly referred

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to as “cheating,” AD includes acts such as falsifying documentation to avoid taking a test and marking peers leniently.

To date, the only study to examine AD in physical therapy (PT) programmes has included multiple faculties;³ AD within a PT programme has yet to be explored. The purpose of this study, therefore, is to begin to address this gap in the literature by investigating dishonest behaviours of students in a PT programme. The study also examines AD across generations by asking PT educators to recall their behaviours as PT students. We hope that our research will enable students and faculty to better understand attitudes toward dishonest behaviours, and the prevalence of such behaviours within the PT programme, in order to improve academic integrity.

LITERATURE REVIEW

Concern is growing among post-secondary institutions as research continues to find evidence of AD. Academically dishonest behaviours have been reported in many programmes, including health care disciplines, in both North America and the United Kingdom.^{3,9,10} A U.K. study surveyed students from a variety of university programmes, including PT, and found that AD was common in each, to varying degrees.³

By definition, AD is unethical; however, perceptions of seriousness remain inconsistent between people, and between people and institutions. For example, two people presented with the same scenario may not consider the act of dishonesty equally severe.¹¹ Research in this area, therefore, is imperative: agreement between students and educators on the seriousness of AD may facilitate strategies to reduce its prevalence.^{4,12}

Findings in the literature are mixed with respect to the perceived seriousness of AD: some studies have suggested that students and educators have similar perceptions of AD,^{2,13} others that educators take a more serious view of AD than students do.^{4,7,12,14} These differences have been attributed to the fact that the studies did not use consistent assessment methods,^{13,15–19} which makes it difficult to compare results. For instance, one study asked respondents to rank scenarios from most to least serious,¹³ but the degree of severity was not analyzed using a ratio scale; others provided scenarios but used a Likert scale containing various qualifiers to assess the perceived degree of severity.^{1,2,19}

Both students and educators, however, consider cheating during an examination more serious than cheating on assignments,^{2,11,14,20} and less serious acts of AD have been shown to be committed more frequently.^{1–3} Interestingly, students' views on the seriousness of AD tend to correspond more and more closely with those of educators as students progress through their programme.^{19,21} Conversely, educators were found to view falsification of research results and improper referencing more seriously than students do.²²

Although AD is considered unacceptable, students con-

tinue to engage in it.^{1–3} Three types of factors that contribute to AD in professional programmes are internal factors, social pressures, and environmental causes.²³ *Internal factors* are demographic characteristics associated with higher rates of self-reported AD. *Social pressures* appear to be prevalent in academic programmes as students seek social acceptance from peers to maintain self-esteem and a competitive status;^{10,22} an institutional “culture of cheating” appears to develop among students in situations where peers condone dishonesty as the norm.^{23,24} *Environmental factors* include excessive workloads¹ and unclear definitions of and penalties for AD.^{23,25,26} Dissatisfaction with the curriculum was also found to increase the prevalence of AD, but findings regarding its influence are mixed.^{2,5,23}

A unique factor explored by our study was the influence of generation on perceptions and prevalence of AD. Research indicates that the attitudes, beliefs, and characteristics of individuals from various generations are shaped by their experiences and by major historical events that occurred from childhood to adulthood.²⁷ For example, individuals from different generations have dissimilar learning styles; Oblinger²⁷ has suggested that these preferences are influenced by the technology available during each generation's lifetime. He argues that generational discrepancies in fundamental characteristics and attitudes toward education produce incongruent expectations within the learning environment;²⁷ such disagreements may contribute to student dissatisfaction with the educational system, and thus increase rates of AD.²⁷ An investigation of AD across generations may identify how generational characteristics and technological advances influence behaviours and whether the prevalence of these behaviours has changed over time.

RATIONALE

Academic dishonesty is common among university students^{2,16,28} and is correlated with demographics (male > female), social and peer pressure, pressure to perform, goal-oriented personality, poor study habits, and excessive workloads.²³ AD has been found to be prevalent among students in medicine, nursing, and dentistry,^{29–31} but to date only one study has investigated the prevalence of AD within PT programmes,³ and no study has explored the factors contributing to AD in PT programmes. The purpose of the present study is to address this knowledge gap by investigating the prevalence of, seriousness of, and factors contributing to AD in the University of Toronto (UofT) PT programme. A novel aspect of our survey is the consideration of generational differences as a potential contributing factor of AD. Our results will improve understanding of AD prevalence and contributing factors, which may help to improve academic integrity in PT programmes.

The objectives of the study were to (1) determine self-reported and perceived rates of AD among current PT students and, retrospectively, among PT educators; (2)

compare self-reported to perceived prevalence of AD within each group (students and educators) and between groups; (3) determine perceptions of seriousness of various AD scenarios; (4) examine the relationship between generations regarding the perceived seriousness, self-reported prevalence, and perceived prevalence of AD; and (5) explore contributing factors that influence AD among students and educators and examine the role of generations in the perception of these factors.

METHODS

Study design

The study used SurveyMonkey (a Web-based survey tool), disseminated using a modified Dillman approach, to address the research objectives.³²

Questionnaire development

The questionnaire was developed based on the survey designed by Austin and colleagues for their work on AD in the UofT Pharmacy programme;² items were adjusted to suit the PT curriculum. Ethics approval for this study was obtained through the university's Research Ethics Board.

The questionnaire was piloted with four educators belonging to the Department of Physical Therapy's Education Committee and six recent PT graduates. Minor changes were made to improve the clarity, face validity, and comprehensiveness of the questionnaire based on the feedback provided during the pilot.

The final three-part questionnaire was delivered to both students and educators and took approximately 15 minutes to complete. Respondents were explicitly asked for consent. Part 1 gathered demographic information on gender and respondent category (educator or student). Based on their date of birth, educators were asked to select an appropriate age cohort. Four age cohorts were listed, based on consensus in the research: Traditionals (1922–1942), Baby Boomers (1943–1960), Generation X (1961–1980), and Generation Y/Millennials (1981–2000).³³ To protect students' anonymity, we did not ask their date of birth, as only a few fell outside the Millennial age cohort. Part 2 presented 16 different AD scenarios (see Appendix), for each of which respondents were asked (a) whether they considered the individual's actions to constitute an act of AD, (b) how serious they perceived that act to be, (c) whether they had committed the same act while enrolled in their PT programme, and (d) what percentage of their class they believed had also committed this act. Part 3 listed potential contributing factors, including an open-ended option; respondents were asked to select up to three factors that influenced their behaviour.

Respondents and sampling

Educators and students affiliated with the UofT PT programme were invited to participate. Educators were either in-house instructors or clinicians holding teaching appointments with the Department of Physical Therapy,

and were required to meet the following criteria for inclusion in the study: (1) current faculty or status appointment in the UofT Department of PT; (2) valid e-mail address on the department's internal e-mail list and internet access; and (3) professional PT degree or diploma.

Student respondents were required to meet the following inclusion criteria: (1) full-time enrolment in the Master of Science in Physical Therapy (MScPT) programme at UofT and (2) valid e-mail address and Internet access. Students enrolled in the advanced-standing MScPT programme were excluded from the study because of differences in curriculum.

From the UofT student body and affiliated educator e-mail lists we identified 174 eligible Students and 250 suitable Educators (when capitalized, both terms refer specifically to our potential respondent group). Based on response rates from previous survey-based studies of AD, which ranged from 45 to 75%,^{1,3} we expected a response rate of 50% (87 responses) from Students and 33% (83 responses) from Educators. We expected a relatively low response rate because the questionnaire was distributed electronically rather than on paper, and an e-mail can easily be disregarded;³⁴ we expected a lower response rate from Educators because many potential respondents in this group were full-time off-site clinicians who might not have the time or willingness to respond.

Data collection

The questionnaires were e-mailed to eligible Students and Educators in March and April 2010, using a modification of Dillman's Total Design Method.³² Each group was contacted four times by e-mail during this 4-week period. An initial e-mail containing information about the study and a link to the questionnaire was sent to all potential respondents, followed by a reminder/thank-you e-mail in each of the 2 following weeks and a final thank-you e-mail to all respondents.³² Data collection for Students was extended by 2 weeks, with two additional reminder/thank-you e-mails (for a total of six e-mails), because students were on holiday during part of this period. To maintain respondents' anonymity, data collection was administered by a third party (an administrator in the Department of PT with involvement in the study) who sent the questionnaire, follow-up, and thank-you emails on our behalf to prevent coercion and ensure that participation was voluntary. The administrator then downloaded the data from SurveyMonkey and deleted the IP addresses from the completed questionnaires. After removing all identifying information from the data, the administrator e-mailed the results to the authors.

Data analysis

Characteristics of AD were examined using descriptive statistics (frequency, mean, and standard deviation). Chi-square (for larger sample sizes) and Fisher's Exact non-parametric tests (for frequency values ≤ 5) were used to

Table 1 Respondents' Behaviours and Attitudes toward Scenarios of Academic Dishonesty

Scenario	Educators				Students			
	Cheating? (% yes) [†]	Self-report (%) [‡]	Perceived (%) [§]	Seriousness (0–3) [¶]	Cheating? (% yes)	Self-report (%)	Perceived (%)	Seriousness (0–3)
1	99.2	0	3.9*	2.4	100	0	3.0*	2.1
2	98.5	1.6	7	2.3	98.7	1.3	5.6	1.9
3	92.4	5.4	10.8	1.8	85.3	6.6	9.41	1.3
4	99.2	11.7	13.1	2.4	100	14.7	18.8	2.1
5	100	9.5	11.3	2.3	98.7	6.8	17.1	2.0
6	18.9	42.7*	40.7*	0.6	20.3	67.6*	58.3*	0.3
7	99.2	0.8	7.7	2.4	95.9	0	9.9	2.1
8	88.9	9.8	14.9	1.7	89.2	9.5	17.9	1.6
9	92.8	13*	20.8*	2.0	97.3	0*	8.1*	2.1
10	84	14*	21.1*	1.7	87.8	2.7*	8.3*	2.0
11	79.7	13.4*	25.8*	1.5	78.1	27*	35.5*	1.2
12	98.4	1.7	12.3	2.3	100	4.1	14.4	2.0
13	94.3	15.1	21.1	1.8	94.6	13.5	25.2	1.7
14	85	14.5	22.1	1.7	82.4	6.8	21.6	1.4
15	62.2	18.3*	30.1*	1	45.9	62.2*	61.8*	0.5
16	92.4	2.6	12.9	1.7	87.5	0	13.3	1.8

*Statistically significant difference between Educators and Students ($p < 0.05$).

[†]*Cheating?*: Whether or not the respondent considered the scenario an act of AD.

[‡]*Self-report*: Percentage of respondents answering "yes" to whether they themselves had performed that act of AD.

[§]*Perceived*: Respondent's estimate of what percentage of peers had performed that act of AD.

[¶]*Seriousness*: Perceived seriousness of the act of AD (0 = not at all serious, 3 = extremely serious).

determine potentially significance differences between Students' and Educators' self-reported rates of AD.³⁵

Unpaired *t*-tests (for normally distributed data³⁶) and Mann–Whitney *U*-tests (for non-parametric data) were performed to determine potentially significance differences between Students' and Educators' perceived rates of AD. Self-reported and perceived rates of AD for Baby Boomers and Generation X were analyzed. Because response rates were low from the Traditional and Millennial age groups of Educators, these cohorts were not included in the analysis. Chi-square and the Fisher's Exact tests were used to determine the significance of differences in self-reported rates of AD between generations. The Mann–Whitney *U*-test was performed to compare perceived rates of AD between generations.

RESULTS

In all, 131/250 (52.4%) of eligible Educators and 77/174 (44.3%) of eligible Students completed questionnaires and were included in the analysis. Five incomplete questionnaires were excluded (one respondent did not provide consent, three provided demographic information only, and one provided consent but did not complete the rest of the questionnaire). The completeness of valid ques-

tionnaires varied, as not all respondents answered all questions. Responses are summarized in Table 1.

What respondents considered an act of AD

Fourteen of the 16 scenarios – including acts involving written examinations, copying without permission, and improper referencing – were considered acts of AD by the majority (>80%) of both Educators and Students. Fewer respondents considered borrowing coursework to gain ideas and lenient marking of peers' work to be acts of AD.

Self-reported rates of AD

Self-reported rates of AD (percentage of respondents admitting to AD) were low overall (>20%). Educators self-reported rates of AD ranging from 0% to 18.3% for 15/16 scenarios; Students self-reported rates between 0% and 14.7% for 13/16 scenarios. Comparison between Students and Educators showed similar rates in 11/16 scenarios. However, Students reported significantly higher rates of borrowing coursework to gain ideas (67% vs. 43%, $p = 0.001$), improper citation (27% vs. 13%, $p = 0.019$), and lenient marking (62% vs. 18%, $p = 0.023$). Interestingly, Educators reported providing and receiving details during practical skills exams or objective structured clinical exams at significantly higher rates than Students did (all $p = 0.001$) (see Table 2).

Table 2 Occurrence of Self-Reported Academic Dishonesty: Educators and Students

Scenario	Group; no. (%) responding "Yes"		p-value
	Educators	Students	
1	128 (0)	77 (0)	NA
2	129 (1.6)	76 (1.3)	1.000*
3	129 (5.4)	76 (6.6)	0.764*
4	128 (11.7)	75 (14.7)	0.544†
5	126 (9.5)	74 (6.8)	0.605*
6	124 (42.7)	74 (67.6)	0.001†
7	126 (0.8)	74 (0)	1.000*
8	123 (9.8)	74 (9.5)	0.946†
9	123 (13)	74 (0)	0.001*
10	121 (14)	74 (2.7)	0.011*
11	119 (13.4)	74 (27)	0.019†
12	119 (1.7)	74 (4.1)	0.373*
13	119 (15.1)	74 (13.5)	0.757†
14	117 (14.5)	74 (6.8)	0.101†
15	115 (18.3)	74 (62.2)	0.023*
16	115 (2.6)	73 (0)	0.284*

*Fisher's Exact test.
 †Pearson χ^2 test.
 NA = not applicable.

Perceived rates of AD

In general, the perceived rate of AD (estimated percentage of AD within the programme) was higher than the self-reported rate. Similar trends were observed in the rates of AD perceived by Educators and Students (see Table 3). Educators perceived dishonesty by 3.9% to 22.11% of classmates in 13/16 scenarios, while Students perceived rates of 2.9% to 25.21% in 12/16 scenarios. Students once again believed borrowing assignments (58% vs. 41%, $p < 0.001$), improper citation (35% vs. 26%, $p = 0.019$), and lenient marking of peers (62% vs. 30%, $p < 0.001$) to be significantly more prevalent than Educators did; in contrast, Educators considered cheating during written and practical exams to have been more frequent when they were students than it was perceived to be by current Students. Educators perceived a significantly higher rate than Students of hiding notes in a washroom (4% vs. 3%, $p = 0.023$) or on one's arm (7% vs. 6%, $p = 0.05$) and of providing/receiving details of a practical exam to/from another student (21% vs. 8%, $p < 0.001$).

Perceived seriousness of AD

Scenarios were ranked on a four-point scale (0 = not at all serious, 3 = extremely serious). Students' and Educators' responses were similar overall. The average score for all scenarios was 1.85 for Educators and 1.64 for Students; this difference was not statistically significant.

The scenarios considered most serious were also those most frequently considered examples of AD: cheating during a written exam, copying assignments without permission, and improper referencing were ranked the most serious and were considered examples of AD by 90% of respondents (see Table 1), while lenient marking and obtaining ideas (but not directly copying) from peers were not decisively identified as acts of AD and were considered less serious. Scenarios perceived as less serious were also associated with higher self-reported and perceived rates. Results were mixed with respect to permission to copy: borrowing coursework without a peer's permission was considered more serious than if permission was granted, but copying a peer's work during an exam was considered serious regardless of permission.

Generational comparisons among Educators

Although four possible generations of Educators were listed on the questionnaire, there were no respondents in the Traditional group and only six Millennials, so we did not include these cohorts in our data analyses. Pooling the generations was not considered appropriate, as this would weaken our ability to draw comparisons between them. Therefore, our statistical analyses included only the Baby Boomers (1943–1960; $n = 29$) and Generation X (1961–1980; $n = 95$).

Baby Boomers were less likely than Generation X to borrow assignments from peers to gain ideas (22% vs.

Table 3 Perceived Occurrence of Academic Dishonesty among Peers: Educators and Students

Scenario	Group; no. (%) responding "Yes"		p-value
	Educators	Students	
1	117 (3.9)	75 (3.0)	0.023*
2	116 (7)	76 (5.6)	0.05*
3	117 (10.8)	75 (9.4)	0.490*
4	116 (13.1)	73 (18.8)	0.108*
5	113 (11.3)	73 (17.1)	0.487*
6	114 (40.7)	73 (58.3)	<0.001†
7	114 (7.7)	72 (9.9)	0.843*
8	112 (14.9)	71 (17.9)	0.957*
9	113 (20.8)	71 (8.1)	<0.001*
10	112 (21.1)	72 (8.3)	<0.001*
11	108 (25.8)	71 (35.5)	0.019*
12	107 (12.4)	71 (14.4)	0.750*
13	108 (21.1)	71 (25.2)	0.302*
14	107 (22.1)	70 (21.6)	0.988*
15	104 (30.1)	69 (61.8)	<0.001*
16	103 (12.9)	69 (13.3)	0.652*

*Mann-Whitney U test.
 † t -test.

51%, $\chi^2 p = 0.014$). Baby Boomers were also less inclined to use a peer's answers with permission during a written examination (0% vs. 11%, Fisher's Exact $p = 0.068$).

Similarly, Baby Boomers were less likely than Generation X to perceive borrowing coursework as more prevalent among their peers (27% vs. 45%, Mann-Whitney $p = 0.04$). Comparing self-reported and perceived rates between generations in the other scenarios revealed no significant differences.

Contributing factors

Educators and Students reported the same factors as encouraging academically dishonest acts. "Pressure from school and associated anxiety" was the contributing factor most frequently reported by both Educators (24%) and Students (43%). Also commonly reported were "disagreement with evaluation methods" (Educators = 15%, Students = 27%) and the perception that "everyone else does it" (Educators = 15%, Students = 26%). Common responses in the open-ended "other" category included helping peers (e.g., through lenient marking) and ensuring proper completion of assignments (e.g., proper format and content).

DISCUSSION

Our findings parallel those of earlier studies on AD indicating that academically dishonest behaviour occurs in professional programmes.¹⁻³ However, both self-reported and perceived rates of AD were lower than those reported in research in a pharmacy curriculum.²

The relationship between seriousness and prevalence of AD

Our results are consistent with other research^{1,37} in suggesting that a "hierarchy of values" exists. Scenarios considered less serious in nature – such as borrowing assignments to gain ideas and leniently assigning higher grades during peer assessment – showed the highest self-reported and perceived rates of occurrence. In contrast, scenarios considered most serious (e.g., using hidden notes or copying directly from a peer during an examination) were reportedly performed least often. The rules and formality of an examination and the consequences of being caught in the act may deter individuals from these types of cheating.

Permission from peers to copy an assignment plays an important role in the perceived seriousness of such copying: our findings suggest that it is not the act of copying but the lack of permission that is considered dishonest, as respondents considered it more serious to copy an assignment without permission than to do so with permission. This finding aligns with the notion of "social cheating," which involves consultation among peers (e.g., borrowing or copying assignments with permission) to gain an academic advantage. Such collaboration is mutually beneficial; by contrast, one would not want to go behind a fellow student's back for personal

gain. Our findings are consistent with those of similar studies concluding that "social cheating" is more accepted and prevalent in the programme than cheating for personal gain.^{1,2}

Educators versus Students: Similarities and differences

Overall, Educators and Students demonstrated general agreement on which scenarios they considered acts of AD. Both agreed that the majority were examples of AD; the exceptions were those involving borrowing an assignment from a peer for ideas and assigning a higher grade than deserved on a peer assessment. Students' and Educators' self-reported and perceived rates of AD were also similar. In general, scenarios considered the least dishonest correlated with higher self-reported and perceived rates. However, both self-reported and perceived rates tended to be higher among Students than among Educators; this finding supports prior reports that the prevalence of AD among students is growing.^{1,3,24,26,29}

Findings for two scenarios did not fall in line with the trend of increasing AD: Students and Educators differed in their responses to scenarios associated with providing and receiving information for a practical skills exam. Interestingly, Educators reported significantly higher rates of these behaviours than Students did. This finding may reflect changes to academic examination policies and procedures over time, including stricter examination protocols such as the use of pre- and post-examination holding rooms, a larger question bank, and limiting the use of technology to communicate with fellow students on the date of an examination.

Generational differences

Overall, the results of our generational comparisons were inconclusive as a result of small sample sizes. In general, there was a higher self-reported rate of AD among Generation X (1961–1980) than among older Baby Boomers (1943–1960), likely because of both changes in the programme and the defining characteristics of the generation. For example, Baby Boomers have been described as hardworking, competitive, and self-centred,^{33,38} traits that may have made these respondents less inclined to share coursework and help fellow students, whereas the adaptability of individuals from Generation X³³ and differences in evaluation and teaching methods may have led these students to share coursework, becoming more flexible and creative to complete their assignments.

Interestingly, the scenarios in which Generation X respondents reported higher rates of AD involved aiding their peers (allowing peers to copy reports or tests, handing down coursework) but also reflected themes of self-centredness and getting ahead (copying without permission, improper referencing). There were also scenarios in which Baby Boomers self-reported higher rates of AD, which may be linked to improved comprehension of what constitutes an act of AD and enhanced strategies to reduce AD (i.e., practical examination protocols). Sim-

ilar trends can be seen with respect to the perceived rate of AD: Generation X respondents reported higher rates than Baby Boomers (although the difference was not significant).

The majority of the students we surveyed belong to the Millennial generation, which prefers learning in groups and through “experiential activities” and has been described as collaborative and goal-oriented.²⁷ These traits may encourage the “camaraderie” type of AD and increase AD in coursework. Millennials are also technologically literate and prefer to use technology for learning purposes.

Technological advancements may also play a role in the differing rates of AD among generations. Individuals in Generation X and Millennials have access to vast information sources and instant communication thanks to the Internet and cellphones, which has required changes to examination procedures. Currently at UofT, for example, all cellphones and other electronic devices must be surrendered to a proctor before any PT examination. Access to online information, combined with pressure to succeed and time constraints, could increase the risk of plagiarism,³⁹ which may explain why current students were more likely than educators to report directly copying without quotation marks but listing the reference.

Apart from the differences among generations, there have been changes in the curriculum over time. Older generations completed a 3- or 4-year diploma or bachelor’s degree programme, whereas current students are enrolled in a 24-month continuous professional master’s degree programme, which may also influence participation in AD. However, it is difficult to distinguish the effect of generation from the effect of curriculum change.

Potential gap between self-reported and perceived rates of AD

The term *social desirability bias* describes a tendency of survey respondents to under-report socially unattractive behaviours.⁴⁰ This predisposition is especially strong when a direct-question survey rather than a randomized response technique is used to obtain the data;⁴⁰ self-reported rates of AD in our study, therefore, are likely underestimated. In addition, students’ perceptions of the prevalence of AD have been found to be inaccurate.⁴¹ There is a tendency to overestimate the prevalence of less desirable behaviours, as demonstrated when students are asked about drinking, drug use, and sexual activities;⁴² likewise, students tend to overestimate cheating among their peers while believing their friends are more academically honest than the rest of their classmates and under-reporting their own incidents of AD.⁴¹

Our findings reflect similar trends: both Students and Educators overestimated AD among their peers relative to the actual self-reported rates. The link between self-reported and perceived rates of AD can be explained by social norms theory,⁴¹ which suggests that people use others’ behaviours as a basis for their own actions.⁴¹ A belief that others are performing the same act helps indi-

viduals to justify their own behaviours, regardless of the accuracy of that belief. Since people tend to overestimate the frequency of negative behaviours, students are more likely to cheat if they believe that cheating is common.⁴¹

Because one of the strongest predictors of dishonest behaviour is the belief that other students are cheating,⁴¹ a possible intervention to change academically dishonest behaviours is to give students accurate information on the prevalence of AD.⁴³ Social norms theory suggests that presenting academic integrity as the norm should have a positive effect on behaviour and decrease the prevalence of AD.⁴¹

Contributing factors

Educators and Students identified similar factors as contributing to AD, the top three being “pressure from school and associated anxiety,” “disagreement with evaluation methods,” and “everybody does it.”

School-related pressures (such as excessive workload) and anxiety within the PT programme were noted by the largest numbers of both Educators and Students (24% and 43% respectively). The difference between Educators and Students may be an effect of the Educators’ retrospective accounts but may also be explained by changes in the curriculum: the shift from a 4-year bachelor’s to an intensive 2-year master’s degree has increased pressure and time demands on students.

“Disagreement with evaluation methods” (Educators = 15%, Students = 27%) ranked second-highest among contributing factors for both Students and Educators. Respondents felt that assessments did not accurately reflect their true knowledge of the material. Aggarwal and colleagues¹ have suggested that dissatisfaction with the curriculum may increase the likelihood of AD. If students believe their studies lack importance or relevance, or if they disagree with the evaluation methods used, their disenchantment may cause them to rationalize their own AD.^{1,44} On the other hand, a study of Canadian pharmacy students found no association between dissatisfaction with curriculum/evaluation methods and AD.²⁴

“Everyone else does it” (Educators = 15%, Students = 26%) was the third most frequently reported contributing factor. This response may indicate a perceived social norm among a student cohort. Austin and colleagues have described a “culture of cheating” in which a given population of students will develop tacit understandings of which types of AD are acceptable and which are not.²⁴ Cheating is more likely when a student population considers it the social norm.⁴⁵ A study of medical school students questioned whether cheating is an individual trait or a “situational response”;³⁰ the authors concluded that medical students are essentially ethical people and that cheating appears to be a function of environment.

Our results indicate that student respondents participated in forms of AD indicative of camaraderie (e.g., sharing assignment ideas, marking more leniently) rather than seeking a competitive edge. A similar trend was

observed by Austin and colleagues,² who found that the majority of Canadian pharmacy students engaged in what they described as “social cheating” (e.g., collaborating by sharing exam content or past assignments) but only 10% engaged in “individual cheating” (e.g., using a cheat sheet, copying answers during an exam). Interestingly, Austin and colleagues found that students rated “social cheating” as less deserving of punishment and “individual cheating” as both more offensive and performed less often.² This trend is not consistent in all student populations, however: another study indicated that getting ahead is also a common motivation for cheating.⁴⁶

Academic integrity

Suggestions for improving academic integrity within the PT programme include educating both students and educators about what constitutes an act of AD, the prevalence of AD, and the consequences of performing these behaviours.^{47,48} Perkins has suggested informing students and educators about current rates of AD to demystify false perceptions that students use to justify their behaviour.⁴³

With respect to coursework – the area where most AD occurs in the PT programme – altering assignments and tests from year to year may reduce the prevalence of AD. Our results suggest that coursework is exchanged between students in different years of the programme. Informing students that sharing past coursework is considered AD may minimize its occurrence.⁴³

Areas for future research

Our study explored factors contributing to AD only descriptively. Qualitative research exploring contributing factors in greater detail would be valuable to improve academic integrity in the programme.

A fascinating topic for future research is exploring whether committing academically dishonest acts within the PT program affect behaviours in professional PT clinical practice. The issue of professional development and its relation to AD in school has been examined in such fields as business, law, and accounting.⁴⁹ Because health care specialists bear a tremendous responsibility to be loyal and trustworthy to patients, exploring the impact of PT-programme AD on professional practice would be of great value.

LIMITATIONS

Like any survey-based research, and particularly because of the sensitive nature of the topic, our study may have been subject to social desirability bias.⁵⁰ However, online survey access may have made respondents more comfortable with providing truthful responses. Selection bias may also have affected the results, in that students who cheat may be less inclined to participate, and vice versa. No further exploration was undertaken to investigate non-respondents.

Given the sensitive nature of the questionnaire, main-

taining anonymity was of the utmost importance. For this reason, respondents were not assigned tracking numbers. Although SurveyMonkey allows only one submission per IP address, it would have been possible for respondents to complete the survey more than once by using different computers.

Because educators who completed the questionnaire were relying on recollections of their PT programme experiences, recall bias and/or inaccuracy in their retrospective accounts may have influenced their responses. To help minimize this effect, respondents were given the option of leaving questions blank if they had any difficulty in remembering information accurately.

Although our findings begin to fill a gap in the literature by exploring AD in a Canadian PT programme, our study was limited to the students and educators at UofT, which may limit external validity and generalizability of the findings.

We were not able to perform a full cross-generational analysis because of the small sample sizes of educators from certain generations. In the end, only two generations were examined, and sample sizes for both were small. Caution should therefore be exercised in interpreting the results.

Changes in the structure and delivery of the PT programme over the years add a confounding variable. All Canadian PT programmes have changed from 4-year bachelor's to 2-year master's degrees. Condensing the programme may have affected AD in the UofT programme by increasing intensity, time demands, stress, and pressure on students. It is also important to recognize the impact of advances in technology, such as computer use and online resources, that introduce a variable not applicable to some earlier generations.

CONCLUSION

Congruence in educators' and students' views and definitions of academic dishonesty may help to control the prevalence of AD.^{4,12} Interestingly, our Educator and Student respondents had similar understandings and beliefs about the severity of AD; despite this awareness, however, students continue to cheat. The perception that AD is more prevalent than it actually is may perpetuate academically dishonest behaviours.

There are many similarities between current students and older generations with respect to self-reported and perceived rates of AD and motivations to cheat. We found few differences in either academic behaviours or perceptions between Baby Boomers and Generation X, likely because of our small sample sizes. This trend of cheating across time suggests that AD may be a product of the social environment and accepted as a social norm in the student community.

One potentially effective method of controlling AD within the PT programme would be to change the perception and interpretation of AD to affect the social environment of the class. For example, if the majority of the

class considers AD unacceptable, there is less incentive for individuals to cheat. Understanding students' motivations to perform academically dishonest acts requires further examination of contributing factors. It would also be prudent to explore the potential link between AD in the PT programme and the development of health care professionals.

KEY MESSAGES

What is already known on this topic

Academic dishonesty (AD) is known to occur in post-secondary education, including professional programmes. Dishonest acts considered the most serious are also the least frequently performed. Furthermore, both educators and students tend to overestimate the prevalence of AD. Social cheating is more common than cheating for personal gain.

What this study adds

This research begins to fill the gap in the literature pertaining to AD in PT programmes, suggesting that AD is prevalent in the curriculum and that the prevalence, attitudes, and contributing factors of AD have remained fairly consistent across generations, despite curriculum changes over time.

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APPENDIX A: QUESTIONNAIRE SCENARIOS

1. During an examination, a student goes to the wash-room and while he is there, he looks at some notes that have been previously hidden to find answers.
2. A student writes some notes on her arm or hand before going into an examination and uses these to help answer some questions.
3. As a memory prompt, a student writes some abbreviations, codes, or mnemonics on his hand or arm before going into an examination.
4. During a written examination, a student looks at a question and doesn't know the answer. He decides to look over at his neighbour's answer and copy it **WITHOUT** their permission.
5. During a written examination, a student looks at a question and doesn't know the answer. She decides to look over and use her peer's answer **WITH** permission.
6. A student is having difficulty writing up an assignment. She borrows an assignment from her friend and uses this to gain ideas for her own write-up, but **does not copy it directly.**
7. A student is having difficulty writing up an assignment. He photocopies the work of a friend, then uses parts of this work directly to write up his own assignment, **WITHOUT THE KNOWLEDGE** of his friend.
8. A student is having difficulty writing an item of course work. She photocopies the work of a friend, then uses part of this work directly to write up her own work, **WITH THE PERMISSION** of her friend.
9. After taking the practical skills exam (PSE/OSCE [objective structured clinical examination]) in the morning, a student decides to **provide** details regarding the content to peer(s) taking the exam in the afternoon.
10. Before taking a practical skills exam (PSE/OSCE [objective structured clinical examination]) in the afternoon, a student **receives** content details from a peer who took the exam in the morning.
11. A student finds an Internet site or hardcopy source which is relevant to her work. She copies portions of this into her own work, changing very little of it. She does not use quotation marks, but **lists the source** in her references.
12. A student is writing a difficult paper for a course. He takes several quotes directly from a journal, textbook or another online/hardcopy source, without using quotation marks, and **does not reference** them.
13. You **RECEIVE** past assignments and lab reports from an upper year student and use it to directly copy.
14. You **PROVIDE** past assignments and lab reports to a lower year student to directly copy.
15. A student is very lenient and assigns a higher grade than deserved to his friend during a peer-assessment exercise.
16. A student presents misleading or false medical reasons to gain an extension on an assignment or to avoid taking a laboratory, test or examination.