Chapter 15

Managing Academic Integrity in Canadian Engineering Schools

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Abstract This chapter explores what engineering schools across Canada are doing to address and advance academic integrity amongst their students, including how they are currently promoting academic integrity and managing related academic misconduct issues. Responses from a national survey are compared to identify the approaches and practices that are more widely adopted, as well as unique approaches that may warrant broader use. Input was also received from the twelve provincial and territorial engineering regulators that operate across the country. In addition to identifying areas of success, potential opportunities for additional progress are identified. This work serves as a starting point for dialogue among universities and regulators. All parties have a vested interest in strengthening the integrity of engineering students during their academic training and professional development. It is clear from this study that a collective effort is needed to develop solutions, educate faculty, and mentor students to achieve a higher standard of academic integrity. The successes and opportunities highlighted here may be helpful to other professional programs, such as nursing, medical, dentistry, law, and business schools, where integrity is also of extreme importance.

Keywords Engineering · Ethics · Professionalism · Integrity · Misconduct

Introduction

Academic integrity is a challenge for universities throughout the world, including professional schools here in Canada. There is a growing concern in many disciplines, including business, medicine, nursing, and engineering, that students who engage in academic misconduct may obtain unearned academic credentials that make them eligible for registration in professional associations. Given that professions are founded on honour, integrity, and ethics, this is highly problematic. In the case of engineering, the mandate is to serve society and ensure the protection of the public

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and the environment. Therefore, it is critical that the engineering profession continues to have the confidence of the public. This level of confidence can be extended to the academic integrity of the engineering programs themselves. Engineering schools have an incredibly important role to play in both advancing academic integrity and mentoring students to behave as ethical professionals. This is of significant importance for provincial and territorial engineering regulators, who govern the practice of engineering in their region. Engineering regulators not only have a vested interest in what is being done within higher education to promote academic integrity, they also play an important role in supporting schools and student groups to promote professionalism and the engineering code of ethics.

Within the literature, very little has been reported about academic integrity in Canadian universities and there is even less reported from an engineering perspective. Christensen Hughes and McCabe (2006a) identified that cheating may be a serious problem at post-secondary institutions in Canada and they called for further research into strategies that could be used to help improve academic integrity in our schools. Smith et al. (2016) conducted an initial literature review on cheating in engineering schools, which was followed by Smith and Maw (2017) who completed a Canadian version of the P.A.C.E.S. study, which was originally developed by Carpenter et al. (2002). The results from Smith and Maw (2017) found that the academic misconduct situation in Canada appears to be very similar to what has been happening in the United States.

There have been a number of studies that examine whether or not academic dishonesty during undergraduate studies may lead to misconduct in the workplace. In the field of business, Sims (1993) found a positive relationship between academic dishonesty and dishonesty in the work environment. Similar findings were found by Nonis and Swift (2001) and Lawson (2004). In the field of nursing, Laduke (2013) found there may be a connection between academic dishonesty in school and unethical practices of nurses. Within engineering, Harding et al (2004a) found that unethical academic decisions are an indicator of potential poor behavior in the workplace. A related study by Harding et al. (2004b) found similar results and suggested that with the increasing trend of misconduct cases at engineering schools, it may be reasonable to expect to see an increase in disciplinary hearings of professional practice. This should be of significant concern for all professions. Within engineering, this illustrates the important role of educators, who are tasked with the academic training of future professional engineers.

In 2018 the Canadian Engineering Accreditation Board (CEAB) added a section under Criterion 3.3.2 in their accreditation questionnaire for schools to report on their academic integrity policies and procedures (Engineers Canada, 2018). This signaled an acknowledgment from the CEAB that engineering schools are expected to proactively address academic integrity issues and should therefore have effective policies and procedures in place for dealing with academic misconduct cases. Outside of that action, there has been very little discussion or coordination of efforts at the national level to promote and ensure academic integrity. This has changed slightly during the Covid-19 pandemic as instructors and institutions saw a rise in misconduct during non-proctored, online exams. Within Canada, there have recently been a few

online forums to discuss misconduct challenges that have been occurring during this remote teaching and evaluation period. However, it is important to recognize that misconduct issues in engineering schools predate Covid-19. One of the respondents to this study observed that, “The Covid crisis will have been of tremendous help in shaking old teaching and testing habits.”

Motivation

Christensen Hughes and McCabe (2006b) called for an understanding of how Canadian universities have been responding to academic misconduct. This chapter serves to answer that call by assessing how Canadian engineering schools are promoting academic integrity and managing academic misconduct, when it has been found to occur. Within the literature there have been numerous studies that explore why students cheat, the extent of cheating among the undergraduate population, the types of cheating, and more (Broeckelman-Post, 2008; Carpenter et al., 2006; Harding et al., 2012). Many of these studies provide recommendations on what can be done to try and reduce the instances of misconduct and mentor students to study and work with integrity (McCabe, 1997; Rettinger, 2017; Todd-Mancillas & Sisson, 1987). There does not appear to be an assessment of what is currently being done in practice, certainly within Canadian universities, to address and manage academic integrity at either the undergraduate or graduate level.

Engineering education in Canada will benefit from having a national dialogue on academic integrity and how it needs to be a part of the mentoring and training of young engineers. This chapter serves as a starting point for dialogue among universities, regulators, and students to account for what is currently being done with respect to academic integrity in Canadian engineering schools, and the handling of misconduct cases. Everyone has a vested interest in strengthening the integrity of engineering students during their academic training and professional development.

Engineering School Survey

In order to assess how engineering schools across the country address issues related to academic integrity and academic misconduct, a simple survey was prepared and distributed to all 43 engineering schools and campuses in Canada that offer an accredited CEAB program. The names of these schools and the programs they offer can be found on the Engineers Canada website. The survey was prepared in both English and French. Prior to distribution, the questions in the survey were reviewed by several associate deans from outside of the engineering discipline who regularly investigate allegations of misconduct. This was done to ensure the proposed questions covered a broad perspective of issues that arise when dealing with academic misconduct cases. Table 15.1 summarizes the ten questions that schools were asked in order to assess

Table 15.1 Academic integrity survey questions posed to Canadian engineering schools

Q1	Who investigates allegations of academic misconduct in your faculty?
Q2	How concerned are you about the academic integrity situation in Canadian engineering schools? Scale of 1 (not concerned) to 10 (very concerned)
Q3	Does your engineering school have a formalized system in place for instructors to report allegations of academic misconduct, or is the reporting informal? Explain
Q4	Does your engineering school have its own policies and procedures in place for investigating academic misconduct, or do you follow a policy set by your university?
Q5	What type of penalty system does your faculty/university use? Is it based on a principle of progressive discipline for repeat offenses, or does it depend on the nature of the offense?
Q6	Estimate the percentage of the types of misconduct cases that are investigated: Plagiarism in assignments; Copying assignments; Copying laboratories; Cheating on exams; Other
Q7	Does your faculty administration work with the undergraduate and graduate student associations to promote academic integrity and develop positive messaging and encourage reporting of misconduct?
Q8	Does your engineering school have a process in place for training graduate students to be exam invigilators?
Q9	Has your engineering school seen a trend (increase/decrease) in academic misconduct cases? If yes, is there any reason in particular that you could point to for the trend?
Q10	Has your engineering school or university taken on any major initiatives to combat misconduct in the past five years? If yes, report on its effectiveness

what is currently being done to address academic integrity and academic misconduct across the country. The surveys were directed to the engineering leadership at the schools including Associate Deans, Vice-Deans, and in some cases the Dean of the faculty.

In general, the questions in the survey were designed to determine what schools are currently doing to manage the challenges they faced with academic integrity. The questions were prepared in early 2020 prior to the Covid-19 pandemic, and the actual survey was conducted over the summer months when many universities were dealing with new challenges related to remote teaching and learning, particularly with online examinations. The stress and urgency of the situation at the time of the survey may have led to an increased interest, but at the same time some schools were too busy dealing with the remote teaching and learning challenges to respond.

In total, 25 schools responded to the survey. Table 15.2 outlines the distribution of the responses from across Canada. Responses were received from across the country in English and French that represented a diverse perspective from both small and large schools.

The 25 responses to the survey provided useful insight into how engineering schools in Canada are managing academic integrity and misconduct within their programs. Responses highlighted best practices while at the same time, identified

Table 15.2 Geographical survey responses from across Canada

Region	Number of responses	Number of schools/campuses
Western schools	7	11
Ontario	11	16
Quebec	4	11
Maritimes	3	5
Totals	25	43

opportunities for improvement and collaboration. Moreover, the feedback highlighted how important it is to have this type of data to support a national dialogue on the subject of academic integrity in our engineering schools. The generalized responses from the schools are summarized below in the order they were presented in the survey.

Q1. Who Investigates Allegations of Academic Misconduct in Your Faculty?

Approximately half of the schools ($n = 12$) indicated that an Associate Dean or Department Head is tasked with handling academic misconduct investigations. This appears to be the norm; however, several schools reported that a committee handles these investigations. Three schools indicated that the initial investigation is carried out by the instructor of the course and the investigation may proceed upwards to a Department Head (or equivalent) and eventually the Associate Dean, depending on the seriousness of the case or if the student is appealing any misconduct finding. Two schools reported that they have an Academic Integrity Officer within their faculty who handles the investigations.

In the cases where instructors conduct the initial investigation and assign penalties, it is unclear how these universities maintain a consistent process within the investigation process to ensure that the principles of natural justice are upheld. It is likely that instructors only handle minor and/or clear-cut cases, but such a process would need oversight to ensure misconduct penalties are consistent among cases, and that a formal record is kept in order to ensure that any subsequent violations by the same student are dealt with appropriately (progressive discipline).

Q2. How Concerned Are You About the Academic Integrity Situation in Canadian Engineering Schools? Scale of 1 (Not Concerned) to 10 (Very Concerned)

A strong majority of schools rated their concern for the current academic situation in Canada as high or very high. Twenty-four of the responses were at a 7 or higher, and 17 of the response were either a 9 or 10. The average among all 25 responses was a concerning 8.8 out of 10. Several respondents commented that academic misconduct is a serious problem in engineering schools, the situation is widespread, and misconduct is generally under-reported. One response stated, “Misconduct is a serious problem in Canadian engineering schools. Education is required for both students and faculty on the prevalence of this problem and collective efforts are needed to reduce its occurrence.” Clearly there is a pressing need to address the issue so that the academic mission and the value of a Canadian engineering degree is not compromised.

Q3. Does Your Engineering School Have a Formalized System in Place for Instructors to Report Allegations of Academic Misconduct, or Is the Reporting Informal?

Almost all of the schools that responded ($n = 22$) have a formalized process in place for reporting allegations of academic misconduct, or if they did not have one yet they were in the process of creating one. One of the schools reported that they had an online submission system set up for instructors. Only a couple schools reported that they used an informal process for instructors to report allegations of misconduct.

Clearly there is a strong practice among schools to have a formal reporting mechanism in place, which facilitates the investigation. In hindsight, it would have been more useful to expand the question to include whether there was a process in place for students to report allegations of misconduct. Gynnild and Gotschalk (2008) found that 97% of undergraduate and 90% of graduate students had never reported a peer for cheating. Perhaps schools could benefit by developing systems that encouraged students to bring their concerns and observations about misconduct forward to the faculty leadership.

Q4. Does Your Engineering School Have Its Own Policies and Procedures in Place for Investigating Academic Misconduct, or Do You Follow a Policy Set by Your University?

Almost all of the responding engineering schools ($n = 21$) are following policies set by their university. In three cases schools have tailored the university policy for use within their faculty. Only one school reported using their very own faculty policy, which is separate from the governing policies of the university. This finding is not too surprising as most universities operate with an institution-wide framework. However, since some engineering schools have tailored their institution's policies for their situation, or have develop their own policy, it does raise the question whether the standard policies and procedures set by the university are functional for engineering schools. With misconduct being widely reported among engineering schools, it may be worth exploring whether customized policies and procedures for engineering schools would be more effective. Additionally, there may be an opportunity to have similar policies in place at engineering schools across the country in order to maintain consistent academic integrity expectations and consequences for acts of misconduct. One of the respondents commented that, "We need to have better systems in place for engineering, and maybe other professional faculties, than the rest of the university given the expectations for our students in their future careers."

Q5. What Type of Penalty System Does Your Faculty/University Use? Is It Based on a Principle of Progressive Discipline for Repeat Offenses, or Does It Depend on the Nature of the Offense?

Schools tend to have penalty systems that takes into account the nature of the offense and whether or not it is a first-time offense or a repeat offense. The suspension or expulsion of a student with a history of misconduct is a common practice. Most schools dismiss students on the third offense, but a few schools dismiss students on their second offense. In terms of consequences and training, a few schools currently assign students an ethics assignment or course as part of their penalty, or as a requirement for readmission into the faculty after a suspension or expulsion has been completed. This is something that could be adopted more broadly among engineering schools as it aligns with existing practices of some engineering regulators.

Q6. Estimate the Types of Misconduct Cases That Are Investigated: Plagiarism in Assignments; Copying Assignments; Copying Laboratories; Cheating on Exams; Other

Table 15.3 shows where engineering students tend to be investigated for allegations of misconduct in their academic assessments. Generally speaking, 60% of the misconduct cases are related to work on assignments and laboratories and the remaining 40% is misconduct on examinations. While the number of cases in term work is higher (assignments and laboratories), the grades available tend to be lower than the grades that can be achieved on exams. With roughly 40% of the misconduct investigations occurring on exams, there is an indication that students are willing to engage in exam misconduct for a shot at “*earning*” a lot of marks, since exams tend to be worth a large portion of the course grade. The risk of cheating on an exam may be higher, but the payoff is more substantial. With a large number of misconduct investigations coming from exams, there may be a need to either reassess assessment methods, or the manner in which exams are conducted.

Schools were not asked if their misconduct case statistics were made public to the student body, while protecting the identity of the individuals. It was not apparent from any of the responses if schools were doing this, and this was an oversight within the survey. Both Todd-Mancillas and Sisson (1987) and Lipson and McGavern (1993) reported on the importance of communicating the types of offences and subsequent punishments publicly. Their findings demonstrated that a secret sanction system provides no deterrent messaging to the student body. The engineering and university community benefits from knowing that students who engage in academic misconduct can be caught and sanctioned accordingly.

Table 15.3 Distribution of the types of academic misconduct investigations

Type of misconduct	Overall percentage (%)
Plagiarism in assignments	22
Copying assignments	23
Copying laboratories	15
Exam cheating	39
Other	1

Q7. Does Your Faculty Administration Work With the Undergraduate and Graduate Student Associations to Promote Academic Integrity and Develop Positive Messaging and Encourage Reporting of Misconduct?

Slightly over one-quarter ($n = 7$) of respondents indicated that they work with their student associations on academic integrity related matters during orientation week. Many schools, however, indicated that they are not doing much of anything, although there is some content in first year classes that encourage students to behave professionally. Schools also reported on requiring faculty members to include academic codes of conduct in course outlines. One school indicated that their first and second-year students take a workshop on intellectual integrity.

Student leadership at two schools developed ceremonies where participants received a pin to indicate their pledge to conduct their academic work with integrity. These ceremonies were student initiatives that were not led by the faculty or administration. One of the schools provided the script that their student society prepared for their so-called *honour pin ceremony*:

I, as a student of engineering, shall recognize this code for guiding my conduct throughout my studies, personal life, and careers. I shall act at all times with honesty and trustworthiness towards my peers and society. Accordingly, I shall: hold paramount the safety, health and welfare of the public within the university and workplace by promoting a welcoming, respectful and ethical environment that values everyone equally; uphold the academic integrity of the university and faculty; complete and submit work that is founded on personal achievement and without plagiarism; conduct myself with fairness and avoid conflicts of interest; give credit where it is due and accept, as well as give, honest and fair professional comment; report any concerns to the appropriate governing body.

Overall, it appears as though engineering schools are underperforming in their work with student associations there are opportunities to do more direct work with the students. Schools would benefit from a more proactive approach to weave academic integrity learning and mentorship throughout the curriculum and not rely on introducing it only in orientation week and course outlines. One school indicated they are working hard to engage faculty and encourage them to promote academic integrity within their classroom. According to Gynnild and Gotschalk (2008), the most effective mechanism for learning about integrity is in the classroom. First year orientation ceremonies, advice from academic advisors, and the student handbook were found to have had little impact on students' academic integrity. Broeckelman-Post (2008) reported that explicit discussions led by the professor about his or her expectations for academic behavior is more effective. In other words, the tone and mentorship that the professor establishes in their classroom can have a huge impact in improving academic integrity and reducing the likelihood of misconduct.

Q8. Does Your Engineering School Have a Process in Place for Training Graduate Students to Be Exam Invigilators?

Forty percent of the schools ($n = 10$) indicated that their graduate students received training on how to invigilate exams, either from training offered by the faculty or by a centrally run unit of the university. This means that the majority of graduate student invigilators have received no training. Training programs for invigilators tend to outline the rights of the students, the rights of the invigilators, and how to report allegations of misconduct. Ultimately, they empower the invigilators to uphold the academic integrity of the institution. Given that so many schools lack such a program, this is an area where significant gains can potentially be made with relatively little effort or investment. Considering that 40% of the reported misconduct is on exams, invigilator training programs could play a strong role in reducing the number of misconduct cases.

Some schools expanded their feedback to suggest that junior faculty members would also benefit from invigilator training as well as training on how to properly report allegations of misconduct to the investigating officer. This is a valid point as the common assumption is that faculty members know how to do these sorts of tasks.

Q9. Has Your Engineering School Seen a Trend (Increase/Decrease) in Academic Misconduct Cases? If Yes, Is There Any Reason in Particular That You Could Point to for the Trend?

Eighty percent of the respondents ($n = 20$) reported seeing an increase in academic misconduct cases. About half of those schools felt the increase may be due to the Covid-19 pandemic, or partly due to improved reporting mechanisms. The general sentiment was that students engage in misconduct because they are under pressure to succeed and they are often overwhelmed with the workload, which is high in engineering programs. Some engineering administrators are starting to question if the traditional workload demands of an engineering program are realistic for today's world with all the pressures on students. In other words, are students cheating more because they do not have sufficient time to focus on their studies and cheating is the only way they can "survive" the program?

Q10. Has Your Engineering School or University Taken on Any Major Initiatives to Combat Misconduct in the Past Five Years? If Yes, Please Briefly Report on Its Effectiveness

Roughly half of the respondents (12) indicated that they have undertaken initiatives to address misconduct within their faculty, but little was offered in terms of perceived effectiveness which admittedly may be difficult to assess. A variety of initiatives have been taken, including the creation of invigilator training programs, misconduct reporting forms, student academic integrity pledges, and increased messaging on behaving professionally.

Similar to Question 7, it appears as though engineering schools/faculties and higher education institutions may be underperforming in this area. There may be different interpretations as to what constitutes a “major initiative”, but the responses seemed to indicate that actions were in response to misconduct issues and there were few formalized strategic plans to address academic integrity. In other words, schools are tending to be reactionary rather than proactive. Given that concerns around academic integrity were rated high by the vast majority of schools, it would be noteworthy if addressing the issue was a part of any strategic planning efforts. This did not come through in any of the responses, but perhaps the question could have been expanded to specifically ask if integrity had been included in any strategic planning activity.

Input from Engineering Regulators

In addition to the survey results from the engineering schools, input was also sought from all of the provincial and territorial engineering regulators. These regulators govern the practice of engineering in their respective provinces and territories and include:

- Engineers and Geoscientists BC
- Association of Professional Engineers and Geoscientists of Alberta
- Association of Professional Engineers and Geoscientists of Saskatchewan
- Engineers Geoscientists Manitoba
- Professional Engineers Ontario
- Ordre des ingenieurs du Quebec
- Engineers Geoscientists New Brunswick
- Engineers PEI
- Engineers Nova Scotia
- Professional Engineers and Geoscientists Newfoundland and Labrador
- Engineers Yukon
- Northwest Territories Association of Professional Engineers and Geoscientists

Since graduates from accredited Canadian engineering programs are automatically eligible for registration as an engineer in training in any of these associations, it was important to highlight recent progress from the regulators in addressing and promoting academic integrity. The regulators were asked the following question:

Has your association done anything to address the issue of academic integrity in engineering schools? These actions may include:

- Changes in your application form and/or process.
- Working with universities or engineering student groups to promote integrity.
- Creating scholarships or awards to recognize and promote integrity.
- Advising Engineers Canada on academic integrity related matters.

Nine of the twelve regulators responded with feedback. In general, the regulators are concerned about academic integrity in Canadian engineering programs as well as in their own examination programs for graduates with non-Canadian degrees. Violations of academic integrity, including the falsification of marks or transcripts, are seen as a breach in the Code of Ethics and may require evidence of remorse and/or rehabilitation in order to be accepted for registration.

Many regulators have an assessment of “character” at the time of application, where applicants may disclose any disciplinary or criminal actions from their past. Being “of good character” is a licensing requirement and regulators reported that they have refused applications from people who have failed to adequately demonstrate good character. Applicants that have a history of academic misconduct could be subject to a negative “good character” assessment. One of the regulators recently changed their application form to specifically inquire about any academic discipline findings during the applicants’ university studies. This was proactive on their part since universities tend to exclude academic misconduct findings on student transcripts. The view among many universities tends to be that young people make mistakes and it may not be appropriate to have a misconduct finding “haunt” them forever with a permanent record on their transcript. Student with repeat offences, on the other hand, may have a grade assigned that indicates misconduct has occurred. In cases when students with repeat misconduct offences are suspended or expelled, the nature of the suspension or expulsion is not always clear. Two schools reported that their university makes a specific notation regarding misconduct on a student’s transcript in cases of suspension and expulsion.

There is a lot of positive work happening with the regulators and engineering schools across the country to promote professional behavior. Several regulators highlighted that they have worked and are working with engineering faculties and engineering student groups by providing course content and delivering guest lectures and seminars. Content from the regulators has a focus on topics within the profession related to ethics, discipline, risk management, safety, and professional practice. Regulators have also facilitated broader panel discussions with registered professional engineers that deliver content to engineering students on relevant topics of the day. In one jurisdiction the regulator offers a half-day ethics workshop that is facilitated by registered professional engineers who discuss ethics and discipline case studies. This workshop is done in partnership with the local Corporation of Seven

Wardens chapter, which conducts the Ritual of the Calling of an Engineer ceremony (or Iron Ring Ceremony) for new engineering graduates.

Lastly, a few regulators from smaller jurisdictions have established special awards and medals for students graduating from schools in their province. These awards typically recognize academic achievement, extra-curricular leadership, and ethics excellence. Currently, none of the awards specifically address academic integrity, which may be difficult to evaluate. That said, the referees of such awards could ask applicants to report on any instances of academic misconduct during their academic studies.

Summary and Conclusions

This work was initiated to assess what is being done by engineering schools and engineering regulators in Canada to promote and ensure academic integrity in engineering students. Overall, the level of concern about the current state of academic misconduct in Canadian engineering schools is high. Feedback from engineering schools and engineering regulators led to the following general conclusions:

- Roughly 40% of the reported misconduct is on examinations. Despite this behavior, less than half of the schools reported having invigilator training programs. This is an area where improvements can be made across the country. By training invigilators about student rights, invigilator rights, how to report allegations of misconduct, and how their service helps the institution maintain the integrity of its degrees, a lot of benefit can potentially be realized for relatively low administrative costs.
- Eighty percent of the schools reported seeing an increase in academic misconduct cases, especially during the move to remote teaching and learning as a result of the Covid-19 pandemic. This demonstrates that students can make poor decisions when exams are not properly proctored. However, the rise in misconduct cases started well before the Covid-19 pandemic and there are other issues at play.
- Only a quarter of the schools indicated they are working with undergraduate and graduate students' associations to help create a culture of academic integrity within their programs. Clearly more can be done in this area to foster professionalism and pride within the student body.
- On the engineering regulator side, the main contributions come in the form of lectures or seminars on engineering ethics. There is clearly an opportunity for the regulators to work more directly with engineering schools and student organizations on initiatives that specifically address academic integrity.
- Existing scholarships from regulators tend to evaluate academic achievement and leadership. While there was interest in scholarships for integrity, there is uncertainty about how such an award could be assessed.
- Some student associations took it upon themselves to create ceremonies to uphold academic integrity. Engineering regulators could support these types of initiatives

in order to make them more widespread at schools across the country. McCabe (1997) reported that honour codes have been shown to result in lower levels of self-reported cheating at engineering schools. The regulators could help this movement grow from a localized level to a national level, especially considering all regulators have a code of ethics for professional engineers that can be used to guide students to a higher standard.

Recommendations

The vast majority of engineering schools handle academic misconduct related issues by following the policies and procedures set by their university. There are concerns that those policies may not be suitable for professional schools, like engineering. It may be useful to explore the development of policies and procedures for professional programs. Doing so would allow programs like engineering to collectively establish the expected standards for academic integrity and acceptable sanctions in cases of academic misconduct.

Comments from schools indicated that the engineering curriculum is a heavy workload, and this may be contributing to academic misconduct issues. A formal study on the challenges engineering students face while attempting to balance their academic demands with their work and life commitments may yield some insight into the effort required to complete an engineering degree in today's hectic world. Times to completion, tuition rates, and credit hours required for the degree could be analyzed and evaluated against CEAB accreditation expectations.

Properly educating professors about the policies and procedures their engineering schools and institutions have in place for academic integrity and academic misconduct appears to be an issue. The literature indicates that professors can have a significant impact on the amount of misconduct in their classes by clearly outlining their expectations. Colby and Sullivan (2008) reported that faculty enthusiasm for the academic integrity agenda is important for succeeding at integrating ethics and professionalism into the curriculum. Additionally, Harding et al. (2012) encouraged faculty to encourage strong morals in students so they avoid cheating. The creation of a caring and nurturing classroom environment to mentor students can be more effective than stiff penalties. This approach would benefit from a wider strategic teaching and mentorship plan within the faculty.

Summary of Key Findings

- Canadian engineering schools and regulators are concerned about the level of academic misconduct in engineering programs.
- Engineering schools are actively working to try and address the issue and reduce misconduct, but the number of cases has been rising.

- Engineering schools have done a lot of good work, but a national dialogue is needed to discuss common issues and share effective strategies, policies, and procedures with each other.
- More can be done to work directly with students to promote professionalism and academic integrity. Professors can have a huge impact as mentors and engineering regulators can bring an outside perspective that may resonate with students.

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