

▲ Strategies to Promote a Climate of Academic Integrity and Minimize Student Cheating and Plagiarism

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Student academic misconduct is a growing problem for colleges and universities, including those responsible for preparing health professionals. Although the implementation of honor codes has had a positive impact on this problem, further reduction in student cheating and plagiarism can be achieved only via a comprehensive strategy that promotes an institutional culture of academic integrity. Such a strategy must combine efforts both to deter and detect academic misconduct, along with fair but rigorous application of sanctions against such behaviors. Methods useful in preventing or deterring dishonest behaviors among students include early integrity training complemented with course-level reinforcement, faculty role-modeling, and the application of selected testing/assignment preventive strategies, including honor pledges and honesty declarations. Giving students more responsibility for oversight of academic integrity also may help address this problem and better promote the culture needed to uphold its principles. Successful enforcement requires that academic administration provide strong and visible support for upholding academic integrity standards, including the provision of a clear and fair process and the consistent application of appropriate sanctions against those whose conduct is found to violate these standards. *J Allied Health* 2006; 35:179–185.

STUDENT ACADEMIC MISCONDUCT is a growing problem in higher education. More than 80% of college students say cheating is necessary to get ahead.¹ According to the Center for Academic Integrity, about 70% of all college students now admit to cheating.² Moreover, current estimates are that serious cheating on state universities campuses has increased fivefold since the 1990s.²

The percentage of health professional students self-reporting academic misconduct ranges from 2% to nearly 60%,³⁻⁹ with the proportions dependent on both the report-

ing time frame and type of infraction. Given that substantially larger numbers of respondents typically report that they have witnessed or “heard about” misconduct by others, these figures likely underestimate the problem in health professions education.

In regard to the specific problem of plagiarism, Roig reported that more than one third of college students were engaging in this form of academic misconduct,¹⁰ and it has been observed that in some classes as many as one in six students plagiarized most or all of their research papers.¹¹ Plagiarism is the most common type of academic misconduct reported by allied health students,⁹ and one in seven medical students indicate that they either have or would consider copying text from sources without attribution.⁸ Corroborating evidence from a recent controlled study found an average plagiarism rate of 19% in medical students’ written essays based on source articles.¹² Compounding this problem is the growth of Internet “cut and paste” plagiarism, which has increased by fourfold since 1999.² Unfortunately, illicit support for students intent on using the Internet to plagiarize also has grown over recent years; there are now more than 250 Internet paper mills where students can purchase and download “research papers,”¹³ including thousands of health-related titles.

Disconcerting as these reports are, of even greater concern to both health professional educators and the public should be the association between academic dishonesty and similar misconduct in the workplace. First discerned in business education,^{14,15} this issue is now recognized as a potential problem in health professions education.^{9,16-18}

Honor Codes and Their Limits

In response to this growing problem, many universities, colleges, and professional schools have developed student honor codes, usually accompanied by the academic policies and procedures needed for application and enforcement. Figure 1 provides an example: the University of Medicine and Dentistry of New Jersey (UMDNJ) School of Health Related Professions Faculty/Student Honor Code. Adapted from the Cadet Honor Code of the United States Military Academy—West Point,¹⁹ this code must be affirmed by all new students as a condition of matriculation. In addition, new matriculants are required to acknowledge receipt and awareness of the related school policies on academic integrity, as included in their student handbook.

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Faculty/Student Honor Code

WHEREAS: The faculty of UMDNJ-School of Health Related Professions believe, that as future health care professionals, the students must observe high standards of honesty and integrity; and

WHEREAS: As future health care practitioners, the students must also observe high standards of honesty and integrity; and

WHEREAS: The faculty and students must make diligent efforts to ensure these high standards are upheld by their colleagues and peers as well as themselves;

THEREFORE: The faculty and students agree to abide by the Honor Code of the School of Health Related Professions which states:

In academic and professional matters I will not lie, cheat, steal nor tolerate those who do.

FIGURE 1. UMDNJ—School of Health Related Professions Faculty/Student Honor Code

Establishment of an honor code is an essential prerequisite for creating a climate of academic integrity and for decreasing student involvement in cheating and plagiarism. Indeed, the incidence of serious cheating at colleges with honor codes is typically 25%-50% less than that observed in institutions not having such codes in place.²⁰

Nonetheless, many colleges and universities that have good honor code systems continue to experience a high incidence of academic misconduct. This is because students prone to dishonesty will continue to engage in these behaviors so long as the prevailing institutional norms fail to strongly affirm integrity and condemn misconduct.²¹ Further reduction in student cheating and plagiarism can only be achieved via systemic changes that promote an institutional culture of integrity.²⁰⁻²⁴ To that end, colleges and universities must implement comprehensive strategies that combine efforts both to deter and detect academic misconduct, along with fair but rigorous application of sanctions against such behaviors.

Strategies to Deter Academic Misconduct

The best way to diminish academic misconduct is to prevent it. Strategies useful in preventing or deterring dishonest behaviors among students include early integrity training complemented with course-level reinforcement, faculty role modeling, and the application of selected testing/assignment preventive strategies, including honor pledges and honesty declarations.

REQUIRED INTEGRITY TRAINING FOR STUDENTS

Likely underlying some academic misconduct is the fact that students differ in their perceptions as to what behaviors are unacceptable.^{8,25} As an example, more than 75% of students do not consider Internet cut-and-paste plagiarism to be a serious issue.² For this reason, students need to be better informed as to what constitutes academic miscon-

duct. Detailed policies that provide explicit definitions and examples of cheating, fabrication, plagiarism, and so on can be helpful in this regard. However, delineating wrongful behavior alone promotes negative legalistic prohibitions at the expense of positive ethical obligations. Thus, in addition to knowing what is proscribed, students also need to know what is affirmed, that is, they need to know why high standards of academic integrity are so essential in the health professions.

To that end, many institutions require all new students to complete a training program on academic integrity that addresses what it is, why it is important, and how to recognize and avoid violating its tenets. The preventive value underlying such training is well stated by the United States Military Academy Cadet Honor Committee, "the more we educate, the less we investigate."¹⁹

Such integrity training may be freestanding and is often Web based. Alternatively, moral development can be integrated into the curriculum via required professional ethics courses that include academic integrity as a key topic.^{24,26,27} Where appropriate, student training on ethical writing and proper sourcing also can be included as a component of courses on information literacy. Ideally these courses should be based on the applicable outcomes and performance indicators for standard 5 of the Association of College and Research Libraries *Information Literacy Competency Standards for Higher Education*, which states that, "The information literate student understands many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally."²⁸

REINFORCEMENT BY FACULTY AT THE COURSE LEVEL

Of and by itself, university or school-wide student training in academic integrity is probably not sufficient to promote an institutional culture of integrity. General training in academic integrity should be reinforced continually by faculty in all of their courses.

Honor Code and Academic Integrity (Recommended Syllabus Statement)

The faculty of UMDNJ-School of Health Related Professions believe that students must observe and support high standards of honesty and integrity. For this reason, all students in this course are expected to abide by the School's Honor Code and uphold its Code of Academic Integrity. As described in detail in your Student Handbook, violations of the Code of Academic Integrity include cheating, plagiarism, fabrication and/or academic misconduct. All such violations will be considered with gravest concern and may be punishable with sanctions as severe as suspension or dismissal. If you have not previously affirmed the School's Honor Code (either in writing or electronically), you must submit a signed and dated copy of the Honor Code to the instructor by the end of the first week of the semester. The Honor Code form is provided in the current SHRP Student Handbook.

FIGURE 2. UMDNJ—School of Health Related Professions Committee on Academic Affairs recommended syllabus statement on academic integrity

As a basic course-level strategy, faculty should include in all their syllabi clear statements emphasizing the importance of academic integrity and the application of pertinent honor codes, including the possibility of serious sanctions for any violations. Figure 2 provides an example of such a statement, as recommended by the UMDNJ—School of Health Related Professions Committee on Academic Affairs and as included in the school's course syllabus template.

Given the fact that faculty rarely discuss academic misconduct with their students,²⁹ simple provision of such statements is not enough. Ideally, such statements should be supplemented by early and frank class discussions that (1) reiterate the importance of academic integrity, (2) clarify what constitutes academic dishonesty, and (3) explain the serious sanctions against students that can and have been taken when violations occur.

FACULTY AS ROLE MODELS

A culture of academic integrity requires a partnership among its major stakeholders. As major stakeholders in the academy, faculty can help promote integrity by modeling applicable behaviors.³⁰ At a minimum, faculty should uphold and support the same honor code as that required of students. McCabe and Pavela provide further guidance in their "Ten Principles of Academic Integrity,"³¹ designed specifically to help identify faculty behaviors most likely to promote academic honesty among students (Table 1).

DECREASING OPPORTUNITIES FOR CHEATING

Even with proper training, reinforcement, and good role models, some students—given the opportunity—will still be tempted to cheat. In response, most experienced faculty use a variety of practical methods to deter cheating, including limited or focused topics for research papers, required submission of paper drafts, examination proctoring, use of alternate test forms or randomly generated (computer-based) tests, random seating during test administration, exclusion of electronic devices during testing, and required

student sign-offs when submitting examinations.³² Unfortunately, the more obtrusive or onerous these preventive strategies, the more likely the perception of an "us versus them" climate between students and faculty. Indeed, such perceptions may foster more of a policing atmosphere than a positive culture of academic integrity.

HONOR PLEDGES/HONESTY DECLARATIONS

In regard to avoiding plagiarism on written assignments, many institutions have found honesty pledges or declarations to be effective deterrent strategies. An honesty pledge is a simple statement that students are requested to write and sign whenever submitting examinations, research papers, or other assignments not specifically exempted by the instructor. A good example is the University of Maryland Honor Pledge, which reads as follows³³: "I pledge on my honor that I have not given or received any unauthorized assistance on this assignment/examination."

Honesty declarations include more detail and thus usually are provided to students as preprinted cover sheets or forms. A typical honesty declaration reiterates the institution's honor code and any applicable definitions (e.g., plagiarism, fabrication) and spells out the potential consequences of violating the code. In addition, such forms generally provide a signed declaration whereby students (1) confirm that they have read the applicable code and related policies and procedures, (2) declare that all submitted material are their own work (except where there is clear acknowledgment and reference to the work of others), and (3) give permission for the materials to be retained, reproduced, and submitted to other faculty, academic staff, or services to check for plagiarism.

Strategies to Detect Cheating and Plagiarism

Deterrence is not enough to prevent student cheating and plagiarism. Current research indicates that the probability of being caught is among the strongest deterrents against academic misconduct.³⁴ Any comprehensive strategy must

TABLE 1. Ten Principles of Academic Integrity for Faculty

1. Affirm the importance of academic integrity
2. Foster a love of learning
3. Treat students as ends in themselves
4. Foster an environment of trust in the classroom
5. Encourage student responsibility for academic integrity
6. Clarify expectations for students
7. Develop fair and relevant forms of assessment
8. Reduce opportunities to engage in academic dishonesty
9. Challenge academic dishonesty when it occurs
10. Help define and support campus-wide academic integrity standards

McCabe DL, Pavela G: Ten principles of academic integrity. *J Coll Univ Law* 1997; 24(1):117-118.

therefore include ongoing efforts to monitor for and detect academic dishonesty when it occurs. Cizek provides a good review of both the observational and the statistical approaches useful in detecting test cheating.³⁵ Methods for detecting plagiarism include both manual review and use of plagiarism detection software and services.

MANUAL REVIEW AND DETECTION

Fortunately, the very same tools that students use to plagiarize research papers (i.e., search engines and the Internet) can be very effective in detecting the expropriation of words and ideas. Often, a quick Internet search of a suspicious phrase is all it takes to immediately reveal an unreferenced source. This is particularly true now that most good search engines index elements of the deep Web, including full-text files in various formats (Word, PDF, and so on) and even the content of some common databases such as MEDLINE.

Unfortunately, the time involved were faculty to “Google” every student submission to check for plagiarism makes this approach impractical. On the other hand, given good knowledge of the many “red flag” indicators of plagiarism (format, citation, style, and content cues),³⁶ faculty can quickly narrow down the possibilities to the small number of students potentially guilty of using others’ words or ideas without attribution.

PLAGIARISM DETECTION SOFTWARE AND SERVICES

There are currently several detection software applications and services available to assist faculty in uncovering plagiarism, as summarized in Table 2.

Comprehensive search and repository systems not only search the Internet, but also compare submitted work with standard reference material (e.g., online encyclopedias) and private databases that typically include online paper mills, academic sites, and previously submitted student work. Internet-only plagiarism search engines are desktop applications that faculty can use to check student papers for unreferenced online source materials. File comparison/pattern matching software also is designed for the desktop but

plays a different role. These programs use pattern-matching algorithms to examine a collection of documents, looking for similarities. Typically, matching text is identified and a similarity “score” is generated. Linguistic patterns analysis software uses a standardized cloze procedure (measuring how well students can ascertain words deleted from their submitted work) to assess the uniqueness of each individual’s writing and to generate a plagiarism probability score.

Unfortunately, the comprehensive services are general purpose systems geared to the undergraduate arts and science research paper (not specifically the health sciences), and Internet-only applications are likely no better than an experienced faculty member with a keen eye for students’ writing discrepancies and a good knowledge of how to check for and find online resources. For these reasons, the best detection option for health science faculty currently is a manual review of those submissions that are prescreened for common cues indicating plagiarism.

STUDENT REPORTING

Not all the burden for detecting academic misconduct need fall on faculty. Indeed, most honor codes require that students who witness incidents of academic dishonesty report them to responsible officials. Of course, getting students to support this end of the bargain is easier said than done. From kindergarten on, most students learn that “snitching” on classmates is strictly taboo and that to do so usually means being ostracized from one’s peer group. This “training” apparently carries over into college and professional education, where students are highly reluctant to report suspected honor code violations.^{37,38}

Giving students more responsibility for oversight of academic integrity may help address this problem and better promote the culture needed to uphold its principles.^{39,40} McCabe and Pavela have observed that intensive academic integrity training combined with a modified honor code that emphasizes student leadership may help alleviate this problem.⁴¹ Certainly the findings of McCabe and Trevino that peer disapproval was the strongest (negative) factor influencing a student’s decision to cheat suggest that this strategy may be fruitful.⁴² One of the first and best examples of this approach is the University of Maryland Student Honor Council, which has served as a model for many other institutions.³³ A noteworthy component of the Council’s Code of Academic Integrity is the provision for self-referral. Students who report their own misconduct are viewed as renewing their commitment to academic integrity and, other than receiving a grade reduction, generally are not sanctioned. Instead, they are required to meet with the applicable faculty member and to complete a Council-sponsored integrity seminar.

Application of Sanctions

Some 90% of college students believe that cheaters are either never caught or not appropriately disciplined.¹ As

TABLE 2. Plagiarism Detection Software and Services

Category	Example	URL	Type of Application
Comprehensive search, repository, and reporting systems	Turnitin.com	http://www.turnitin.com	Fee-based subscription service/institutional use
	MyDropBox.com	http://www.mydropbox.com	Fee-based subscription service/institutional use
Internet-only plagiarism search engines	Essay Verification Engine	http://www.canexus.com/eve	Licensed desktop software
	Plagiarism Finder	http://www.m4-software.com	Licensed desktop software
File comparison/pattern matching software	CopyCatch	http://www.copycatchgold.com	Licensed desktop software
	WCOPYfind	http://plagiarism.phys.virginia.edu	Free desktop software
Linguistic patterns analysis software	Glatt Plagiarism Screening Program	http://www.plagiarism.com	Licensed desktop software

long as this perception is based on reality, the likelihood of further reducing cheating and plagiarism is diminished. As discussed by Nuss, there are three basic conditions that must be in place for honor codes to be effective: (1) universal agreement that the prohibited conduct is unacceptable by all campus constituencies, (2) effective prevention or deterrence of the prohibited conduct, and (3) reliable and fair measures of enforcement.⁴³

Certainly, most colleges and universities specify a range of sanctions that can be taken against students found guilty of violating their honor codes. However, such sanctions only have an impact if they are applied. Recent research indicates that this is not occurring in a consistent fashion. For example, the Center for Academic Integrity reports that nearly half (44%) of those faculty who are aware of cheating among their students never report it.² Unfortunately, this finding coincides with the observation that students perceive that more cheating occurs in courses where it is well known that faculty members are reluctant to deal with it.² According to Donald McCabe of Rutgers University, student after student have told him that those who engage in academic dishonesty “will size up a professor to determine whether they can get away with it.”⁴⁴

Faculty reluctance to report cheating is also based on the common perception that more often than not it is they—not the student—who end up on trial.⁴⁴ In addition, many faculty perceive academic hearing processes as laborious and often conclude that the punishments for misconduct do not “fit the crime.”⁴⁵

The result has been a tendency for faculty to treat such matters privately, usually by either counseling the student or via an arbitrary grade reduction. Although any student who acts wrongly should be counseled, the use of this approach alone may only perpetuate the problem and likely will contribute to the general perception of students that such acts do not have real negative consequences. In regard to the simple use of grades as a sanction, this raises a due process issue in that the student is not afforded the chance for a hearing on the matter.⁴⁶ In general, the courts expect

due process in regard to the application of sanctions for academic dishonesty.⁴⁷

The good news is that confidence in the process is related to the use of formal deterrence strategies toward academic integrity violations,⁴⁸ suggesting that faculty who experience good and fair processes that result in appropriate sanctions will use them more often. Certainly strong administrative support for reporting valid violations of the academic code, the provision of a clear and fair process (fair to both student and faculty), application of appropriate sanctions, and the absence of any retribution when guilt is not found will go a long way toward encouraging faculty to “use the system.”²²

One sanction that deserves special mention is the XF grade recommended by Pavela⁴⁹ and currently in use at more than 20 colleges and universities, including one academic health science center (SUNY Upstate Medical University). In the Pavela model, the grade of XF is the standard penalty for academic dishonesty, imposed in accordance with the university’s academic integrity procedures and administered by a student honor council. The grade is transcribed with the notation “failure due to academic dishonesty” and equivalent to an F for grade point average computations. Students holding an XF grade are not permitted to represent the institution, run for or hold office in any student organization, or receive university funds. XF grades can be replaced with an F via formal petitioning of the student honor council, but only after time and satisfactory remediation. According to Pavela, the XF grade “. . . represents a compromise between sanctions seen as too lenient (e.g. a reduced grade, which is little or no deterrent to a student already doing poorly in a course) or too harsh (e.g. automatic suspension or expulsion, often regarded by members of hearing panels as being unjust, causing them to distort the fact finding process to find students “not responsible” in “minor” cases).”⁴⁹

Conclusions and Recommendations

Student academic misconduct is a growing problem for colleges and universities, including those responsible for

preparing health professionals. Although the implementation of honor codes has had a positive impact on this problem, further reduction in student cheating and plagiarism can only be achieved via a comprehensive strategy that promotes an institutional culture of academic integrity. Key components of this strategy include the following:

1. All colleges, universities, and schools should establish a student honor code with the accompanying academic policies and procedures needed for application and enforcement.
2. As a condition of matriculation, all new students should receive academic integrity training.
3. All course syllabi should include clear statements emphasizing academic integrity and the application of any applicable honor code, including the possibility of serious sanctions for any violations; such statements should be complemented with frank and open class discussion.
4. Faculty should make every effort to model high standards of academic integrity in all their teaching activities.
5. Preventive strategies designed to reduce the opportunities for academic misconduct should be implemented as needed, including the use of honor pledges/honesty declarations for written assignments.
6. Consideration should be given to greater student involvement in and responsibility for oversight of honor codes and academic integrity processes.
7. Consideration should be given to a transcribed, grade-based penalty for academic dishonesty that can be conditionally expunged from the student record.
8. Academic administration should provide strong and visible support for upholding academic integrity standards, including the provision of a clear and fair process and the consistent application of appropriate sanctions.

In terms of the specific issue of detecting plagiarism, additional research is needed to assess the “sensitivity” of various software and services for detecting plagiarism, particularly as applied to health-related written assignments. In the interim, colleges, universities, and professional schools may want to consider maintaining their own database of student work for intraclass and interclass comparisons.

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CORRESPONDENCE

▲ Core Competencies for Health Care Professionals

TO THE EDITOR—I am not in the habit of emailing authors after I read an article, but I was thrilled with the recent article on “Core Competencies for Health Care Professionals” by Sarita Verma, Margo Paterson, and Jennifer Medves in the recent *Journal of Allied Health*.¹ I wanted to let them know that their paper was well received.

I am an occupational therapist and recently started in a new position a year and a half ago as an educator for our therapy/allied health staff. We are a specialized continuing care organization in Alberta, Canada, with a variety of sites that offer subacute, long-term care and specialized assessment and treatment programs for adults young and old. I sit on a team of approximately 14 other educators, all of whom are from nursing backgrounds. Our team's focus is to support the learning needs of our staff, therefore enabling quality care and service. Previously, I worked in an Ontario outpatient children's treatment centre, where the team was primarily rehab professionals, a few pediatricians, and psychologists, with very little interaction with nurses.

Since starting this role in Alberta, I have found that the health disciplines definitely tend to operate as a “series of independent silos” and that continuing education tends to

focus mostly on client care skills. Teaching skills like collaboration, coordination, etc. tended to fall to the backburner in the monthly orientation and were not as formally acknowledged. Education about client care skills typically took priority, although issues related to communication, respecting and understanding each other's roles, among others, had also been identified as necessary items to cover. Given the renewed mandate of our Education Services Team to address the needs of all the disciplines, we recently revamped our orientation content, which now includes collaborative care as a topic. It has been well received thus far. There is a lot of work for us to do as we move toward interprofessional education.

As interprofessional education is an area that I am keen to help grow in our facility, I was thrilled to read Verma, Paterson, and Medves' article in support of it, not only at the pre-licensure level but post-licensure as well. To the authors I say thank you and good luck with venturing ahead in this area—we'll look forward to reading/learning more about its application to the university programs and beyond.

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