

The Art of Cheating in the 21st Millennium: Innovative Mechanisms and Insidious Ploys in Academic Deceit

Steven M. Lipson^{1,*} & Laina Karthikeyan²

¹Department of Biology, Health Promotions, and Health Care Management, St. Francis College, Brooklyn Heights, NY¹, 11201, USA

²Biology Department, New York City College of Technology, City University of New York, Brooklyn, NY, USA

*Correspondence. Department of Biology, Health Promotions, and Health Care Management, St. Francis College, Brooklyn Heights, NY¹, 11201, USA. Tel: 1-718-489-5210. E-mail: slipson@sfc.edu

Received: February 28, 2016 Accepted: April 25, 2016 Published: May 14, 2016

doi:10.5296/ije.v8i2.9117 URL: <http://dx.doi.org/10.5296/ije.v8i2.9117>

Abstract

Cheating is rampant throughout academia, with no hard evidence suggesting that such pedagogic deceit will wane. Cheating is most insidious on the college level, where such academic deceit has evolved from perhaps its basic pattern of merely peeking at another student's examination, to planned deceit employing sophisticated subterfuges and interplay between two or more co-conspirators. Importantly, cheating *per se* may not necessarily be student initiated, but fostered by college/university staff for purposes of institutional or personal financial gain. Statistical studies (e.g., demographics) in complement with sociological and psychological factors associated with cheating have been previously described. This review does not attempt to embellish the plethora of earlier reviews or research on the subject, but stands unique in that specific case reports and recent findings are presented describing techniques or mechanisms used in the performance of academic deceit to by-pass university codes of ethics. The purpose of this work is to acquaint adjunct staff, tenure track, and perhaps senior faculty in the biological sciences and other disciplines to those mechanistic approaches used by students and college staff as well, in the commission of academic fraud. Suggestions are proposed to help detect and reduce academic deceit.

Keywords: Cheating techniques, Academic pressure, Motives for cheating

1. Introduction.

Cheating has been arguably an integral component of society since the written test. The "cribbing garment" or "cheating robe" for example, an undergarment containing 722 potential essays to aid in a Chinese civil-service examination, was worn by examinees some 1,000 years ago (Plaks, 2004). Cheating throughout institutions of learning occurs to this very day, with no evidence suggesting that acts of academic fraud or deceit will *significantly* wane.

The current work, due to the authors' academic expertise, is directed in part, to cheating on the undergraduate science education level. However, cheating is so widespread in academia, that this work pervades almost any academic field; Student evaluation /testing crosses the multitude of academic disciplines. This review will not reiterate those psychological factors or sociological folkways fostering acts of cheating, but will address many firsthand observations of novel cases, brilliantly executed, and heretofore poorly described mechanistic approaches taken by students in the performance of academic deceit. Indeed, as proposed by the late Urie Bronfenbrenner, cheating is a multifaceted sociocultural endeavor, including but not limited to peer acceptance, family pressure/family honor, or simply the attainment of the diploma as an entry point to an awaiting job (Bronfenbrenner, 1979). The readership is referred to the excellent texts/articles by W. T. Bowers, S. Etter, D. M. McCabe and others, for in depth statistical analyses on the prevalence, sociology, and psychology of cheating in academia (Alt & Geiger, 2012; Bower, 1964; Bronfenbrenner, 1979; Crown & Spiller, 1998; McCaber, Butterfield, & Trevino, 2012b; Miller, Murdock, Anderson, & Poindexter, 2007; Whitley, 1998).

The consequences of cheating wherein less qualified individuals fraudulently attain positions of authority in the general work force, within a political/governmental agency, or gain admission into highly selective post-graduate training programs , serves to undermine the very fabric of society. Student ingenuity and carefully planned measures to affect academic deceit, assuredly strains faculty efforts to maintain an environment which is fair to all concerned (McCabe, 2005).

This review will address primarily that which has been observed throughout numerous years of direct student contact (teaching) and faculty service on college standing committees. Many cases/incidents of cheating described in this work were indeed brilliantly executed reflecting in part, those evolutionary changes in technology, student/societal behavior, and newly placed legislation (viz., Title IX).

Prior to the description of those unique student mechanistic subterfuges in the performance of academic deceit, the pivotal term in question needs to be defined. Briefly, one may suggest that cheating or academic deceit encompasses any attempt to misrepresent one's own work to gain an unfair advantage in a submission for evaluation. Those numerous modes of execution associated with cheating have been described, and need not be reiterated at this time (Anonymous, 2016; Bowers, 1964).

The purpose of this work therefore, is multifactorial. Firstly, we wish to alert newly appointed adjunct staff, early career tenure-track faculty, and even our eminently tenured colleagues, to some of the more insidiously planned, and uniquely modified facets/mechanisms in cheating, as perpetuated by some of the more deceitfully creative minds in the college community. Secondly, we wish to point out modi operandi of some of the criminal element diffused into academia in the perpetuation of fraud for monetary gain. Complicity between college staff and the student in academic deceit will be described, as well. Suggestions to reduce the plethora of cheating modalities among each of the aforementioned will be put forth.

2. Intricacies in Cheating Methodologies: Individual, Dual, and Group Conspiracies

2.1 Individual Level: Mechanisms Used In “Crib Sheet” (Or “Cheat Sheet”) Deceit

On the individual level, one of the more classic or basic cheating tools is the crib (or cheat) sheet, containing key words or definitions relevant to a given examination. Such a cheat sheet usually fits into the palm of the hand, with its effectiveness amplified through use of a 7 or perhaps smaller font. Vigilant perusal has a significant effect in reducing the use of the crib sheet. However, mere suspicion of a crib sheet without hard evidence (e.g., confiscation), essentially negates any substantive challenge by the course instructor.

Some students have become so adept in the use of the crib sheet, that an initial movement by the course instructor to a strategic location in the examination room immediately signals the hiding of the crib sheet (or other cheating implement). Crib sheets are typically hidden under or within some article of clothing (e.g., a pocket, waist band, a blouse/sweater, or under a dress). A charge by a male (or female) instructor suggesting the placement of a crib sheet under one of the stated forms of clothing could be counterproductive, as such an accusation may result in the instructor being placed on the defensive through a charge of sexual harassment (Ryan, Angelo, Dryer, 2014). Most instructors refrain from pursuing such an observed act under such circumstances for fear of a complaint to the college appointed Title IX “sexual harassment officer.” Observation of the crib sheet before its placement under an article of clothing might strengthen a given course instructor’s argument for cheating, but recovery of the crib sheet at its time of use, would serve as definitive proof. Photographic documentation of crib sheet use is *not* recommended, as a challenge of voyeurism, might ensue.

Class size can impact on student use of the crib sheet. The larger class imparts distance between the instructor and the student, enhancing student ability to manipulate the cheat sheet. An unintentional or planned distraction (e.g., the voicing of a question) by a student could aid in the cheating effort by simply drawing attention away from relatively distant perpetrator. The course instructor should never move from one area in the examination room to another upon a student’s beckoned call. Questions pertaining to the examination can easily be answered at the lecture hall podium. A second proctor (e.g., teaching assistant or a graduate student) if available, would significantly impact on the surreptitious use of the crib sheet in

the larger examination room. Moreover, a student query may be a ploy to have the course instructor inadvertently reword or rephrase a question, aiding the student/class in selecting the correct answer. Instructor responses should be kept to a minimum by using the expression, *the question is free from error*, if appropriate. Instructor positioning and continual movement in the classroom, regardless of how subtle, during an examination is important in reducing cheating. Importantly, instructor positioning at diagonal locations in the examination room would permit an improved view of the potential use of the crib sheet or other cheating device (see below). In the larger class, the peering onto another student's answer sheet could more readily take place without instructor recognition. Alternation of seating would tend to decrease such a cheating technique. Cheating is most acute when the instructor/proctor is seated in the comfort of his/her front desk.

A most effective anti-cheating scenario would be an alternate distribution of two different examinations or a rearrangement of questions from one examination. Some students might unjustifiably suggest that each examination in a set varies in difficulty, potentially requiring the course instructor to formally respond. The instructor must be prepared for such complaints.

2.2 The Crib Sheet in the Bottle

Perjurious statements by students in defense of instructor accusations of cheating, are not uncommon. The following case accentuates this point.

Some students bring coffee or a bottle of water into the examination room (although some faculty prohibit this activity), as such items appear benign. During a lecture examination notwithstanding, a course instructor noticed a student oddly staring at her clear plastic water bottle. Upon further observation, the course instructor noticed writing on the inner side of the bottle's label, relevant to the examination in progress. The instructor rightfully concluded that the label manipulation was an attempt to mask a cheat sheet. The instructor discarded the water bottle and entered a grade of zero on the student's record. The student appealed the grade of zero wherein a final decision had to be weighed on a "he said-she said" basis. During a formal hearing, the student vehemently denied any academic deceit and won the appeal simply through a lack of physical evidence on the instructor's part. A presentation to the [Academic Integrity] committee of the tampered water bottle would have assuredly changed the outcome of the case. Clearly, the case points out the critical need to present evidence upon prosecution of this type (and related forms) of academic deceit.

2.3 The iPhone as a Cheating Device

Student XY was highly proficient in the use of the iPhone key pad. As the experienced secretary is capable of typing some 85 or more words per minute, some iPhone users could match and often surpass that typing speed. Some students moreover, are single-handedly proficient in their utilization of the key pad. Due to the iPhone's size, the device can easily be used as a cheating tool during an examination to retrieve stored notes or definitions from the internet. Specifically, student XY would position herself at the back of the classroom, with the guise of being comfortable at such a location. Unbeknownst to the course instructor, the

location of student XY was chosen as a subterfuge to hide her iPhone in order to scour the internet in search of terms present on the examination. The desk served as an iPhone shield to detection. The guise perpetuated by student XY (viz., periods of hands in lap and hands on desk) further served (or attempted to serve) to remove suspicion. A continual perusal throughout the classroom would seem to be a likely preventative. However, such efforts merely served as a band aid to stop the proverbial femoral wound, as XY (as well as others), became familiar with the course instructor's behavioral patterns (e.g., extent of movement during an examination, time standing or sitting, etc.), which supported the "peek-a-boo" (rapid eye movement from proctor to question sheet to iPhone) mechanism to affect academic deceit. Proctor movement to a threatening location in the examination room signaled student XY to immediately conceal her iPhone under her blouse, effectively neutralizing any significant challenge by the course instructor. Extreme care must be taken in exposing (no pun intended) such a *modus operandi*, as students are becoming increasingly knowledgeable of recent ancillary legislation to Title IX, namely the ready avenue to report as alluded to earlier, potential "sexual harassment" (Ryan, Angelo, Dryer, 2014). Students realize that a given course instructor would overlook such a mechanistic approach to cheating rather than confront interrogation by a Title IX representative.

Student XY was well adept to her [selected] mode of academic deceit. Unrecognized by XY however, body language during an examination often signals the proverbial "red flag." The situation was partially resolved by student relocation to a front row, with a class mandate, '*all hands on deck*.' Problematically, the student continually seeks counter measures to neutralize instructor anti-cheating efforts. For example, upon forced into a desperate state, XY again positioned herself in a pseudo-relaxed position by placing *one* hand on her lap with the other hand mark sensing her scantron. Such a stance might well be proper for Tavern on the Green or the Princeton Club in New York, but questionable during a lecture examination. In essence, student XY was most skillfully (and feverishly!) one-handedly using her iPhone. The cheating effort by student XY was finally arrested by re-phrasing the mandated 'all hands on deck' to 'both' hands on deck. In effect, student XY was no longer able to use her iPhone as a cheating tool, followed by her lecture examination grades plummeting from the mid -nineties to the mid-eighties. No official action could be taken against XY, but the audacious cheating effort was stopped.

2.4 The Smartwatch.

Within advanced societies, it is not that surprising that science fiction of yesteryear often evolves into fact of today. For example, the "communicator" used by Gene Roddenberry's Captain Kirk progressed to the flip phone and eventually into that almost universally owned iPhone. The "two-way wrist radio" introduced by Chester Guild to the Dick Tracy comic strip in the 1940s, has now evolved into the smartwatch.

The smartwatch has the potential for being one of the most exciting new portable electrical devices of the decade, as the device looks like a digital wristwatch but has internet, texting, informational storage and more capabilities. Accordingly, administrators at institutions of higher learning are scrambling to determine how to prevent this new technology from being

used as a cheating device. The smartwatch would readily permit students to communicate with each other or draw from stored resources during class examinations with reduced rates of detection. One Croatian company, maker of the robotic 24Kupi smartwatch, actually advertises that their product can be used as "...a cheating watch for cheating in exams" (Chugh, 2016; Migicovsky, Durumeric, Ringenberg, Halderman, 2014). Apple has also recently put forth a similar advertising drive (Hein, 2016).

In order to thwart the possible use of the smartwatch as a cheating tool, an increasingly large number of universities have initiated bans on such devices in the classroom during examination periods. Universities in Australia, New Zealand, Belgium, and the United States (viz. the University of Utah), have taken the initiative of banning all digital and smartwatches from their classrooms during testing. The Educational Testing Service (ETS) initiated the same type of security system (Charara, 2015).

One must question however, whether students' civil rights are being violated by the ordered stripping of smartwatches or look-alike digital wristwatches from their person during testing periods. As the silver handled cane was considered a mark of normal dress by the affluent gentleman of the late 1800's in New York, or the mask of the Lone Ranger was an irremovable fixture in the wild west, why wouldn't the smartwatch (disguised as a wristwatch) not be considered a component of normal attire to suit the hectic schedules and time-restricted needs of the modern college student? It would not be unreasonable to suggest that the progressive banning of smartwatches/wristwatches by academics might eventually be challenged by the courts. One might even predict, with the increasing use of smartwatches, that testing might have to take a direction different from the mere essay question, but progress to queries demanding analytical or interpretive responses within a time-limited examination period (Chugh, 2015).

2.5 Online Learning

Two or three decades ago, the take home test was occasionally used in lieu of the in-class examination. Answers were most often required in an essay format. Significantly, control of cheating at the time by the use of class notes, textbooks, or study groups, was virtually impossible to control. Notwithstanding, the compendious application of computer technology has permitted the take-home exam to morph into the currently recognized educational domain of online learning. Clearly, the financial rewards to colleges of online learning are astronomical, as tuition and ancillary fees are expected to reach some 32 billion before the close of 2016. Significantly, congressional enactment of the College Opportunity and Affordability Act of 2008 [H. R. 4137 (110th Congress: 2007-2009 Higher Education Opportunity Act)], mandates colleges and universities offering online courses/programs to place into effect safeguards to thwart cheating (Cluskey, Ehlen, Raiborn, 2011; Singer, 2015). Industry is indeed monopolizing upon such federal legislation, through the development of anti-cheating remote software systems. Verificent Technology's flagship system named Proctortrack, is one of the first if not the only company to offer its anti-cheating software to the online education market. The system's software is based on facial recognition, body movements, audio, and the monitoring of computer activity to assure that the student does not compromise online examinations or substitute another test-taker during the examination

period. Verificient Technology's receipt of a patent in January of 2015 (USPTO No. 8,926,335) and the ever increasing use of this anti-cheating software in the college/university setting (e.g., Univ. of Southern California, Univ. of South Florida, Rutgers Univ., St. George's University School of Medicine) suggest that this relatively new type of technology, still looming on the horizon, may eventually make its way into the living rooms of online learners.

It should be pointed out that online learning programs are constantly under the scrutiny of those who wish to compromise such systems' effectiveness. For example, the online program "massive open online courses" or MOOCs, educationally attractive by its asynchronous usage and rapid feedback, has been found subject to online infiltration. A sophisticated computer-based cheating system is emerging, wherein MOOC's online learning/certificate training programs can be undermined by student "completion" of courses within seconds to minutes. The MOOCs program was found to be compromised through the creation of multiple profiles (the CAMEO cheating technique) to gather and separate incorrect from correct file entries and in turn, forwarding the latter to student enrollees. Preventative measures exist, including the randomization of questions, the withholding of answers until due dates, or the use of some form of online proctoring (Northcutt, Ho, Chuang, 2015). However, such efforts could be expensive or constrain the rapid feedback learning (and appeal of the program) as originally proposed. Clearly, enhanced vigilance of online learning programs by technical staff needs to be continually addressed.

3. Dual/Group Cheating

3.1 The "Crib Sheet" and the Confederate

Most science educators would agree that student achievement in lecture generally relates to that recognized by performance in the laboratory. A marked exception occurred in the case of student YZ, triggering a suspicion of cheating. Specifically, observation of student YZ's performance in the execution of basic laboratory skills (e.g., use of the pipette, preparation of media, etc.) were found markedly subpar. Continual talking/excessive joviality with other students and/or longer than normal break periods, reflected YZ's poor performance on laboratory hands-on quizzes. However, YZ attained grades in the high eighties and mid-nineties on the course's initial two lecture examinations. The markedly capricious work attitude displayed in the laboratory led the course instructor to suspect some form of cheating during the lecture component of the course. The course instructor in turn, enacted an enhanced vigilance during a subsequent lecture examination.

Mere perusal of the classroom by the course instructor produced an apparent uneasiness in student YZ, reflected by rapid eye movements from examination paper to instructor, with chair displacements to and fro his desk. The course instructor realized that vigilance by stealth was necessary. Accordingly, a non-conspicuous encirclement of the examination room from the rear or tangential position revealed a partially concealed crib sheet under YZ's question paper. Upon approach by the course instructor, student YZ crumpled the observed crib sheet, and retained such in a clenched fist – refusing to release the sheet on demand.

Upon a seating relocation request, student YZ nervously attempted to conceal the crib sheet under an article of clothing, but carelessly dropped the item in question. The sheet was immediately retrieved by the course instructor just prior to an onslaught by YZ to do the same. The release of the crib sheet and its retrieval by the course instructor, successfully exposed YZs pre-meditated effort to violate the college’s code of ethics.

The retrieved [crib] sheet was found to contain numbered answers virtually identical to a nearby confederate (Figure 1). Student YZ continued to profess his innocence for weeks, suggesting that the 1 X 1.5 inch sheet was self-written to check answers with friends. However, and within days before a scheduled hearing with the college’s AIC, student ZY begrudgingly admitted guilt before the college’s Academic Dean. Student YZ was permitted to withdraw from the course. The withdrawal permitted registration for independent study, and in turn, attainment of graduation requirements. The scheduled hearing before the AIC was aborted, and the case was closed.

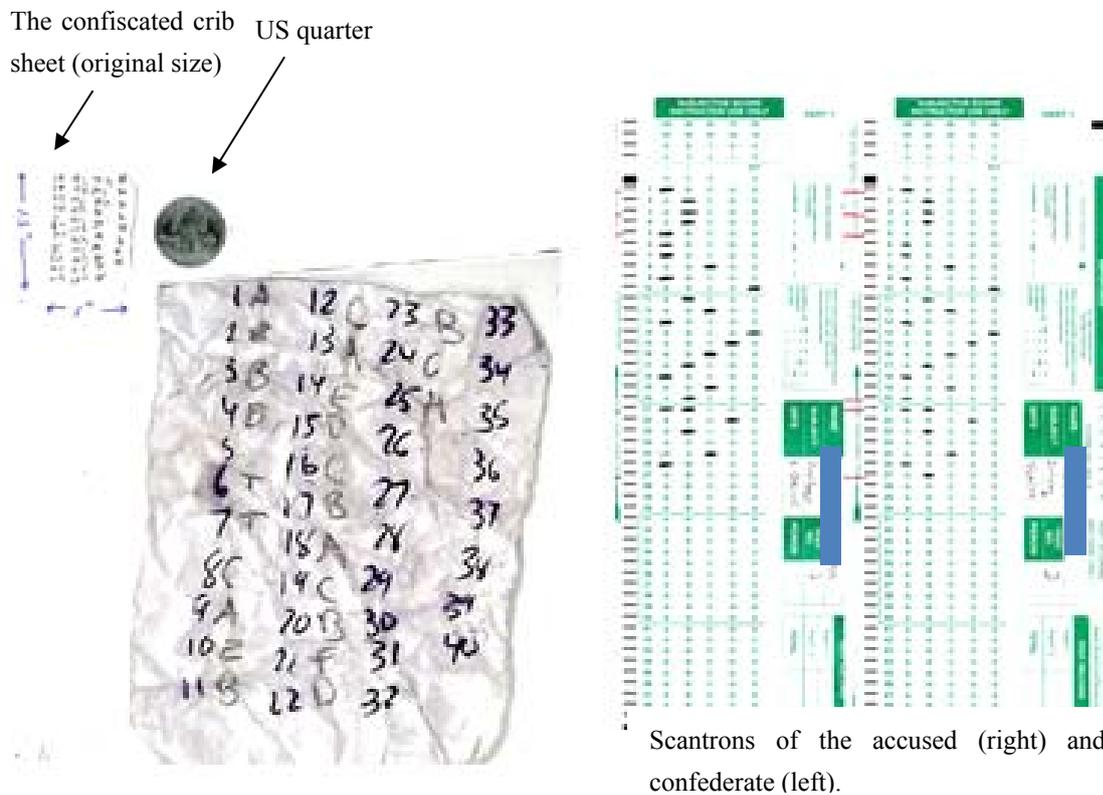


Figure 1. Evidence confirming student collaborative effort in the use of the “crib sheet.” Upon instructor retrieval of the crib sheet, the accused rejected any suggestion of cheating. Several days later, the accused indicated that the recovered 6 X 8 centimeter paper was used to write “...the answers from my scantron...to review the test questions...with friends to see how I did. I didn’t want to give you the paper as you would think I was cheating!” Note: Virtually identical answers on scantrons between the accused and confederate. Approximately one week before a scheduled hearing before the university’s Academic Integrity Committee, guilt was admitted to university administration (see Section 2.a).

In retrospect, admission by student YZ of guilt was most probably of dual purpose. Firstly, student YZ knew that he would not have to face the AIC's interview process leading to embarrassment and an adverse decision to his defense. Secondly, student YZ incorrectly surmised that there would be no immediate recognition and punishment of his co-conspirator. Clearly, both YZ and his confederate had virtually identical answers on their respective scantrons, ascribed to an apparent passage of the fortuitously retrieved crib sheet (Figure 1). Collaboration between "taker" and co-conspirator indeed places equal guilt upon both parties. The co-conspirator was appropriately punished by the course instructor's reduction of said individual's final grade. The above case reaffirms student recognition of the importance to hide or destroy evidence. Classroom perusal by stealth, alternation of seating, and /or the distribution of two sets of examinations, would have neutralized the insidious and desperate attempt to cheat by student YZ, in concert with his confederate.

3.2 The Line Extension Technique

Student collusion in the laboratory to affect academic deceit may be just as, if not more insidious than that recognized in lecture. For example, the fill-in type of question is most commonly seen in anatomy based courses during the *practical* type of examination. Indeed, a most remarkable and again ingeniously pre-meditated form of cheating was executed by several students in an anatomy laboratory fill-in type *practical* examination.

Three students returned *practical* examination answer sheets suggesting grading errors accounting for some 15 to 20% of lost points. Upon review of each student's answer sheet, it was determined that correct answers were (allegedly) incorrectly scored (viz. a red line was placed through a correct answer). Although some form of cheating was suspected, the course instructor had no alternative but to "correct" the scoring. As a means to detect the initially unrecognizable but suspected cheating technique, the course instructor photocopied (in color) the class' next set of answer sheets prior to re-distribution. Not surprisingly, the same students returned their second laboratory examinations again claiming errors in grading. However, upon comparison of each student's answer sheet with the corresponding photocopy, a most deceitful and *artistically performed* act of cheating was revealed. Each student in question had placed correct answers to the right of incorrect responses or onto blank lines on their respective answer sheets. Using a red pen identical to that of the laboratory instructor, a red error line was extended over the newly written correct answers to project the effect of marking errors. The line extension was so artfully placed that any indication of answer sheet alteration was visually impossible to recognize (Figure 2). Upon instructor challenge, each student rejected any violation of academic wrongdoing by blaming their confederates for answer sheet alterations. However, each student was informed that he/she is responsible for any alterations placed upon their answer sheets. The return of each answer sheet for re-grading confirmed each student's guilt. Subsequent efforts to foil student attempts to employ the 'line extension' or write-in technique was readily blocked by the placement of subtle codes or markings next to incorrect responses or on blank lines prior to answer sheet re-distribution. The line extension technique was virtually neutralized. In recognition of the above case, one may draw a subtle reminder to the 1933 Fay Wray classic, by not merely

suggesting “*t’was beauty killed the beast,*” but rather, *t’was greed cost the grade.* On a more serious note, each student received a grade commensurate with his/her effort to deceive.

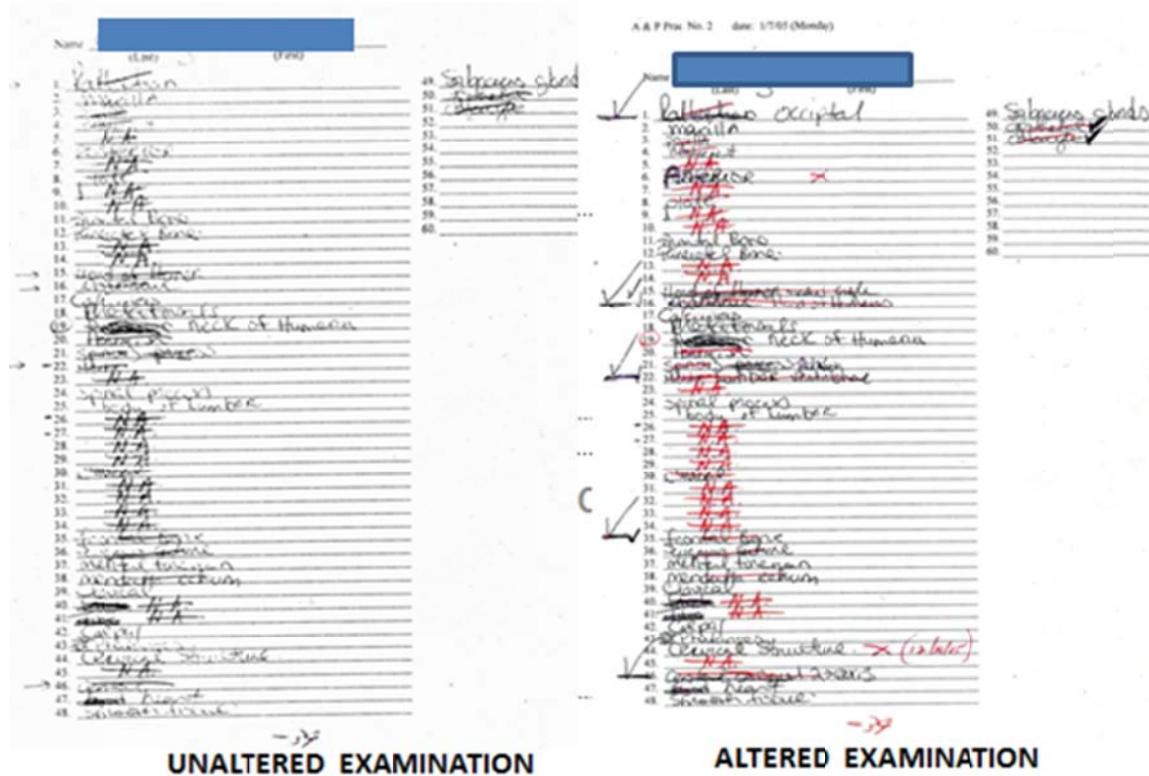


Figure 2. The “line extension technique” or student alteration of the returned answer sheet. Left: The unaltered practical examination answer sheet originally submitted to the laboratory instructor for grading. Right: The graded answer sheet which was altered by one of several students (and returned to the laboratory instructor for regrading. Check marks denote alterations on the returned examination (viz. Questions No. 1, 15, 16, 22, 46) (see Section 2.b).

3.3 Repeat the Exercise and Lie

During a *practical* quiz, students were asked to identify an antibody concentration employing a classic red blood cell clumping (hemagglutination) technique. The class was required to prepare a working strength red blood cell concentration followed by a challenge with dilutions of a complementary antiserum. End point titers were recorded by the student and reviewed by the course instructor, with the rewarding of an appropriate grade. A successful hemagglutination reaction at the expected end point was appropriately scored. A failure to attain any reaction was scored as an “F”. A single student (AB) failed to attain any hemagglutination reaction within the expected incubation period. Approximately 15 to 20 minutes later, the course instructor was beckoned to the student’s bench to re-evaluate the alleged slide in question; An end point was recognized at that point in time. However, the failing lab grade remained unchanged, as the course instructor had no alternative but to

suspect a surreptitious repeat of the assay in question, possibly in collusion with an unidentified confederate at a nearby work station. Student AB denied any form of academic deceit, and vehemently stated that the slide was an original. An appeal of the grade was subsequently submitted to the college's Academic Integrity Committee (AIC). Photographic "evidence" of a positive reaction was actually submitted to the AIC in an attempt to nullify the laboratory instructor's failing grade. Upon cross examination, the extended time factor was admitted by the student (whether intentionally or unintentionally), opening the case to suspected cheating and in turn, discrediting the student's argument. The alleged photographic "evidence" was deemed irrelevant, and the appeal was denied.

3.4 The Slide Switch Technique

Within many biological science laboratories, students are required to prepare slides *de novo*. Within the microbiology laboratory especially, the Gram stain remains a staple in the basic training of the health care professional.

Some students have difficulty in the preparation of bacterial specimens for microscopic analysis, despite step-by-step directions from a laboratory course manual or even following a movie-based tutorial (Cappucciono, Sherman, 2008; Lipson, 2011). Accordingly, students wanting in manual dexterity might ask their partners at the bench or a nearby confederate to perform the test in their place. Such cheating, referred to herein as the 'slide switch' *modus operandi* can be curtailed by a continued vigilance of student work or more effectively, by the placement of codes or student initials (via diamond pen) on slides used during a Gram stain *practical* quiz. One needs to point out importantly, that the student-prepared slide is not limited to the general microbiology laboratory, but is performed in other disciplines including but not limited to hematology (e.g., preparation and interpretation of the blood smear; Bain, 2005) or immunology/virology (e.g., immunofluorescence technology; Lipson, Shaikh, David, Qian, 2001).

4. When All Fails, Attack the Instructor

Efforts by the student to attain that minimum grade for acceptance into a highly selective professional program (e.g., nursing, medicine/dentistry), directs some students (when cheating has been temporarily thwarted), to seek any ambiguity in instructor course performance to discredit the final grade, or at the very least, demand an unwarranted grade re-calculation and modification.

4.1 Search for an Ambiguity in the Course Syllabus

A unique mode of student aggression took place against an instructor's wording of one facet within the course syllabus. Specifically, student XY was accepted to a stand-alone Master of Science program in nursing. An academic scholarship was conditionally approved for said student pending a grade of "B" or better in core nursing course. Upon the exposure of XY's cheating technique (see "The iPhone and the Internet" above), and in concert with less than

optimal laboratory grades, student XY desperately sought any possible portal to affect an inflated grade.

A slightly ambiguous but still invalid point raised by student XY concerned the failure by the course instructor to assign specific numerical conversions to exercises and reports receiving *letter* grades. Mean numerical test scores however, could readily be converted to final letter values in accord with ranges established in Department guidelines. Notwithstanding, student XY, in recognition of the subtle ambiguity, demanded a re-calculation of *all* class exercises/reports from letter grades to *mid-range* numerical scores as listed in the course syllabus. An appeal to the demand was filed with the appropriate standing committee. The appeal was countered by the course instructor suggesting that a grade above that of the initial numerical or base line conversion would be arbitrary and capricious, and virtually impossible to standardize. It was further indicated by the course instructor that grading of class exercises for example, was somewhat lenient, in recognition of students' first efforts within the time-restricted frame. Additionally, capitulation to use the numerical mid-range score might even entice some students to arbitrarily demand use of the upper limit of the listed numerical range. In consideration of all arguments, standing committee members voted to deny the appeal.

The lessons gleaned from the above case are multiple. Firstly, the case accentuates how a student will reach to almost any extent to inflate a grade, including an attack on the very teaching and organizational skills of the course instructor. Secondly, the case points out the critical need to carefully review every micro-component of a course syllabus, as the student will dissect said material to locate and then embellish the most subtle ambiguity. Thirdly, course instructors must recognize that the grading of reports, exercises or laboratory performance at times, may be subjective and serve as a nidus to question the instructor. The crystal clear syllabus, perhaps supplemented with a power point presentation of expected results, should reduce potential student challenges.

4.2 The Threat Letter

Student BZ was identified as a co-conspirator in a failed "crib sheet" cheating scheme (see Section 2a. The crib sheet and the confederate). Due to the dual nature of the case and schedules of AIC faculty members, student BZ could not be brought to the AIC prior to the summer break. Notwithstanding, student BZ most assuredly recognized that her *modus operandi* was exposed and that her grade was in jeopardy. Accordingly, student BZ pursued a desperate effort to discredit the course instructor's pedagogic strategies should the final course grade be deemed unacceptable, as follows.

The course instructor made every effort to prevent a recapitulation of the confrontation which transpired with BZ's co-conspirator. Accordingly, seating locations were changed prior to subsequent examinations, including the use of two examination sets. A most overt invigilation was put into effect, markedly curtailing if not totally preventing exchange of examination answers between students via the crib sheet technique.

Shortly before the semester's end, student BZ, in an attempt to preserve her grade, contacted the course instructor by E-mail, criticizing the instructor's anti-cheating efforts as affecting a "...humiliation" [harassment?] and creating an atmosphere of discontent by imparting a negative impact on said student's ability to do well on her examinations. BZ additionally threatened legal action. Clearly, the communication by student BZ was not persuasive and only threatening in nature, as BZ was unable to hide the fact of being treated equally to others in the class. Importantly, and for obvious reasons, the course instructor would not attend a one-on-one meeting with student BZ alone, and responded informally to queries before student onlookers at the end of class periods. Student BZ was awarded a final grade commensurate with her earlier collusion in academic deceit. No further action was taken by the student in question nor the course instructor.

4.3 The Vindictive Student

It would be an understatement to suggest that highly vigilant course instructors would not be looked upon with contempt and disdain for their efforts to thwart cheating – an act viewed by many students as the norm (Maramark & Maline, 1993). As suggested in a blog by outspoken computer scientist Panagiotis Iperiotis of the NYU Stern School of Business, contempt by the student creates an atmosphere of distrust as well as an environment resulting in constrained course evaluations. Among institutions placing weighted credence upon the student evaluation, lower pay raises, stymied academic promotions, and even non-renewal of contracts, may ensue (Parry, 2011; Popper, 2011). The issues expressed by Iperiotis are consistent in part, with published findings suggesting that, "...student responses to [formal evaluation] questions of effectiveness..." in fact "...do not truly measure teaching effectiveness" (Stark and Freishtat, 2014). Notwithstanding, one can understand the lassitude, especially among adjuncts and tenure track faculty in addressing incidents of classroom cheating.

4.4 The College/University Environment as a Factor in Preventing Academic Deceit

The prevention and/or detection of academic deceit by the vigilant course instructor will indeed impact, although acutely, on cheating in the college setting. A long term answer to the problem of cheating is necessary, perhaps through an environment which directs student thoughts away from the folkways of cheating or academic fraud. Although beyond the scope of this report, college/university faculty and administration need to arrive at a mechanism(s) wherein students are brought into an environment of "shared intellectual purpose", an excitement in learning, and a sense of integrity, wherein academic dishonesty should wane (Anonymous, 2013). In accord with others, there must be clear and continual reinforcement by vocal and written code of ethics to support academic integrity. Such efforts should start at freshmen orientation and continue throughout students' college careers (Alschuler and Blimling, 1995; Anonymous, 2013; McCabe and Trevino, 1993).

5. Academic Fraud by College Staff

5.1 Employee Integrity

Grades, examinations, and other forms of confidential items are submitted to college/university personnel (e.g., Office of the Registrar, copy room facilities) assuming a system of impeccable integrity. However, with reference to the apropos and smile-provoking expressions, ‘every man has a price’ and I’ll ‘make him an offer he can’t refuse’, it would not be unrealistic to suggest that violations in employee integrity might diffuse into the very system to which such employees are pledged to uphold.

5.2 Alteration of Transcripts

The fierce competition for entry into lucrative fields of employ or acceptance into certain highly selective post-graduate programs directs some students to bribe college personnel to alter transcripts. One relatively recent case may be directed to several employees at Touro College in New York, whereby grades were changed and degrees sold following bribes totaling hundreds or thousands of dollars (Italiano, 2009). Those responsible were eventually identified and prosecuted. Some years earlier, a 3 year grades for money (and/or sex) ring was exposed at the Diablo Valley Community College (in Contra Costa County, California), whereby bribes of \$600 were exchanged to change grades from an "F" to a grade of "A". A student report of the ring to college administration eventually led to convictions and the termination of non-student staff and the expulsion of student compatriots (Crupnick, 2007; Lee, 2007).

Illegal transcript alterations are relatively short lived, as the ever growing number of part-time and non-student employees and “takers” increasingly weaken such rings’ code of silence. However, and in recognition of the so-called “black hat hackers”, identities of those responsible for remote transcript alterations may in time, pose a threat [see the Sony Pictures hacking incident (Perlroth, 2014)]. Continual or sporadic monitoring of grade changes by college faculty, perhaps the occasional use of outside consultants, and/or computer software (if available), should impact on this type of academic fraud.

5.3 The Early Release of Examinations

Supervisory/administrative personnel often hire students to assist full-time employees at various college facilities. The college copy center is by no means an exception. Although student employees are forbidden from handling or assisting in the copying/release of examinations, the mere presence of students in the copy room presents a possible weak link in the protective chain of security. Camaraderie among students, in complement with the possibility of monetary exchanges, may set the stage for the lucrative act of selling advanced copies of scheduled examinations.

One unabashed incident occurred at the United States Naval Academy at Annapolis in the early 1990s, where over 100 midshipmen purchased either partial or total answers to unreleased copies of a scheduled electrical engineering examination. A student was charged with obtaining and then selling duplications of the examination at \$50 a copy. Twenty-four

midshipmen were subsequently expelled and 64 others were disciplined for violation of the academy's honor code (Galante, 2012; Schmitt, 1994).

Deceit of this type is extremely difficult to control, especially when pre-release of examinations are used by a limited number of individuals. Regardless, several faculty members at an (unnamed) institution of higher learning became suspicious of the possibility of pre-released examinations. A single faculty member independently launched her/his own investigation, with the case described as follows.

Several students approached a course instructor suggesting that some of their peers were in possession of an early released examination. The course instructor would normally have ignored such accusations if two of the accused were not continually absent, late to class (as much as 15 to 25 minutes), and used the lecture hall as a breakfast respite. Review of student records revealed low scores on an earlier examination, but surprisingly, scores in the high eighties and mid-nineties in two subsequent examinations/quizzes. A decision was made to bypass the copy room facility and personally photocopy the course's final examination. A placebo [final] examination was submitted to the copy room in order to review each student's reaction and general stance upon the realization that their alleged cheating scheme might have been compromised. The course instructor's suspicion was realized when one of the students in question (upon starting the final examination) exclaimed in utter surprise, "What the *explicative* is this?" and thoughtlessly asked, "Don't you use questions from the other exam?" Both students retired to their seats simply staring at their examinations. The grading of each student's examination yielded test scores in the 40's and 50's - markedly below that obtained on their two previous examinations. Other students in the class fared well on the final examination. No formal charges were aired against the two students in question, as hard evidence of early released examinations could not be ascertained. The above scenario did suggest to the course instructor that a breach in copy room security might have occurred. Suspicion of this type of academic deceit may easily be remedied by the course instructor personally preparing examination photocopies.

It has been reported that class attendance is indeed related to student grade point averages. Such findings have been ascribed to the model of "...engagement in deliberate practice..." wherein students receive relevant in - classroom instruction regarding that information needed to attain higher levels of performance. Indeed, many instructors format their examinations to material presented in lecture (Plant, Ericsson, Hill, Asberg, 2005; Schuman, Walsh, Olson, Etheridge, 1985). Large numbers of absences, tardiness, and distractions in the classroom setting (e.g., food and drink) would expectedly compromise the learning process. Items crossing that *fine line* of the refreshing morning cup of coffee, should be prohibited.

5.4 The "Padding" of Grades

"Big Ten" college sports programs such as football and basketball, not only improve school spirit and enhance student morale, but also serve a revenue generating function (i.e., the selling of millions of dollars of television rights). The University of North Carolina at Chapel Hill (UNC-CH) for example, cleared some \$30 million some one or two years ago from their

[men's] winning football and basketball teams, not including \$397 million in gifts and grants punctuated by the aforementioned athletic programs (Easterbrook, 2015).

Academics, coaches, and staff of the “Big Ten” or “Division One” schools assuredly recognize the significance of the winning team. One might even suggest that among such institutions' sports programs, the “winning-is-everything” philosophy prevails, or at least is projected to student athletes (Butt, 1976). Accordingly, every effort is made to keep athletes both physically and academically eligible in accord with college athletic organizations' mandates. Contact sports such as football and to a lesser extent basketball are two of the more physically demanding college activities among athletes in the United States. Some athletes have the mindset such that losing is not an option, in complement with the hope of entering the professional ranks (Easterbrook, 2015). Exhaustive training sessions often compete with time normally set aside for academics. With that said, “grade-padding” has moved into the milieu of college sports.

As exposed during the summer of 2011, one of the “...biggest academic fraud...” cases in NCAA history was recognized at the UNC-CH. Upon initial reporting by former UNC-CH education counselor Mary Willingham (Kane, 2015; Smith & Willingham, 2015) and coupled with a subsequent eight month investigation by former Department of Justice prosecutor Kenneth Wainstein, it was revealed that some 3,100 students (50% of whom were student athletes) during an 18 year period (1993 -2011), were directed to hundreds of non-attendance, unsupervised “paper classes” within the university's African and Afro-American (AFAM) department. It was reported by Wainstein that UNC-CH football/basketball team members and other non-athlete students near or on academic probation, were encouraged to register for such “paper classes” by education counselors. A term “paper” served as the sole course requirement, receiving high grades by an AFAM non-faculty department manager (Glum, 2015). An internal investigation of such academic fraud subsequently resulted in dismissals and resignations of university employees. It was suggested that university officials were aware of the grade padding scheme, but took no action to correct the problem (Rosenberg, 2014). NCAA officials are currently investigating the UNC-CH grade padding scandal to determine what sanctions might be applied to the university's athletic program. In concert with the grade padding revelation, two former student athletes (in prelude to a class action suit) initiated litigation against the NCAA and the University of North Carolina for negligence, by failing to “implement adequate monitoring systems to detect and prevent” such academic fraud (Solomon, 2015a,b).

Within a related case, NCAA investigators recently charged Syracuse University basketball coach Jim Boeheim as ultimately responsible for failing to monitor indiscretions on the part of the University's athletics programs. Charges included academic fraud, undue benefits to players, and a failure to appropriately monitor drug testing. Sanctions handed down to Boeheim included the vacating of 108 wins, a suspension from nine Atlantic Coast Conference games, a loss of 12 scholarships, and a five year probationary period (Borzello, 2015). An atmosphere of academic fraud was said to have been maintained by director of basketball operations, Stan Kissel and staffers (tutors) to maintain athlete eligibility. Kissel parenthetically, had been hired by Coach Jim Boeheim to correct the university's academic

problems. According to NCAA findings, Kissel and support staffers obtained E-mail accounts from players to directly send non-student promulgated academic coursework to faculty in order to maintain required grades for student-athlete eligibility (Adams, 2015). The above findings point out that violations of academic integrity are not limited to student initiatives, but may very well branch to college/university academics and non - teaching staff.

6. The Emotional Appeal.

Some students use the emotional appeal in an attempt to unjustly elevate their grades. A student would firstly request a meeting with the course instructor to review a final course grade. Upon the recalculation and sustaining of the grade in question, the student might suggest that he/she "...worked hard and critically needs a higher grade for admission ..." into a selected academic program. With the instructor voicing a steadfast negative response, the student would often reply, "Who would know?", "I would never tell anyone," or "What can I do to raise the grade?"

The emotional appeal might further be exemplified by the student bringing an infant to the grade appeal. As reported by one instructor for example, a student presented her concerns to a professor accompanied by a fellow (female) classmate with a young toddler in hand. Whether the latter was truly a component in the persuasion effort, or simply a result of the babysitter out sick, will never be known. However, an unjustified move by the professor to raise the grade at that point, would only violate institutional codes of academic integrity.

7. Grades for Sex

Prosecution of, or disciplinary action against college/university faculty relevant to 'quid pro quo' harassment (e.g., grades for sex) is rare, obviously due in part to the secretive nature of the act. Additionally, it is difficult to discern whether student-faculty intimacy is mutual, instructor initiated, or student promoted for the sole purpose of obtaining an inflated grade. The literature is scant on student-instructor/professor sexual relationships, but some works have touched upon the subject. One brief study, encompassing telephone interviews with twenty-five faculty and current or former students, indicated that the latter admitted having "consensual" sexual relations with their course instructors/professors. Some two-thirds of the intimate relationships were said to have been initiated by the student or were mutually consenting (Bellas & Gossett, 2001). Although debated by some, most college level pedagogics agree that the awe-inspiring intellect and power dynamic of the professor makes voluntary sexual consent by the so-called adult student [18+ years of age] highly suspect (Bellas & Gossett, 2001, Dank, 2018; Richards, Crittenden, Garland, McGuffey, 2014; Chards; Schover, Levenson, Polpe, 1983; Svrluga, 2015).

The vast majority of student-professor sexual relationships are anecdotal, reported by students on internet sites years after graduation. Such internet exposés a' la the tabloid press, are inappropriate for inclusion in this report. However, some relatively substantive reports

denote the extent by which student-faculty fraternization occurs. A poll obtained by the United Kingdom's (UK's) *Times Higher Education* journal revealed that some 18 percent of college faculty [i.e., among respondents] admitted having intimate sexual contact with a student at least once during their careers (Anonymous, 2008). Similarly, a randomly selected poll of some 1,000 individuals (481 respondents) listed in the American Psychological Association (APA) *Directory*, revealed that 12% of psychology educators (presumably college/university faculty or teaching staff) reported sexual contact (i.e., intercourse or genital stimulation) with their students. Such activity occurred primarily between male educators and their female students (Pope, Levenson, Schover, Leslie., 1979).

Consensual sexual relations between students and faculty *had been* largely tolerated by college/university administrators. However, recent addenda to Title IX legislation have opened an avenue by which consensual sex between student and professor might readily be translated into claims of sexual harassment. Accordingly, student-faculty fraternization is increasingly being frowned upon. Harvard administrators for example, recently moved to ban any “sexual or romantic relationships” between professors and undergraduates. Administrators at Yale and the University of Connecticut have also placed similar constraints upon its faculty. The Harvard policy oddly, does not ban sexual relationships between professors and graduate students, with the caveat that the graduate student “does not grade, supervise or evaluate” junior students (Lauerman, 2015). Student-professor fraternization through the clandestine liaison or rendezvous under the platitudinous guise of a luncheon/dinner research meeting, makes university policies banning fraternization difficult to enforce (Schover, Levenson, Pope, 1983). Coupled with student-initiated carnality to secure an unearned grade (Anonymous, 1993), the efficacy of university administrative edicts prohibiting student-faculty fraternization is expected to have a less than expected impact.

Cheating is rampant in the college community, occurring in the most prestigious academic institutions to the small two-year publicly funded community colleges. For example, up to 80% of student interviewees admitted cheating in some form, or would cheat if the opportunity was presented. Indeed, academic dishonesty appears to be increasing in frequency (McCabe, Butterfield, Trevino, 2012b; Sikmba & Cullin, 2012). Among pre-medical and pre-dentistry students especially, the pressure to maintain that inordinately high GPA can be overwhelming, leading a larger percentile of student to partake in some form of academic deceit (Gallant et al., 2013; ETS/Ad Council, 2016). Efforts to reduce cheating are fraught with difficulty, as many students perceive cheating as a societal norm. The front line educator (the instructor/professor) is commonly called upon to prevent cheating in their classroom setting. Within some athletic programs, academic fraud/cheating may be perpetuated by university managerial and support staff (e.g., by directing students to “paper classes”, falsification of authorships in assignments) whereby eligibility is maintained for the parent institution to reap enormous financial benefits from the mass media. Vigilance, recognition, and an understanding of those mechanistic ploys effecting academic deceit and fraud should impact on the extent of cheating in the academic setting (Table).

Table 1. Suggested Measures to Reduce the Frequency of Cheating on the Undergraduate Setting

<u>Selected Cheating Methods</u>	<u>Preventative Efforts/Comments</u>
1. The “crib sheet” (“cheat sheet”)	Use alternate seating arrangements during the examination; Rearrange examination questions; Construct different exam; Surreptitious vigilance
2. Cheat sheet in the bottle	Disallow drinks, food, snacks, etc., during examination periods
3. The iPhone	Demand the placement of <i>both</i> hands on desks during examination periods
4. The Smartwatch	Ban smartphones and digital watches during examination periods; Considered switching to analytical or interpretive types of questions
5. Online learning	Use online anti-cheating software or have examinations taken in live settings supervised by proctors.
6. The line extension technique	Place identifying codes on answer sheets with empty lines and lines with incorrect answers to recognize examination alternations upon return
7. Repeat the laboratory exercise and lie	Place time limits on practical (hands-on) laboratory quizzes; Place student initials on slides, plates, etc., where appropriate
8. The slide switch technique	Place time limits on practical (hands-on) exams; Place student initials on slides.
9. The crib sheet and the confederate	Separate students suspected of exchanging crib sheets; surreptitious perusal (i.e., rear or tangential instructor movements) tricking students of instructor whereabouts.
10. Question the syllabus	Leave no vague issues on the syllabus; Clearly state how grades will be calculated and interpreted from written reports
11. The threat letter	Retain a written record of all anti-cheating efforts; Carefully review letter for any substantive issues. Analyze issues raised by the student which might equate to Title IX or other documents relating to harassment.
12. The vindictive student	Continue all anti-cheating efforts [which often infuriates students who believe that cheating is the norm]. Overtly critical course evaluations are expected from students why rely on cheating to inflate their grades.
13. Employee integrity	
13.1. Alteration of transcripts by	Sporadic monitoring of grade changes by administrative

college registrar personnel.	personnel. Through metadata analysis, authenticate grade changes on computer records. Periodically hire outside consultant to review grade changes with faculty requests.
13.2. Early release of examinations	Difficult to confirm with few people involved; Recognition of large variations in examination/quiz scores within the semester; Photocopies may need to be made by the course instructor.
13.3. The “padding” of grades	Report incidences to administrative personnel, of students directed to “paper classes” (viz., taught by unauthorized personnel) for the sole purpose of raising grade point averages (GPAs); Report incidences to administration of any discovery of plagiarism perpetrated by in-house personnel (see Sec. 61d).
14. The emotional appeal	Tactfully state that grade changes can only be made on errors in transcription/grading.
15. Grades for sex	Reject (and document) any student suggestion of fraternization.

Acknowledgments

This work was supported in part, by St. Francis College Research and Development grants and special subsidy funds from the New York City College of Technology, City University of New York. The authors wish to thank their eminent colleagues, Drs. Marina Gair and Esther Klein, for assistance in literature searches and valuable comments relating to issues addressed in this review. The authors also wish to thank H. P. Lipson, M.S.E., for proofreading the manuscript. Note: Initials used in this review were changed to prevent student identification.

References

- Adams, M., Banowsky, B., Hill, T., Howard, R.C. Jr., Maturi, J., & Sank, G. (2015). Syracuse University Public Infractions Decision, March 6, 2015. NCAA Committee on Infractions Panel. Retrieved from: <http://www.ncaa.org/sites/default/files/Syracuse%20Final%20Public%20Infractions%20Decision%20%28Corrected%29.pdf>
- Alschuler, A.S., & Blimling, G.S. (1995). Curbing Epidemic Cheating Through Systematic Change. *Col. Teaching*, 43, 123-127. <http://dx.doi.org/10.1080/87567555.1995.9925531>
- Alt, D., & Geiger, B. (2012). Goal orientation and tendency to neutralize academic cheating: An ecological perspective. *Psychological Stud.*, 57, 404-416. <http://dx.doi.org/10.1007/S12346>
- Anonymous. (1993). U. of Virginia Considers Wide Ban On Intimate Teacher-Student Ties.

- New York Times. Retrieved from: <http://www.nytimes.com/1993/04/04/us/u-of-virginia-considers-wide-ban-on-intimate-teacher-student-ties.html>. April 4, 1993.
- Anonymous. (2008). Sex and the university. Teacher Support Network, Times Higher Education. 5/22/08. <http://www.timeshighereducation.co.uk/401935.article>
- Anonymous. (2013). Academic Dishonesty. The Center for Excellence in Teaching. Minnesota State University, Mankato, MN. <http://www.mnsu.edu/cetl/teachingresources/articles/academicdishonesty.html>
- Anonymous. (2016). Definitions & Examples of Academic Misconduct. The Center for Student Conduct. Division of Student Affairs. Access-Service-Engagement. Univ. of Cal. at Berkeley, Berkeley, CA. <http://sa.berkeley.edu/conduct/integrity/definition>.
- Bain, B.J. (2005). Diagnosis of the blood smear. *NEJM*, 353, 498-507. <http://dx.doi.org/10.1056/NEJMra043442>
- Bellas, M.L., & Gossett, J.L. (2001). Love or the “lecherous professor”: Consensual sexual relationships between professors and students. *Sociological Quart*, 42, 529–558. <http://dx.doi.org/10.1111/j.1533-8525.2001.tb01779.x>
- Borzello, J. (2015). Jim Boeheim: Penalty 'unduly harsh.' ESPN Men’s basketball. Associated Press. http://espn.go.com/mens-college-basketball/story/_/id/12513107/jim-boeheim-syracuse-orange-says-ncaa-sanctions-were-unduly-harsh#comments
- Bowers, W. J. (1964). *Student dishonesty and its control in college*. Bureau of Applied Social Research, Columbia University. p. 40, 42. Van Nostrand Reinhold Co., New York.
- Bronfenbrenner, U. (1979). *The Ecology of Human Development: Experiments by Nature and Design*. Harvard University Press, Cambridge, MA.
- Butt, D.S. (1976). *Psychology of Sport. The Behavior, Motivation, Personality, and Performance of athletes*. Van Nostrand Reinhold Co., New York
- Cappuccino, J.G., & Sherman, N. (2008). Gram stain. 73-76. *Microbiology: A Laboratory Manual* (8th ed.). Pearson, Benjamin Commings, New York.
- Charara, S. (2015). Apple Watch success means universities are banning all watches in exams. Any devs working on a Cheat Sheet Apple Watch app can stop right now. APPLE WATCH NEWS. May 11, 2015. Retrieved from: <http://www.wareable.com/apple-watch/apple-watch-launch-means-universities-will-ban-all-watches-in-exams-804>
- Chugh, R. (2015). Is it cheating to wear a smartwatch into an exam? Instead of banning watches from exams we could change assessment strategies. The Age. Retrieved June 9th, 2015 from: <http://www.theage.com.au/comment/is-it-cheating-to-wear-a-smartwatch-into-an-exam->

- 20150609-ghixgl.html Cluskey, G. R. Jr., Ehlen, C. R., & Raiborn, M. H. (2011). Thwarting online exam cheating without proctor supervision. *J. Acad. Bus. Ethics, 4*, 1-7.
- Crown, D. E., & Spiller, M. S. (1998). Learning from the literature on collegiate cheating: A review of empirical research. *J. Business Ethics, 17*, 683–700.
- Dank, B. M. (2008). Out of the campus closet: Student professor consensual sexual relationships. *Sexuality & culture, 12*, 61-67. <http://dx.doi.org/10.1007/s12119-007-9016-4>
- Easterbrook, G. (2015). Dark Days at Chapel Hill. *The Wall Street Journal* (Online) [New York, NY]. 27 Feb. 2015.
- ETS/Ad Council. (2016). Cheating is a Personal Foul. The Educational Testing Service and Ad Council Campaign to Discourage Academic Cheating. *Educational Testing Service*, Princeton, NJ. Retrieved from: <http://www.glass-castle.com/clients/www-nocheating-org/adcouncil/research/cheatingfactsheet.html>
- Etter, S., Cramer, J.J., & Finn, S. (2006). Origins of Academic Dishonesty: Ethical Orientations and Personality Factors Associated with Attitudes about Cheating with Information Technology. *J. Res. Technol. Edu., 39*, 133-155. <http://dx.doi.org/10.12691/education-2-11-9>
- Galante, M. (2012). 134 seniors at the Naval Academy were involved in a cheating ring in 1994. The ten biggest college cheating scandals. Business Insider. Retrieved Aug. 31, 2012 from: <http://www.businessinsider.com/the-10-biggest-cheating-scandals-to-rock-college-campus-2012-8?op=1#ixzz3UMfAlAiq>
- Gallant, T.B., Anderson, & M.G., Killoran, C. (2013). Academic integrity in a mandatory physics lab: the influence of post-graduate aspirations and grade point averages. *Sci. Eng. Ethics, 19*, 219-235. <http://dx.doi.org/10.1007/s11948-011-9325-8>
- Glum, J. (2015). UNC cheating scandal: Student-athletes took ‘paper classes’ for good grades. *International Business Times*; Sunday. Retrieved February 22, 2015 from: <http://www.ibtimes.com/unc-cheating-scandal-student-athletes-took-paper-classes-good-grades-1711113>
- Hein, B. (2015). The best Apple Watch apps for cheating at math and science. Mobixee’s educational suite of Apple Watch apps. Retrieved from: <http://www.cultofmac.com/318046/the-best-apple-watch-apps-for-cheating-at-math-and-science/>
- Italiano, L. (2009). Diploma mill scammer sentenced to prison in Manhattan. *New York Post*. Retrieved from: <http://nypost.com/2009/07/31/diploma-mill-scammer-sentenced-to-prison-in-manhattan/>
- Kane, D. (2015). UNC-CH and Mary Willingham reach tentative settlement.

<http://www.newsobserver.com/2015/02/24/4580749/unc-ch-and-mary-willingham-reach.html#storylink=cpy>

- Krupnick, M. (2007). DVC grade scandal get wider. Daily News Clips. Contra Costa Times, 6/12/07. California State University. Retrieved from: <http://www.calstate.edu/pa/clips2007/june/12june/grades.shtml>.
- Lauerman, J. (2015). Harvard Tells Profs Not to Sleep With Undergrads. Bloomberg News. Retrieved from: <http://www.bloomberg.com/news/articles/2015-02-05/harvard-bans-professors-from-having-sex-with-undergraduates>.
- Lee, H. K. (2007). Another 15 former Diablo Valley College students charged in grade scandal. San Francisco Chronicle. Retrieved 11-29-2007 from: https://en.wikipedia.org/wiki/Diablo_Valley_College#Grade-fixing_scandal
- Lipson, S. M., Shaikh, F., David, K., & Qian, L. (2001). Detection of precytopathic effect of enteroviruses in clinical specimens by centrifugation-enhanced antigen detection. *J. Clin. Microbiol*, 39, 2755-2759. <http://dx.doi.org/10.1128/JCM.39.8.2755-2759.2001>
- Lipson, S.M. (2011). Steven Lipson – The Gram stain. Retrieved March 30th, 2011 from: <http://www.youtube.com/watch?v=U96kOIPtqxQ>
- Maramark, S., & M.B. Maline. (1993). Academic dishonestly among college students. p. 5. Issues in Education. Office of Research, U.S. Department of Education Research and Development, Washington, DC.
- McCabe, D. M., Butterfield, K.D., & Trevino, L.K. (2012a). *Cheating in College: Why Students Do It and What Educators Can Do about It*. pp. 91-112. The Johns Hopkins University Press, Baltimore, MD.
- McCabe, D. M., Butterfield, K.D., & Trevino, L.K. (2012b). *Cheating in College: Why Students Do It and What Educators Can Do about It*. pp. 130-147. The John Hopkins Univ. Press, Baltimore. MD.
- McCabe, D.L. (2005). Cheating among college university students: A North American perspective. *Int. J. Edu. Integra.*, 1, 1-11.
- McCabe, D.L., & Trevino, L.K. (1993). Academic Dishonesty: Honor Codes and Other Contextual Influences. *J. High. Edu.*, 64, 522-538. <http://dx.doi.org/10.2307/2959991>
- Migicovsky, A., Durumeric, Z., Ringenberg, J., & Halderman, J.A. (2014). Outsmarting Proctors with Smartwatches: A Case Study on Wearable Computing Security. In N. Christian and R. Safavi-Naini (eds.), Proc. 18th Intl. Conference on Financial Cryptography and Data Security, March, pp. 89-98. Springer Publ., New York. 8FC 2014, LNCS.
- Miller, A.D., Murdock, T.B., Anderson, E.M., & Poindexter, A.L. (2007). *Psychology of academic cheating*. pp. 9-32. Academic Press, New York.

- Northcutt, C.G., Ho, A.D., & Chuang, I. L. (2015). *Detecting and preventing "multiple-account" cheating in Massive Open Online Courses*. arXiv:1508.05699 [cs.CY].
- Parry, M. (2011). NYU Prof Vows Never to Probe Cheating Again—and Faces a Backlash. The Chronicle of Higher Education. Retrieved July 21, 2011 from <http://chronicle.com/blogs/wiredcampus/nyu-prof-vows-never-to-probe-cheating-again%E2%80%94and-faces-a-backlash/32351>
- Perloth, N. (2014). New Study May Add to Skepticism Among Security Experts That North Korea Was Behind Sony Hack. The Business of Technology. *The New York Times*. 12/29/14. p.B4. Retrieved from <http://bits.blogs.nytimes.com/2014/12/24/new-study-adds-to-skepticism-among-security-experts-that-north-korea-was-behind-sony-hack/>
- Plaks, A.H. (2004). "Research on the Gest Library "Cribbing Garment": A Very Belated Update". *The East Asian Library Journal*, 11, 1-39.
- Plant, E. A., Ericsson, K.A., Hill, L., & Asberg, K. (2005). Why study time does not predict grade point average across college students: Implications of deliberate practice for academic performance. *Contem. Edu. Psychol*, 30, 96-116. <http://dx.doi.org/10.1016/j.cedpsych.2004.06.001>
- Pope, K.S., Levenson, H., Schover, L., & R. Leslie, R. (1979). Sexual intimacy in psychology training: Results and implications of a national survey. *Amer. Psychol.*, 34, 682-689. <http://dx.doi.org/10.1037/0003-066X.34.8.682> [
- Popper, B. (2011). NYU Professor Learns It Doesn't Pay to Catch Cheating Students. Observer/Innovation. Retrieved from <http://observer.com/2011/07/nyu-professor-learns-it-doesnt-pay-to-catch-cheating-students>
- Richards, T.N., Crittenden, C., Garland, T.S., & McGuffey, K. (2014). An exploration of policies governing faculty-to-student consensual sexual relationships on university Campuses: Current strategies and future directions. *J. Col. Stud. Devel.*, 55, 337-352. <http://dx.doi.org/10.1353/csd.2014.0043>
- Rosenberg, B. (2014). UNC-Chapel Hill Should Lose Accreditation. The Conversation. Opinion and Ideas. *Chronicle of Higher education*. October 24, 2014.
- Ryan, J.G., Angelo, C.A., & Dryer, H.B. (2014). *Title IX Compliance Seminar manual*. Cullen and Deskman, LLP. 100 Quentin Roosevelt Boulevard, Garden City, NY.
- Schmitt, E. (1994). An inquiry finds 125 cheated on a Naval Academy exam. *The New York Times*, January 13, 1994. p. B8.
- Schuman, H., Walsh, W., Olson, C., & Etheridge, B. (1985). Effort and reward: The assumption that college grades are affected by quantity of study. *Social Forces*, 63, 945-966. <http://dx.doi.org/10.1093/sf/63.4.945>

- Shover, L.R., Levenson, H., & Pope, K.S. (1983). Sexual relationship in psychology training: A brief comment on ethical guidelines and coping strategies. *Psychol. Women Quart.*, 7, 282-285. <http://dx.doi.org/10.1111/j.1471-6402.1983.tb00841.x>
- Simha, A., & Cullen, J.B. (2012). A comprehensive review on cheating. *Int. J. Cyber Ethics in Edu.*, 2, 24-44. <http://dx.doi.org/10.4018/ijcee.2012100102>
- Singer, N. (2015). *Online Test-Takers Feel Software's Uneasy Glare*. New York Times. New York Edition, p. B1, April 6, 2015.
- Smith, J. M., & Willingham, M. (2015). *Cheated. The UNC Scandal, the Education of Athletes, and the Future of Big-Time College Sports*. Univ. of Nebraska Press, Lincoln, NE. 304 pp.
- Solomon, J. (2015a). Ex-North Carolina athletes sue NCAA, UNC over academic scandal. January 22, 2015. ET National College Football Writer. Retrieved from <http://www.cbssports.com/collegefootball/writer/jon-solomon/24984287/ex-unc-athletes-sue-ncaa-unc-over-academic-scandal>
- Solomon, J. (2015b). What Syracuse's NCAA case revealed about academic fraud. CBS Sports. Retrieved from <http://www.cbssports.com/collegefootball/writer/jon-solomon/25096871/what-syracuses-ncaa-case-revealed-about-academic-fraud>
- Stark, P.B., & Freishtat, R. (2014). An Evaluation of Course Evaluations. *Science Open*. <http://dx.doi.org/10.14293/S2199-1006.1.SOR-EDU.AOFRQA.v1>
- Svrluga, S. (2015). Harvard formally bans sexual relationships between professors and undergrads. *Washington Post*. February 5, 2015.
- Whitley, B. E. (1998). Factors associated with cheating among college students: A review. *Res. High. Edu.*, 39, 235-274. <http://dx.doi.org/0361-0365/98/0600-0235>

Copyright Disclaimer

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/3.0/>).