

Witnessing of Cheating-in-Exams Behavior and Factors Sustaining Integrity

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Abstract

This-study is a-fraction of a-larger-research on cheating, at the-School of Engineering (SOE). The study-design used a-descriptive-survey-approach and a-document-analysis. A-designed-confidential self-report-questioner was used as the main-instrument, for this-study, with the-sample-size of 100-subjects and response-rate of 95%. The-tool was pre-tested, to-ensure its-validity and reliability. The-study focused on the-Classical-Test-Theory and on the-Theory of Reasoned-Action. The-data collection-instrument was subjected to the-statistical-analysis to-determine its-reliability via Cronbach's alpha-coefficient, and found high inter-item consistency ($\alpha > 0.9$). The-results of the-survey revealed that only 18% of the-respondents admitted that they-have-never cheated; however, they have-witnessed an-array of cheating-techniques used by their-classmates, which illustrates, that students are exceedingly-inventive and opportunistic, in-nature, and they are ready-to-use any-method, to-achieve their-ultimate-goals (mainly, good-grades). 22% of those never-cheated, confessed that they-were-afraid of being caught by the-invigilators; while only 6% stated that 'I was afraid of being reported by my fellow-classmates'. The-absence of 'risk' (fear of penalties), is above all, attention-grabbing, to this-study, as it implies that SOE' students do-not bothered-much about getting-caught cheating. Recommendations on-measures, to-be applied, to-fight cheating-menace, were presented, in-conjunction-with suggestions, for further-research, in this-area. In-synopsis, the-maintenance of academic-integrity, by all-stakeholders, is a-continuing and enduring-task, which will bring-in rewards, but *only* if attentively-managed.

Keywords: academic misconduct, engineering undergraduate, students, questioner, peer-pressure.

1. Introduction

1.1. Cheating in examinations

In many-social and economic-contexts, individuals often-face the-choice, to-adopt different-types of opportunistic or, even, illicit-behavior, to-increase their-welfare, taking-advantage of others, for personal-interests. Leaving-aside major-crimes, there-is abundant-evidence, indicating that cheating on taxes, free-riding on public-goods, claiming-benefits, without-entitlement, bribing and corrupting public-officials, abusing of drugs and drinking, smoking, when-not-permitted, as-well-as other-types of dishonest-behaviors, are widely-diffused-phenomena, in most-countries (Kleven *et al.*, 2011; Powell *et al.*, 2010; Clark & Loheac, 2007; Fortin *et al.*, 2007).

On the-other-hand, Lasch (1984) observed that 'competition (in the-business-community), not so much on the desire to excel, as on the struggle to avoid crushing-defeat'. These-pressures are felt among young-people as-well; for-example, fear of failure, at-examination can temp some-students, to-opt to academic-dishonesty-acts, such-as illicit-behavior of cheating. Evidence of cheating-behavior mostly-refers to-academia (Ferrer-Esteban, 2012; Bertoni *et al.*, 2012; Carrel *et al.*, 2008; Mc Cabe, 2005; McCabe & Trevino, 1999). Callahan (2004) argues that educational-achievement in today's culture, is a-matter of economics, as-students-realize that obtaining a-degree (with high-grades) is linked to-a-chance of financial-success, in a very-competitive-market. There-is also a-prevailing-sense that today's 20-year-olds have a-much-greater-sense of entitlement, than any of the-previous-generations; employers, who-feel that the current-generation wants higher-salaries, flexible-work-hours, instant-job-gratification, and immediate- success, have nicknamed them the 'Entitlement-Generation' (Associated Press, 2005).

On the-other-hand, the transition from high-school to-university is, generally, related-to, sometimes, shocking-experiences (new-freedoms and new-demands). According to (Wangeri *et al.*, 2012) students joined universities, in-Kenya, experience personal-challenges, ranging from a-cultural-shock, due-to the diversities of the-previous and the-present-environment, unmet-expectations, and fear of unknown. Yet, they-are expected to-settle-fast, in the-university-life. Transitional-challenges faced by-both; male and female-students, in-Kenyatta-University, Kenya were-identified on-the-basis of level of autonomy, social-relationships, and compatibility with other-students, in the-hostels, access to support-services, feeding-habits, and adjustment to academic-programs, among-others.

The-transition-period is-also a-major-break, from parental and teacher-supervision; for the-first-time there-is *no* direct, and, even, indirect, supervision, *no* visits from-parents, whatsoever. No-one is checking, if one is going-regularly to-class, eating balanced-diet, where one sleeps, student can-even-leave the university-campus and no-one will-notice-it, for some-time. In addition, there-is an-increasing peer pressure, to-have-fun, to-indulge in drinking, smoking and taking-drugs. Moreover, for some-students, for the first-time, they can

experiment, openly, with sex, as most our-universities are gender-mixed. Basically, students have new, never-before-experienced-freedoms, full-autonomy, as they decide, for themselves, when-to-sleep and when-to-wake-up; what-to-wear, for school and leisure, which friends-to-keep, and so-on. The-time-constraints and other-concerns, increase-dramatically; for-example, in-addition to-attending lectures, tutorials and labs, one might-have to-look for alternative-accommodation (as the-hostels' capacity is insufficient), to-spread the-money, available for food, that it-will-last up to the-end of the-month, and identify with one's religious-group, to-mention just-a-few. These new-pressures, individually or collaboratively, often, lead to-temptations to-cheat in-exams and in-assignments.

The-guide, developed by-the-University of Texas, has identified 23 different-types of behavior which could-be-interpreted as-cheating: Coughing or using hand-signals; Concealing notes, on-clothing, hands, caps, shoes or in-pockets; Writing in answer-booklet, prior to-exams; Writing information on-the blackboard, desks or keeping notes, on-the-floor; Obtaining copies of an-exam, in-advance; Passing information, concerning specific-questions or answers, from an-earlier-class, to a-later-class; Leaving information in-the-restroom; Exchanging exams, so that neighbors have identical-test-forms; Having a substitute take a-test and providing false-identification, for the-substitute; Fabricating-data for lab or clinical-assignments; Changing a-graded-paper or answer-sheet and requesting that it-be-graded; Failing to turn in-a-test, and later suggesting, that the-faculty-member has-lost-it; Stealing another-student's graded-test and affixing one's own-name to-it; Submitting computer-programs, written by-another-person; Recording two-answers, one on one-test-form, one on another-answer-sheet; Marking an-answer-sheet, to enable another-student to-see the-answer; Putting large-circles around two-adjacent-answers and claiming to-have-had the-correct-answer; Stealing an-exam, or other-assignment, for transmission to-someone, in another-section, or for placement in a-test-file; Using a programmable-calculator, to-store test-information, or otherwise passing information, using electronic-devices; Taking another student's computer-assignment printout, from a-computer-lab; Destroying library-material, to-gain academic-advancement; Transferring a computer-file from one-person's account to-another; or Transmitting posted-answers to-exam, to-student in testing-area, via pager or radio-transmitter.

In-addition, the-easy-availability of relatively-cheap and small-electronic-devices has increased the capacity of cheaters, to obtain helpful-information, in the-exam-room, itself. In-some-cases, candidates can even purchase questions, in-advance, or have the-answers, delivered-electronically, in the-exam-room (UNESCO, 2003). High-tech-devices have enhanced the-learning-environment and subsequently performance, in many-legitimate-ways. These same-devices, however, have-also-advanced the-machinery of cheating.

Cheating is an-ethical/moral-breakdown, that troubles an-individual and the-society (school, institute or university) in the-following-manner (Ten Reasons not to Cheat, *n. d*):

Cheating harms an-individual by: (1) rationalizing their-cheating, which leads to more-cheating (in and out of academics) and compromises their-own ethical/moral-code, (2) failing to-engage in the authentic-learning and mastery of academic-material, and, thus harming their own-education, (3) damage their-reputation (they are frauds, liars and intellectual-thieves) and facing consequences that can-be-serious, and (4) reducing the-enjoyment of accomplishments, earned through genuine-effort.

Cheating harms society by: (1) creating an-environment of broken-trust, which then limits the-ability of students and faculty, to-work-together, meaningfully and collaboratively, (2) leading to more-cheating and a lowering of standards, as cheating becomes 'normal' and the only-way, to-compete, in the-school-culture, (3) lowering standards, which can-reduce the-moral-authority of school-leaders, (4) forcing cheaters to-depend on authentic-learners, because cheaters have *not* learned or mastered their-own academic-work and rely on the-creative-work of others,(5) requiring creative and honest-students/citizens, to-spend-time and effort protecting themselves (intellectual-property, ideas, writing, exam-answers, and so-on) from cheaters, which is a non-productive work, and (6) awarding cheaters with unearned-rights/privileges and scholarships.

1.2. Previous-studies

There-is ample-evidence, showing that students' cheating has-worsened, over the last-few-decades, becoming a-widespread-practice in schools, in college, and, even, in high-ranked-universities (Dee& Jacob, 2012; Davies *et al.*, 2009; McCabe, 2005; Rimer, 2003), yet, there is little-evidence on-the-effects of cheating-behavior for educational-outcomes, as-well-as on-the-measures-taken, to-contrast its-diffusion (Keyes, 2004). Experts say, that cheating has-grown, hand-in-hand, with high-stakes testing-systems, such as the-No-Child Left-Behind-Act (2001) in the-U.S.A. (Jacob, 2005); it has become-easier and more-widely-tolerated, as both; schools and parents, actually, fail-to-give students clear-messages, about what-is-allowed, and what-is-prohibited (The New York Times, 2012).

Large-scale-cheating has-been-uncovered, at some of the-USA most-competitive-schools, like: the-Stuyvesant High-School, in-Manhattan; the-Air-Force-Academy and, most-recently, in the-Harvard University (The New York Times, 2012). A-survey, conducted, as part of the Academic Integrity Assessment Project, by the-Center for Academic Integrity (Duke University), covering 80,000-students and 12,000 faculties in the-

U.S.A. and Canada, between 2002 and 2005, reported that 21% of undergraduates admitted to-have-cheated, on exams, at-least-once a year (McCabe, 2005).

According to the-Center for Academic Integrity (2007) up to 85% of students report that they engage in acts of academic-dishonesty, one or more times each-year. Study-results, by Rettinger & Kramer (2009), also-show, that, approximately, 75% of the-research-participants, confessed to-having-committed acts of cheating. Stephens & Gehlbach (2007) count more-than-a-hundred empirical-studies, on this-issue, over-the-last-decade. Research in this-area documents, that cheating occurs, among-students from all-grades, from elementary-schools to-colleges, and, even, in-graduate-schools. From a-developmental-perspective, Miller *et al.* (2007) find that cheating tend-to-occur less, in younger-children, than in-adolescents. These developmental-differences are due to-changes in-both; students' cognitive-abilities and the social-structure, of the-educational-contexts, in which children and adolescents interact (Murdock *et al.*, 2001). From a motivational-perspective, Anderman & Murdock (2006) documented different-reasons, for engaging in academic-cheating: some-students cheat, because they-are highly-focused, on extrinsic-outcomes, such-as grades; others cheat, because they-are-concerned with maintaining a-certain-image to-themselves, or to-their- peers, or because they lack the-requisite self-efficacy, to-engage, in complex-tasks.

Logically, a-person's moral-attitude, toward cheating, should-affect-behavior, because the-decision to cheat is-considered, an ethical-one. However, to-examine its-effects, it needs to-be-operationalized, in-a variable, called *cheating valence attitudes*. After reviewing past-research, on-cheating, Whitley (1998) proposed, that individuals, with a negative-attitude, toward cheating, are-less-likely to-cheat, regardless of the-ratio of benefits to-risks. This-means, that, even, if the-risk of getting caught, is-low, individuals, with negative-attitudes, toward-cheating, still-will not-cheat. In-a-study, conducted by Harding *et al.* (2007) the Theory of Planned-Behavior, developed by Beck & Ajzen in 1991, was-extended, to-apply to academic-integrity-situations. The-original-model proposes that behavior is-shaped-by: (a) the-attitude toward the-behavior, (b) subjective-norms, about social-pressure, to perform the-behavior, and (c) perceived behavioral-control or how-successful one-will-be, at completing said-behavior. The-added moral-construct can-be-defined, as either moral-obligation, or moral-reasoning. Moral-obligation is the-level of responsibility an-individual has, that influences whether an-act is performed. Moral-reasoning is whether an-individual perceives an-action, to-be-morally-right, or wrong. His-study also-concluded, that both; moral-obligation and moral-reasoning were strong-influences, in determining an-individual's level of intention-to-cheat.

Despite ethical or moral-opposition, to-cheating, some-students, still, cheat (Semerci, 2006). This conduct, can-possibly-be-explained, through-the-presence of neutralizing-attitudes, which-allow people to justify-behavior, that they know to-be-wrong (Haines *et al.*, 1986). Neutralizing-attitudes have-been positively-correlated, as-well-as experimentally-associated, with cheating-behavior (Rettinger & Kramer, 2009). Attitudes, such-as 'Everybody around me is doing it' allow students to-relieve-themselves of responsibility, for-their-actions. LaBeff *et al.* (1990) showed that students, who-had stronger-neutralizing- attitudes, were more-likely to-have-engaged, in-cheating-behaviors.

The-literature, on-social-interactions, in-education, has-largely-focused on-peer-effects, in students-achievements, in-classrooms and schools (Lavy *et al.*, 2012; Carrel *et al.*, 2009; Stinebrickner & Stinebrickner, 2006; Graham, 2006; Hanushek, *et al.* 2003; Sacerdote, 2001). Conversely, the-effect of students' cheating-interactions has *not*-received much-attention and, even, less is-known-about the-potential- mechanisms, that may-drive cheating-behavior.

The-empirical-literature, on-peer-effects, traditionally, does *not*-distinguish, between the-effect, on test-scores, deriving-from unobservable, pre-determined-characteristics of the-students, and their- unobservable behavioral-choices (Lavy *et al.*, 2012; Imberman *et al.*, 2012).

Most-researches use statistical-techniques, that cannot-reliably-separate, the-endogenous and exogenous effects – i.e. the-effect of the-group, upon an-individual, from the-effect of an-individual, upon the-group, due to-the-well-known reflection-problem (Carrel *et al.*, 2008). McCabe & Trevino (1997), for example, found peer-related contextual-factors, to-be the-strongest-predictors of cheating, in-their- multi-campus-investigation of individual and contextual-influences, related to-academic-dishonesty. Students, who-perceived, that their-peers-disapproved academic-dishonesty, were less-likely to-cheat, and vise-a-versa.

Moreover, students' cheating raises a-number of concerns, not-just for the-unfairness, with-respect to students, who-do-not-cheat, but more-generally, for the-externalities, that are-created, on-others (Dee & Jacob, 2012; Carrel *et al.*, 2008). Kerkvliet & Sigmund (1999), for-instance, explore the-determinants of source-specific cheating-behavior, including student-characteristics and deterrent-measures. They conclude, that large-alcohol and drug-consumption, in-addition to-low-grade-point-average, greatly-increase, the-probability of cheating.

1.3. Witnessing cheating-behavior and a peer-pressure

Manski (1993) identifies three-main-factors that-are-likely to-influence social-interactions: (1) *exogenous* (or

contextual) effects (i.e. when the-inclination of an-individual to-behave, in-some-way, varies-with the exogenous-characteristics of the-group); (2) *correlated* effects (i.e. common-shared-group-level-factors) and (3) *endogenous-social-interactions* (i.e. when the-tendency of-an-individual, to-behave in-some-way, varies with-the-behavior of the-group). Only the-latter-effect can-determine the-social-multiplier. Examples of endogenous-peer-behavior, on-achievement, are discussed by Lazear (2001) where peer-disruptive behavior imposes negative-externalities, on-other-students, in-the-classroom. Similarly, Lavy & Schlosser (2011), Figlio (2007) and Kinsler (2006), present empirical-evidence, that disruptive-peers may negatively-affect achievement. Peer-effects may-work either *via* peers' characteristics (contextual-effects, such as-aptitude to-learn, readiness, ability-to-focus), or *via* alternative-endogenous-social-interactions (such-as, information-gathering, endogenous-preference-formation, and congestion-externalities) (O'Rourke *et al.*, 2010).

On-the-other-hand, Callahan's concept of trickle-down-corruption is very-similar, to-peer-pressure, in many-regards. Even though, an-individual may-not-be directly-pressured, to-cheat, if several-people, in-his or her-surroundings, are dishonest, then, it-is-natural, for that-person, to-feel that the-rules are unfair. If coupled with bigger-rewards, for-cheating, the-environment for academic-dishonesty, is-becoming further-tempting, to cheat.

Whitley (2003) lists three-academic-pressures, that motivate academic-dishonesty: (1) heavy course-loads, (2) the-failure of instructors, to properly-explain course-material, and (3) a-need to keep-pace with-others, who-are-cheating. Cheating, apparently, is-justified (in-the-minds of some-students), because the-required academic-course-load, is too-rigorous, the-instructor is a-poor-teacher, or other-students' cheating, gives them an-unfair-advantage. These-perceived-inequities, in a-curriculum or individual-course, tempt the-students to-act and behave-dishonestly. Whitley, also-reports, that students, who-report heavier-workloads are more-likely, to-report, engaging in-cheating.

Because attitudes are-not-formed in a-vacuum, cheating is not-just a-moral-decision, but, also, social. Cheating, as a-social-decision, involves the-actions of one's peers, and direct-knowledge of peers' cheating is a-crucial-social-signal. Unsurprisingly, seeing others-cheat (or having direct-knowledge of plagiarism or exam-cheating) is an-important-predictor of one's own-cheating-behavior (Jordan, 2001; McCabe & Trevino, 1997).

In-particular, when a-student-breaks an-ethical-code of behavior, exchanging-information, cooperating with other-students, or using any-prohibited-materials, during-an-exam (Cizek, 2003), many-others, who, might-otherwise, have-behaved-honestly, end-up, being-influenced, thus, reacting to-such-behavior. Many- students, may-feel, that they-cannot-afford, to-be-disadvantaged, by-those, who-cheat, without being reported or punished by school-authorities (Callahan, 2004).

Moreover, the-overall-depiction, according to Lathrop & Foss (2000), appears to-have changed, from 'do not cheat' to simply 'do not get caught!' An-attitude prevails that, being-caught, is a-terrible, dangerous and, even, wrong-consequence of cheating-act, but *not* the-act of cheating, itself.

1.4. Purpose of the study

Cheating, regardless of one's-personal-attitude, whether one accepts tolerates, ignores or fights it; is a wide-spread-problem in many-engineering-programs. According to Todd-Mancillas & Sisson (1996) as- many-as 56%, of a graduating-engineering-class, reported having-cheated. Relevant-studies also-include similar-findings, involving engineering-students (Harding *et al.*, 2007; Yeo, 2007). Even-though the massive-research-conducted has increased our-understanding of academic-dishonesty, among-students, the relevance of these-results, to the-African-context, is yet, to-be-recognized. Differences, in-socio-cultural background, demographic-composition, and specific-educational-policies, may render some-comparisons pointless. Different-universities, also-vary-widely, in-fundamental-ways, such-as: scale; historical background; influence and contribution of-the-institution, in the-education-system, of-the-country, and beyond; entry-requirements; academic, research, and accommodation-facilities; teaching-faculty- composition, by-ranks, and quality of teaching; emphasis on-research and rate of publications; university organizational-structure, social-facilities, in-campus; the-city, in which the-university is located; as-well-as, the-atmosphere, culture and overall-reputation of a-particular-university, among-other-differences.

Research-findings, of very-few-studies, in-a-Kenyan-context, have been published, so-far; particularly-so, on-the-witnessing, of cheating-behavior, by-undergraduate-engineering-students. Two of the-most-recent-studies, on-cheating, at-examinations, at-the-SOE, revealed that 81% of the-faculty respondents (sample-size of 25) agreed, that students frequently-indulge, in-examination-malpractice, clearly-revealing, that cheating, indeed, is a-significant-problem, at-the-SOE (Starovoytova & Namango, 2016a), and 65% of student-respondents (sample-size 100) declared, that cheating is, in-fact, a common-phenomenon, at-the-SOE; 60% of students also-affirmed, that it-is, actually, difficult to eradicate-cheating, in-examinations, at-the-SOE; and 70% of students acknowledged-smuggling contraband-items, to-examination-halls, such-as mobile-phones, to-Google or to-assess-notes, during examinations (Starovoytova & Namango, 2016b).

Combination of the-pressures for good-grades, heavy-curricular, within limited-time available, jointly

with poor-time-management, and new-freedoms, at-the-university, has lead some-students, to-cheating.

This-research, is-based on-the-ideology that it-is-better to-find ways, to-help-students avoid the temptation to-cheat, than to-focus, on-correcting the-problem, after it has-already-occurred, as “prevention is always better, than cure”. This-study, is therefore, focused on the-issues, related to witnessing of cheating-exams-behavior, willingness to report such-instances of cheating, and on the-factors-sustaining integrity. The-study conducted survey from the students’ perspective, at the SOE. The research is important, as it will provide additional-empirical-data, to enhance an understanding on the subject-matter, and to provide specific-suggestions to-prevent-cheating, in a-unique-setting.

2. Materials and methods

The-study was divided into 3-sequential-parts, which-shown in-Figure 1.

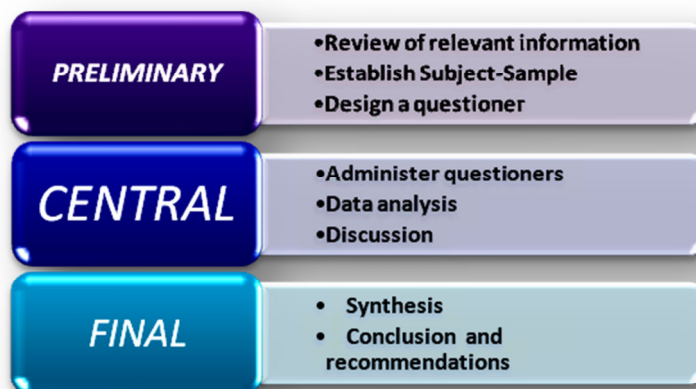


Figure1: Sequential-parts of the-study (Starovoytova & Namango, 2016a).

Readers, intersted in Kenya’s educational-system, could-refer to Starovoytova *et al* (2015). Beside, informative-synopsis on the-university, and the-school, where the-study, was-conducted, can-be-obtained from Starovoytova & Cherotich (2016).

2.1.Relevant-theories

There-are numerous-theories and models, related to-the-cheating-behavior (see Starovoytova *et al*, 2016a); this-study, however, was focused on the-Classical-Test-Theory and the-Theory of Reasoned-Action. The study-design adopted a-descriptive-survey-approach.

2.1.1 Classical-Test-Theory

Classical-Test-Theory was introduced, by Spearman Brown, in-1904. This-theory assumes, that the-raw -score or observed-score (X), obtained-by-any-individual, is-made-up of a-true-score (T) and an-error-score (E), i.e., $X = T + E$, where: T and E are independent (Wikipedia, Classical Test Theory).

A-person’s observed-score is, simply, the-score given by-the-examiner, in a-given-examination, as representing the-student’s-ability. A-person’s-true-score is defined-as the-expected-number, of correct-scores, over an-infinite-number, of independent-administrations, of the-particular-test. That is to-say, a person’s true-score is what they actually-know.

Error, on-the-other-hand, is defined as those-factors, which-prevent, a-correct-test-measure, from been perfectly-reliable. As-such, error-score is defined, as-that-part of the-observed-test-score, due-to-factors other-than, what the-examinee-knows, or can-do. It-represents the-error, purposely or inadvertently, introduced-into the-measurement-process, to-either; inflate or deplete, the-students’ true-score, in-a-given- examination.

It-should be-noted, that the-undeserved-scores, brought-about, by-examination-malpractice, is embedded in error-score (E). A-look at-the-equation, shows that: (1) The-difference-between X and T is the Error-Score (E); (2) It-is our-noble-desire that, as-much-as-possible, X is close-to, if not-equal-to, T; (3) The-smaller the-value of E, the-closer is X to T (in-fact, if E is zero, $X = T$). Conversely, the-larger the-value of E (due, to-examination-malpractice), the-farther is X from T, and (4) If E is very-large, T diminishes, and X approaches E.

This-implies, that the-higher the-value of error-score, occasioned by-examination-malpractices, the-more the-school and public-examination-scores deviate, or, diminish, from the-true-abilities of those, who make or own-those-scores. Not-surprising, then, that some-owners of high-scores can hardly-perform or exhibit behaviors, that are-consistent, with the high-scores; and some-university-graduates cannot-fulfill the-expectations, of the-society/employers. That is the-harm, caused by examination-malpractice, resulting in

illegitimate and incompetent-grandaunts.

This-theory is relevant to-the-study, in-the-sense, that this-study is concerned with eliciting information, from the-respondent via-questionnaire, and the-analysis of obtained-data will-enable the- researches, to-provide informed-suggestions, so-as to-prevent, reduce and, even, eradicate cheating (on a long-run). This, in-turn (subject to-implementation), could-potentially contribute to-the-reliability and credibility of the-university-examinations, by-reducing an-error-score.

2.2.2 Theory of Reasoned-Action

Figure 2 shows the-Theory of Reasoned-Action-framework. The-model performs-well, having a-Global-fit -measure GoF = 0.55 (Wetzels *et al.*, 2009). The-model includes, what the-literature identifies as, major-determinants of cheating, including: availability, gaming, getting-ahead, time-demands, culture, morals, and risk, as-reflective-indicators. Items, related to-the-influence of family, friends, and lecturers/professors were relatively-independent, causing, forming, or changing the-student's subjective norm and were, therefore, categorized as 'formative-variables' in this-model.

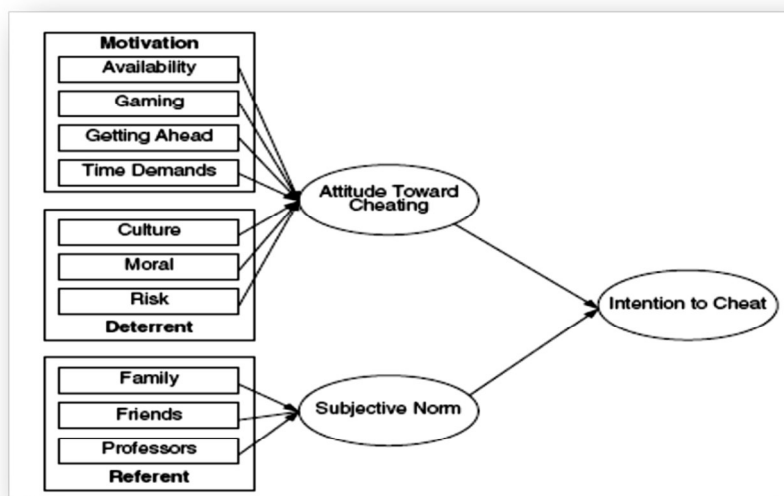


Figure 2: Theory of reasoned action framework (Simkin & McLeod, 2009)

This-TRA-framework may-be a-superior to-the, well-known, Attribution-Theory (widely-used in studies, on cheating-behavior), because it-includes a-measure of perceived-behavioral-control and, as Miller (2005) points-out, '...involves the addition of one-major-predictor, perceived behavioral-control, to the model. In particular, this addition accounts for times, when people have the intention of carrying out a behavior, but are thwarted, because they lack confidence or complete control over such-behavior'. The- theory is useful, for this-study, as it-can-help, in-appreciating numerous-factors, affecting cheating-behavior, and secondly it-can-be-applied in predicting cheating-behaviors.

2.2. Sample-size and the-rationale for its-selection

To-evaluate perceptions of cheating, by-students, of the-SOE, Moi University (MU), a-designed, confidential, self-report-questioner was used, as the-main-instrument, for this-study, with the-sample-size of 100-subjects. Purposive-sampling was adopted, to-identify 20-students per-each-of-the 5-departments of SOE, where 4-students were chosen, at-random, from each-year of study, e.g. year 1, 2, 3, 4, &5 @ 4-students each, where 1-student should-be (if possible), a-female.

2.3. Main instrument - the questioner

Previous-researchers have recommended questionnaire, as a-very-effective-instrument, which has the ability, to-collect a-large-amount of information, in a-reasonably-quick-span of time (Orodho, 2009). Self-reports-style has been widely-used in other-studies (Marsden *et al.*, 2005; Anderman & Midgely, 2004). The-study implemented a-style of projective-technique, by-asking questionnaire-respondents questions, about-cheating, at-examinations, at the-school. The-questioner of Bedford (2011) was used, as a-main-point of reference; some-items were partially-modified. The-respondents were-guaranteed-confidentiality, and the-questionnaire was filled in-anonymously, with *no* identification-information.

A self-report-questionnaire was used in eliciting-information, from the-subject-sample; it consisted of four-sections, first-section is the-demographic-characteristics of the-subjects; second-section, is the cheating-behavior witnessed; in third-section the-students were-asked whether they would report instances of cheating, they-witnessed; while fourth-section is addressing factors-sustaining-integrity. The-respondents were supposed

to answer either “Agree” or “Disagree”.

2.4. Data-Analysis

The-questioner was pre-tested, to-ensure its-validity and reliability. The-primary-purpose of pre-testing- validity and reliability, is to-increase the-accuracy, and usefulness of findings, by-eliminating or controlling as-many-confounding-variables, as-possible, which-allow for greater-confidence, in-the-findings, of a given-study (Hardy & Bryman, 2009). The-data-collection-instrument was subjected to-statistical-analysis, to-determine its-reliability. The-most-commonly-used-technique, to-estimate-reliability is the-correlation co-efficient, often-termed-as reliability-co-efficient, or Cronbach’s alpha-co-efficient (Kothari, 2004). Cronbach’s alpha is the-most-common-method, of estimating reliability, of an-instrument (Hardy & Bryman, 2009), and it-is-useful for the-item-specific-variance, in a-unidirectional-test (Cortina, 1993). The Statistical-Package for Social-Sciences (SPSS-17, version 22)-computer software-program was used, to compute the-Cronbach’s alpha co-efficient. Descriptive-statistics was used, to-analyze both; qualitative and quantitative-data.

3. Results and analysis

3.1. Validation of the-instrument

From-the-validation-exercise, the-questioner was found encompassing sufficient-enough-information, which-would-answer all-the-research-questions. The-instrument was-found-adequate; the-length of the-entire-instrument, established, was suitable and the-material was-logically-organized. The-general recommendation made, is that the-instrument was-acceptable, with one-minor-editing.

Questionnaire-data were-coded, entered into-SPSS and checked for-errors. Data were-analyzed, list-wise, in SPSS, so that missing-values were-ignored. Cronbach’s-alpha-test of internal-consistency was performed on the-cheating-scale, for perceptions and self-reports, and demonstrated high- inter-item-consistency (Cronbach’s $\alpha > 0.9$).

3.2. Analysis of the questioner.

Total of 100-questioners were administered, out of which, 95 were submitted-back, giving a response-rate of 95 %.

3.2.1. Analysis of part1: Demographic-Characteristics

Demographic-characteristics of the-respondents are as-follows: 60% of the-respondents were male, 16% females, while 24% provided no-response. The-majority, 46%, of the-subject-students were in the (18-21 years old)- age-bracket, followed by 36% of those between 22 and 25 years-old, and 5% in the-age-bracket of (25-28 years old), while 13% of the-respondents provided no-reply, regarding their-age. Majority of the students, 42%, were regular (sponsored by the-Government) students, 30% were privately-sponsored, while 28% provided no-reply.

3.2.2 Analysis of part 2: Research-questions.

Table1 shows the summary of responses.

Table 1 : Summary of the results of the students' responses

Survey-questions	Yes %	No %
I. Cheating Behavior Witnessed		
1) Giving another-student answers, when they ask for help in exams.	78	22
2) Place script in a way that another-student can read your-answers.	81	19
3) Obtaining exam-questions, before the-exam.	44	56
4) Asking another-student to impersonate you in-an-exam.	34	66
5) Arriving-early to the-exam-room, to write answers on-the-desk.	64	36
6) Use of mobile phone to Google or to assess the relevant notes.	74	26
7) Storing of Lecture-notes in washrooms to be used, during-exams.	51	49
8) Purchased a ready-made-assignment or term-paper, from the-Internet.	35	65
9) Improperly-cited a reference, from the Internet, on purpose.	26	74
10) Programmed math or science-formulas, into a calculator, to cheat on a quiz or exam.	26	74
11) Text messaged answers to an-exam, to another-classmate, during the-exam.	37	63
II. Factors sustaining Integrity		
1) I do not know how to do it quickly and undetectably.	36	64
2) I was adequately prepared for the exams.	32	68
3) This is against my up-bringing.	37	63
4) I do not want to lose my respect and dignity.	38	62
5) I like to follow rules and regulation.	42	58
6) I was afraid of being caught by the invigilator/lecturer	22	78
7) I was afraid of being reported by my fellow-classmates	6	94

Students were also asked to indicate *how they would react, if they observe that their-classmate cheats during an exam*. Only 5% of the-respondents, were-willing-to-report, a-classmate, who was found-cheating. Majority of respondents (about 84%) chose to-disregard-it and do-nothing. The-remaining 11% reported that they-would use other-avenues, such-as, telling the-class-leader and the-rest of the-classmates, about the-incident, and discussing the-event with-the-person, who was-found-cheating. This-result, is, in-general, consistent with several-previous-researches on whistle-blowing. For-example, Burton & Near (1995) found, in their-studies, that only 3% of their-sample reported a-cheating-incident, to-the-official. Reasons-recorded for not-reporting include: the-stigma of being-labeled, as a-whistle-blower and the-possibility of vengeance, from a-fellow-student; in-addition, a broad-reluctance, to-report, could-be-due to an-attitude of apathy, as- well-as a self-interested-motivation, to prevent-one from being-reported, if one-were to-cheat, next-time also.

3.2. Analysis of the-questioner

Regarding *Cheating Behavior Witnessed* by the-students, it was revealed, that the-highest-number of respondents, 81%, place script in-a-way, that another-student can-read the-answers; followed closely by 78%, admitting-witnessing-someone, giving-another-student answers, when they-ask for-help, in-exams; and use of mobile-phone, to-Google or to-assess, the-relevant-notes, during the-exams, was-recorded by 74% of the subject-students. Arriving-early to-the-exam-room, to-write-answers, on-the-desk, received 64%, while storing of lecture-notes, in-washrooms, to-be-used, during-exams, was-witnessed by 51%. The smallest-rate, 26%, was given to (1) Programmed-math or science-formulas, into a-calculator, to-cheat on a quiz or exam, and (2) Improperly-cited-reference, from the-Internet. The-rest of the-factors received intermediate-share of positive-responses, between 34 and 44%.

Vis-à-vis *Factors sustaining Integrity* section asking 'why a-student never-practiced-cheating at examinations', first of all, the-response-rate, to this-section was *only* 18%, meaning that the-remaining 82% have-been-cheating at examinations, at some-point, of their-studies. Two-highest-rates of the-respondents for this-section, 42% and 38%, explained that they-never-practices cheating at-exams, because they-like to- follow rules and regulation, and they do *not* want-to-lose self-respect and dignity, respectively. 'This is against my up-bringing' received 37%; 'I do not know how to do it quickly and undetectably'- 36%; 'I was adequately prepared for the exams'- 32%; 22%, confessed that they were 'afraid of being caught'; while only 6% stated that 'I was afraid of being reported, by my-fellow-classmates'.

4. Discussions

4.1. Cheating-behaviors witnessed.

Students responded, that they-have-witnessed the-array of cheating-behaviors. However, the 3-most common-techniques were: 2 orthodox-techniques, such-as placing script, in-a-way, that another-student can read the-answers; and someone giving another-student answers, when they ask for-help, in-exams; In-addition, the 3rd, hi-

tech-technique, was smuggling prohibited-items, such as-mobile-phones, into an-examination-hall.

The-array of cheating-techniques used by the-students illustrates that: (1) students are exceedingly-inventive and opportunistic in-nature, and they are ready, to-use *any*-method, to-achieve their-ultimate-goals (mainly, good-grades). Students are under-exceeding-pressure (McCabe *et al.*, 2006), not only to-pass the-examinations, but, to-get good-grades (as good-grades generally-associated, in-the society, with potential-success), therefore, some-students are determined, to-get good-grades, at all-cost-possible (Wilkerson, 2009; Fontana, 2009; Lipka, 2009; McCabe, 2009; Danielsen, *et al.*, 2006), resulting in-cheating. In-addition, there are situations, where some-parents constantly-demand better-grades, from their-children. These-findings corroborate with the-findings of Lucifora & Tonello (2012), who reported that pressures for good-grades, stress, and ineffective-deterrents were some of the-determinants of cheating. (2) Such cheating-array can only-happen under poor-exam-invigilation, by the-lecturers. Bertoni *et al.* (2012), for example, found that the-presence, of the external-inspector, reduces the-average-score, in the-classroom by 5.5 to 8.5%, as-compared-to classrooms, with *no* monitoring, meaning that the-students were incapable to-cheat, at the-same-extend, as without-supervision.

Suspensions of cheating are often-overlooked or treated-lightly, by-faculty, who do-not-want to-become directly-involved, in a-time-consuming-network, of stressful-bureaucratic-procedures, implicated in the accusation, and to-be-associated to the-judiciary-procedures, required to-support the-allegations of student's-dishonesty; this-pointing to-lack of social-responsibility, among-lecturers. In-addition, based on several-unpleasant-incidences, where, for-example, after reporting, lecturers were threatened, not *only* to ruined their-reputation, and trying to-sabotage their-career, but also-were, actually, threatened of physical-harm.

In-addition, some-lecturers might-be-unaware of exact-procedures, involved in-reporting of cheating, and, therefore, they are hesitant, to-make any-inappropriate-moves. The-authors believed that although many-cases of cheating were witnessed, by the-students, even-more cheating-cases went unreported. The variations could-be attributed to-lecturers' favoritism, leniency, fear and overall-unwillingness, to-waste their-precious-time and energy, to-deal, with-cheating.

4.2. The lack of 'risk of being caught and reporting'.

Whitley & Keith-Spiegel (2002) noted, that risk of being caught, plays a-substantial-role, in-determining students' behavior, in real-class-situations.

In-this-study, 22% of the-respondents confessed that they-were-afraid, of being caught, by the invigilators; while only 6% stated that 'I was afraid of being reported by my fellow-classmates'. Both-proportions are apparently unexpectedly-undersized.

The absence of 'risk' (fear of penalties), is above-all, attention-grabbing, to this-study, as it implies that SOE' students do *not* bothered-much, about getting-caught, cheating. This-finding make the-authors, to hypnotize that either (1) the-risks of detection at SOE, are unusually-low (e.g., because of large-classes, for common-courses, or of relaxed-watchfulness of the-invigilators) or (2) the-penalties, for getting caught cheating, in SOE are excessively-soft.

With-regard-to the-penalties, for examination-irregularities, such-as-cheating, at the-SOE; if allegations are proven, the-penalties vary from one-year-suspension, to-expulsion, from the-program, with no-possibility, to-join any-other-public-university. In-this-regard, the-penalties for cheating, at the-school, are quite-appropriate, and, by-no-means, excessively-soft, as-hypnotized-before.

With-regard-to-the-reporting of cheating-behavior; peer-effects could represent changing or different-social-norms, regarding tolerance of cheating. McCabe *et al.* (2001) hypothesize, that: (1) 'Peer-reporting-behavior will increase, as role-responsibility for peer-reporting increases'; (2) 'Increased role-responsibility for peer-reporting will-be-positively-associated with the-perception that cheaters will be caught', and (3) 'Cheating will be lower, where there is a-stronger-perception that cheaters will be caught.' The-students do not-report the-cheating-cases, probably, due to-lack of safe and anonymous-system of reporting. Schools will-*not*-be-able to-force individuals, to-report their-peers, because of the-complexities involved. However, they-can-create an-open and supportive-environment, in-which students will feel safe-enough, to-either report cheating-behaviors or seek-advice, regarding the-dilemmas, they may-be-faced-with, should-they-discover that their-classmate is-cheating. The-study proposes to-have an- open and anonymous-line of communication, where students can report the-incident, even during the ongoing-cheating, in-examination.

On-the-other-hand, rationalization can occur, when the-student attributes the-cause of cheating-behavior, to an-external-force. Students, often, blame the-lecturer (citing poor-instructional-quality, irrelevant-course-material, and faculty apathy, about cheating), workload, and other-obstacles, to-justify their-own-actions (Murdock & Stephens, 2007). The-presence of neutralizing-attitudes is strongly- correlated with academic-dishonesty and, through-vignette-manipulations, has-been-shown, to-directly *cause* cheating (Rettinger & Kramer, 2009). Murdock *et al.* (2008) reported that some-students attribute their-lecturer as a primary-motivation to cheat. These-researchers observed: 'Poorer-pedagogy is linked to more-blame towards teachers, for hypothetical and actual-incidents of academic-dishonesty'. Students also reported, that they-would be-less-

likely-to-cheat, if they-felt, that the-instructor cared-more, about their-learning. Besides, Elbe (1998) has shown that cheating is-significantly-reduced; when-faculty develops a-good-relationship, with-their-students. It-is-suggested, to-address this-issue, by-discussing learning-styles, in class, at-the-beginning of the-semester, and also, inform students to-take the-Felder Learning-Styles-Indicator, on the-web, and use the-results for self-awareness, of their own-learning-style, to help in-effective time-management, during-their-studies.

4.3. *Witnessing cheating behaviors.*

According to Starovoytova *et al* (2016b): at-first, possibly, a-student X does *not* intend to-cheat, but because they saw their-classmates, or friends, cheating, in-class, then, they-also-start-participating, in-cheating, and the-chain of events continues, until nearly-all of-the-class, will-be-involved, in academic-dishonesty. The-indigenous-species, of remaining innocent, non-cheating students, will be ridiculed and laughed at...until the-time-might-come, when all-of-the-students will-be-joining the cheating-club. This, rather pessimistic-narrative, is supported by the-study of Carrell (2008), which identified (empirically) that one-cheating-university-student drives approximately 0.33 to 0.75 additional-students, to cheat. The-results imply, in-equilibrium, the-social-multiplier, for academic-cheating, is-approximately three. McCabe & Trevino (1993) admitted to-being-surprised, by the-strength of the- relationship, between-student-cheating, and peer-behavior, stating: 'The strong influence of peer's behavior may suggest that academic-dishonesty, not only is learned from observing the behavior of peers, but that peer's behavior provides a kind of normative-support for cheating'. The-fact, that others are cheating, may- also-suggest, that, in-such-a-climate, the non-cheater feels-left at a-disadvantage. Thus, cheating may-come, to-be-viewed, as an-acceptable-way, of getting and staying-ahead.

Based on the-current-research, the-authors also-propose that levels of direct-knowledge need-to-be lowered and more-reporting of cheating needs to occur. According to Bandura's (1986) Social-Modeling Theory, students-engage, in-cheating-behavior, because they-see-others, get-away with-it and benefit from it. Making reporting more-public, as-well-as implementing and publicizing penalties, for being-caught, should-help discourage and prevent-cheaters.

4.4. *High percentage of cheaters.*

18% of the-students admitted that they have-never-cheated; therefore 82% of the-respondents are safely-assumed, as-having-been-cheating, at-examinations, at some-point, in-their-studies.

The-potential, for alienation increases, when a-youngster runs the-risk of failure, at an- important-activity, such-as, for-example, examinations. When this-occurs, the-student begins to-consider alternative-means, by-which to-succeed. In-studies-done over the-last 30 years, 'fear of failure' and 'parents demanding good-grades' were consistently-scored, by students, among the-top-five-reasons, for-cheating (Schab, 1991). Grimes & Rezek (2005) also estimate a-Probit-Regression-Model, to-determine the-factors, which contribute to-the-probability of cheating. Their-results indicate, that the-most-important-determinants are personal-beliefs about the-ethics, the-perceived-outcomes, of that-behavior, the-social-norms of others, the-perception of one's own-control, over-completion of the-behavior, social-acceptability of cheating and various-attributes of the-classroom-environment.

4.5 *Methods, to-prevent cheating*

Lack of fear to-be-detected, while cheating, identified in-this-study, equals to-low-risk of detection, which caused, mainly, by-poor-invalidations by lecturers, and unwillingness to-report cheating witnessed, by fellow-students. Raffetto (1985) stated that: 'Preserving academic-integrity is a collective-responsibility'. In-this-regard, students, staff, and faculty-members share an-obligation to-report any-violations of examination-regulations, at the- SOE. In-addition, from the-very-beginning, the-lecturer should define, clear, ground-rules on, what constitutes dishonest academic-conduct and respective-penalties, prescribed by the Exam Rules and Regulations, of the-university, ensuring that a-copy of the-policy is provided, to-the- class-leader. In-addition, lecturers-should discuss cheating, in-terms of engineering-ethics. By making efforts, to-hold such-dialogues, the-SOE will-be-sending a strong-signal, to-the-student-body, that the- faculty is committed and concerned, about cheating-behavior and integrity.

If cheating is detected, there should-be a-swift and fair-enforcement of policies, against cheating. Developing and implementing an-academic-integrity-policy or, so-called, Honor-Code, is an-important- step, in any-school; in the-SOE, however, it-is, yet, to-be-developed. For such a-policy, to-work, it must be understood and supported, by-the-faculty, and, clearly-explained, to the-students. McCabe& Pavela (1998) suggested that: 'those who abstain from discussing the importance of academic-integrity, or look the other-way, when students engage in academic-dishonesty, alienate honest-students and foster a climate of moral-cynicism on campuses'.

Previous-studies revealed, that some-students, are constantly-complaining, that tests and exams, are very-difficult, sometimes even-irrelevant (from their-perception) and they are too-long, for the-time-given; therefore the-only-way-out is to-cheat. Therefore, signs of cheating-may-be a-strong-indication, that the lecturer

is *not* preparing suitable-assessments and examinations. To-address-this, faculty-should make an- effort, to-write fair and relevant-tests and exams. This-suggestion is supported, by the-studies of Wankat & Oreovicz (1993) and McKeachie (1994). This, does-not-mean, however, that, tests or exams cannot-be-difficult; to the-contrary, they-should be-challenging, but not-overwhelming. Each-topic in the-course has a-corresponding-list of learning-objectives. When constructing the-test or the-exam, the-lecturer should-select several-learning-objectives, deemed most-important, and write the-questions and problems, directly from-these.

Another-interesting-suggestion, to-reduce cheating, was-made-by Harding (2000), is to-allow students, to-bring a single-A4-sheet of paper ('cheat-sheet') to a-test, with *any*-information they-would-like, relevant-to-the-paper. This-accomplishes two-goals; the-first, is to-reduce the-chance that students will cheat, during a-test, since they would have-the-necessary-information, in-front of them. In his-study, students felt that having a 'cheat-sheet' would make cheating less-likely. In-addition, the-act of putting a 'cheat-sheet' together, reinforces student-learning, by forcing students, to-work-through, their-course-notes and synthesize the-most-important-information. Students can use the-learning-objectives to-reduce the amount of information they-must-review and then determine what-material should-go, onto-their cheat-sheets. This-helps-them, to-use their-study-time more-efficiently and requires them, to-re-write their- notes, which-is an-excellent-method, for improving knowledge-retention. The-use of cheat-sheets, also allows tests, to-be-written with more-emphasis, on the upper-levels of Bloom's Taxonomy (i.e. analysis, synthesis and evaluation). The-authors suggest conducting a-pilot-study, at the-SOE, implementing, so-called 'cheat-sheet', for the-tests.

Lastly, to-enhance the-relationship, between students and lecturers, lecturers should-make every-effort, to-learn each-student's name (if possible), and also conduct a-review-session, before each-test.

4.6. Use of mobile-phones, to-cheat, at examinations.

The-study revealed, that 74% of the-subject-students witnessed of use of mobile-phones, by their-classmates, to-Google or to-access the relevant-notes, during the-exams. To-reduce, the-illegal-use of mobile-phones, during-examinations, the-SOE has already-developed several-simple mobile-phone detection and jamming-devices. Interested-readers can-refer to Starovoytova *et al.* (2016d); Ataro *et al.* (2016); Sitati *et al.* (2016). The-study also-recommends, an in-depth-study, of the-impact of modern technology, of student's attitudes-toward-cheating.

5. Conclusion and recommendations

5.1. Conclusion

Only 18% of the-respondents admitted, that they have-never-cheated, however, they witnessed an-array of cheating-techniques, used by their-classmates. 3-most-common-techniques were: 2 orthodox-techniques, such-as: (1) placing script, in-a-way that another-student can-read the-answers (81%); and (2) someone giving another-student answers, when they-ask for-help, in-exams (78%); In addition, the 3rd, hi-tech-technique, was smuggling prohibited-items, such-as mobile-phones, into the-examination-hall (74%). The-multitude of cheating-techniques, used by the-students, illustrates, that students are exceedingly inventive and opportunistic, in-nature, and they-are-ready to use *any*-method, to-achieve their-ultimate-goals (mainly, good-grades). 22% of the-respondents confessed that they were-afraid, of being-caught, by the-invigilators; while only 6% stated that 'I was afraid of being reported by my fellow-classmates'. The-absence of 'risk' (fear of penalties), is above-all, attention-grabbing, to this-study, as it implies that SOE' students do *not* bothered-much, about getting-caught-cheating.

The-results of this-study indicate, that an-overwhelming-desire, to-achieve good-grades, coupled with an-aggressive engineering-course-load, peer and other-pressures, as-well-as, freedom of students, and lack of vigilance, during exam-invigilation, by-lecturers, produce conditions, conducive to-an-environment, of academic-dishonesty. The-findings of this-study, also-suggest that students are rather-tolerant, to-cheating, among their-peers. Although much-controversy surrounds the-issue of whether cheating-behaviors should be-reported, the-findings of this-study, suggest that the-majority (82%) of the-respondents, choose to-take the convenient-for-them, action of disregard the-phenomenon, and do-nothing.

The-scope of examination-security is two-dimensional, and encompasses instructor/program responsibilities (exam-development, exam-security, and exam-administration) and administrative-support (policies, legal, punitive, and cultural-issues). Jointly lecturers, students and administrators, must-be diligent about methods, to-discourage-cheating. Authors believe, and hope, that helping students, to-avoid the-temptation to-cheat, will-foster greater-ethical-responsibility, during-their-study, at university, and particularly, after-graduation, as they-begin, their-engineering-careers. Research-efforts, such-as this- concise-study, for-example, can-enhance-understanding of people's attitudes-toward-cheating, would potentially contribute (in its-small-way) in the-design and implementation of organizational-interventions, to reduce such-behaviors. The-maintenance of academic-integrity, by all-stakeholders, is a-continuing and enduring-task, that will-bring-in reward, but *only*, if attentively-managed.

5.2 Recommendations

Suggestions, to-reduce cheating, given in-previous-sections, are summarized, as-follows:

The SOE should: (1) Develop The Honor Code, proving clear-policies; (2) Ensure strict-supervision of examination, with-increased-ration (invigilators to students), per-hall; (3) Encourage reporting of cheating with rapid-responses and appropriate-sanctioning of violations (cheating) by-faculty, as-well-as by-the students, witnessed the-act; (4) Organize workshops, to-train-lecturers, on the-exact-procedures how to-act, in-case of suspicion of cheating, and how to-report, cheating incidents; (5) Establish and maintain (24/7) an-open and anonymous-line of communication, where students can-report, even, an-ongoing cheating- incidents during-examinations. Analogues, faculty-can report the-same, so that external-independent- invigilator or even Chief- invigilator will-be-available, to-assist; and (6) Conduct a pilot-simulation-research at SOE, implementing, so-called, 'cheat-sheet' for the-tests.

Faculty should: (1) Discuss engineering-ethics with students and provide overview on the University' Exams Rules and Regulations, (2) Inform students to-take the-Felder Learning Styles Indicator (on the web) and use the-results for self-awareness of their own-learning-style, to-help, in-effective time-management during-studies, and (3) Make an-effort, to-write fair and relevant-tests and exams.

Students should: Adhere to the-rules and regulations and make every-effort *not* to-cheat.

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References

- Anderman, B. and Midgely, A. (2004). "Changes in self-reported academic cheating across the transition from middle school to high school", *Contemporary Educational Psychology*, 29(4):499-517.
- Anderman, E. and Murdock, T. (2007). "The psychology of academic cheating", in E. M. Anderman & T. B. Murdock (Eds.), *Psychology of Academic Cheating* (pp. 1–5). Burlington, MA: Elsevier.
- Ataro, E.; Starovoytova, D. and Sitati, S. (2016)." Design and Testing of Mobile-Phone-Detectors", *Innovative Systems Design and Engineering*, ISSN 2222-1727 (Paper) ISSN 2222-2871 (Online), Vol.7, No.9, 2016.
- Bandura, A. (1986). *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood Cliffs, NJ: Prentice- Hall.
- Beck, L. and Ajzen, I. (1991). "Predicting dishonest actions using the theory of planned behavior", *Journal of Research in Personality*, 25, 285–301.
- Bedford, D. (2011). University of West Alabama: Preventing Online Cheating with Technology: A Pilot Study of Remote Proctor and an Update of Its Use.
- Bertoni, M.; Brunello, G. and Rocco, L. (2012). "When the Cat Is Near, the Mice Won't Play: The Effect of External Examiners in Italian Schools", IZA DP. 6629, Institute for the Study of Labor (IZA).
- Bloom, B. (1956). *Taxonomy of Educational Objectives, Handbook I: Cognitive Domain*, New York: Longmans, Green.
- Burnett, D. (2003) ed. *Academic Integrity Matters*. Washington DC: National Association of Student Personnel.
- Burton, B. and Near, J. (1995). "Estimating the incidence of wrongdoing and whistle-blowing: Results of a study using randomized response technique", *Journal of Business Ethics*, 14, 17–30.
- Callahan, D. (2004). *Why More Americans are Doing Wrong: The Cheating Culture*. Orlando: Harcourt.
- Carrel, S.; Fullerton, R. and West, J. (2009). "Does your cohort matter? Measuring peer effects in college achievement", *Journal of Labor Economics*, 27(3): 439-464.
- Carrel, S.; Malmstrom, F. and West J. (2008). "Peer effects in academic cheating", *Journal of Human Resources*, XLIII (1): 173-206.
- Carrell, S.; West, J. and Malmstrom, F. (2005). "Peer effects in academic cheating" (Working Paper), Available [Online]: <http://ssrn.com/abstract=842224>, (June 19, 2016).
- Center for Academic Integrity (2007). CAI research. Available [Online]: http://www.academicintegrity.org/cai_research/index.php, (June 11, 2016).
- Clark A. and Loheac, Y. (2007). "It wasn't me, it was them!" Social influence in risky behavior by adolescents", *Journal of Health Economics*, 26 (2007), pp. 763–784.
- Cortina, J. (1993). "What is coefficient alpha? An examination of theory and applications", *Journal of Applied Psychology*, 78, 98-104.
- Cronbach, L. (1951). "Coefficient alpha and the internal consistency of tests", *Psychometrika*, 16, 297-334.
- Danielsen, R.; Albert, F.; Simon, D.; Pavlick, R. (2006). "The Culture of Cheating: From the Classroom to the Exam Room", *The Journal of Physician Assistant Education*, Vol. 17 No 1 10.64 SC.
- Davis, S.; Patrick, F.; Drinan, P. and Gallant, T. (2009). *Cheating in School*, Wiley-Blackwell, U. K.

- Dee, T. and Jacob, B. (2012). "Rational Ignorance in Education: A Field Experiment in Student Plagiarism", *Journal of Human Resources*, University of Wisconsin Press, vol. 47(2), pp. 397-434.
- Eble, K. (1998). *The Craft of Teaching*. 2nd Ed., San Francisco: Jossey-Bass.
- Ferrer-Esteban, G. (2012). "Cheating to the test in the Italian standardized assessment system: rationale and incentives", FGA Working Paper, Giovanni Agnelli Foundation (Turin).
- Figlio, D. (2007). "Boys Named Sue: Disruptive Children and Their Peers", *Education Finance and Policy*, Vol. 2, No. 4, Pages 376-394.
- Fontana, J. (2009). "Nursing faculty experiences of students' academic dishonesty", *Journal of Nursing Education*, 48(4), 181-5.
- Fortin, B.; Lacroix, G. and Villeval, M. (2007). "Tax evasion and social interactions", *Journal of Public Economics*, 91: 2089–2112.
- Graham, B. (2006). "Identifying Social Interactions through Excess Variance Contrasts." Working paper, University of California, Berkeley.
- Grimes, P. and Rezek, J. (2005). "The Determinants of Cheating by High School Economics Students: A Comparative Study of Academic Dishonesty in the Transitional Economies", *International Review of Economics Education*, volume 4, issue 2, pp. 23-45.
- Haines, V.; Diekhoff, G. and Clark, R. (1986). "College cheating: Immaturity, lack of commitment, and the neutralizing attitude", *Research in Higher Education*, 25, 342-354.
- Hanushek, E.; Kain, F.; Markham, J. and Rivkin, S. (2003). "Does Peer Ability Affect Student Achievement?", *Journal of Applied Econometrics*, 18(5):527–44.
- Harding, T. (2000). Cheating: student attitudes and practical approaches to dealing with it, 30th ASEE/IEEE Frontiers in Education Conference, F3A-21, October 18 - 21, 2000 Kansas City, MO.
- Harding, T.; Mayhew, C.; Finelli, J. and Carpenter, D. (2007). "The Theory of Planned Behavior as a Model of Academic Dishonesty in Engineering and Humanities Undergraduates", *Ethics & Behavior*, 17(3), 255–279.
- Harding, T.; Mayhew, M.; Finelli, C. and Carpenter, D. (2007). "The theory of planned behavior as a model of academic dishonesty in engineering and humanities undergraduates", *Ethics and Behavior*, 17, 255–279.
- Hardy, M. and Bryman, A. (Eds). (2009). *Handbook of Data Analysis*, Sage.
- Imberman, S.; Kugler, A. and Sacerdote, B. (2012). "Katrina's children: evidence on the structure of peer effects from hurricane evacuees", *American Economic Review*, 102(5), 2048- 2082.
- Jacob, B. (2005). "Accountability, incentives and behavior: the impact of high-stakes testing in the Chicago Public Schools". *Journal of Public Economics* 89 (2005) 761–796.
- Jordan, A. (2001). "College student cheating: The role of motivation, perceived norms, attitudes, and knowledge of institutional policy", *Ethics and Behavior*, 11, 233–247.
- Kerkvliet, J. and Sigmund, C. (1999). "Can we control cheating in the classroom?", *Journal of Economic Education* 30 (Fall): 33 -143.
- Keyes, R. (2004). *The Post-Truth Era: Dishonesty and Deception in Contemporary Life*, New York: St. Martins Press.
- Kinsler, J. (2006). "Suspending the right to an education or preserving it? A dynamic equilibrium model of student behavior, achievement, and suspension", Working Paper.
- Kleven, H.; Knudsen, M.; Thustrup, K. and Saez, E. (2011). "Unwilling or unable to cheat? Evidence from a tax audit experiment in Denmark", *Econometrica*, Vol. 79, No. 3, 651–692.
- Kothari, C. (2004). *Research Methodology: Methods and Techniques*. New Delhi: New Age International Publishers Ltd.
- LaBeff, E.; Clark, R.; Haines, V. and Diekhoff, G. (1990). "Situational ethics and college student cheating", *Sociological Inquiry*, 60, 190–198.
- Lasch, C. (1984). *The Minimal Self: Psychic Survival In Troubled Times* (New York: Norton, 1984), 72.
- Lathrop, A. and Foss, K. (2000). *Student Cheating and Plagiarism in the Internet Era: A wake-up Call*, Englewood, Colo: Greenwood Publishing Group.
- Lavy, V. and Schlosser, A. (2011). "Mechanisms and Impacts of Gender Peer Effects at School", *American Economic Journal: Applied Economics*, vol. 3(2), pages 1-33, April.
- Lavy, V.; Silva, O. and Weinhardt, F. (2012). "The good, the bad and the average: evidence on the scale and the nature of ability peer effects at school", *Journal of Labor Economics*, Vol. 30, No. 2, pp. 367-414.
- Lazear, E. (2006). "Speeding, terrorism, and teaching to the test", *The Quarterly Journal of Economics*, vol. 121(3):1029-1061.
- Lipka, S. (2009). "Colleges sharpen tactics for resolving academic-integrity cases", *The Chronicle of Higher Education*, 55(31).
- Lucifora, C. and Tonello, M. (2012). Students' Cheating as a Social Interaction: Evidence from a Randomized

- Experiment in a National Evaluation Program Institute for the Study of Labor Discussion Paper No. 6967, October 2012, IZA.
- Manski, C. (1993). "Identification and Endogenous Social Effects: The Reflection Problem", *Review of Economic Studies*, 60(3):531–42.
- Marsden, H.; Carroll, M. and Neill, J. (2005). "Who cheats at university? A self-report study of dishonest academic behaviors in a sample of Australian university students". *Australian Journal of Psychology*, 57(1), 1-10.
- McCabe, D. (1999). "National efforts to stem cheating epidemic begins this month", *Brown University Child & Adolescent Letter*, 1999; 15(9):3.
- McCabe, D. (2005). CAI Research. Center for Academic Integrity. Available [Online]: http://www.academicintegrity.org/cai_research.asp, (June 7, 2016).
- McCabe, D. (2009). "Academic dishonesty in nursing schools: An empirical investigation", *Journal of Nursing Education*, 48(11), 614-23.
- McCabe, D. and Pavela, L. (1998). "The effect of institutional policies and procedures on academic integrity", in: *Education Administrators*; 1998:93-108.
- McCabe, D. and Trevino, L. (1993). "Academic Dishonesty: Honor Codes and Other Contextual Influences", *Journal of Higher Education*, 64(5):522–38.
- McCabe, D. and Trevino, L. (1997). "Individual and contextual influences on academic dishonesty: a multi-campus investigation", *Research in Higher Education*, 38(3): 379-376.
- McCabe, D.; Butterfield, K. & Trevino, L. (2006). "Academic dishonesty in graduate business programs: Prevalence, causes, and proposed action", *Academy of Management Learning & Education*, 5(3), 294-305.
- McCabe, D.; Trevino, L. and Butterfield, K. (2001). "Dishonesty in Academic Environments: The Influence of Peer Reporting Requirements," *Journal of Higher Education*, 72(1):29–45.
- McKeachie, W. (1994). *Teaching Tips: Strategies, Research, and Theory for College and University Teachers*, 9th Ed., Lexington, Massachusetts: D.C. Heath and Company.
- Miller, A.; Murdock, T.; Anderman, E. and Poindexter, A. (2007). "Who are all these cheaters? Characteristics of academically dishonest students", in Anderman E. & Murdock, T. (Eds.), *The psychology of academic cheating*. San Diego, CA: Elsevier.
- Miller, K. (2005). *Communication Theories: Perspectives, Processes and Contexts* (McGraw-Hill, New York, NY).
- Murdock, T. and Stephens, J. (2007). "Is cheating wrong? Students' reasoning about academic dishonesty", in Anderman E. & Murdock, T. (Eds.), *The psychology of academic cheating*. San Diego, CA: Elsevier.
- Murdock, T.; Beauchamp, A. and Hinton, A. (2008). "Predictors of cheating and cheating attributions: Does classroom context influence cheating and blame for cheating?", *European Journal of Psychology of Education*, 23, 477–492.
- No-Child-Left-Behind-Act (2001). Available [Online]: https://en.no_child_left_behind_act, (June 18, 2016).
- O'Rourke, J; Barnes, J.; Deaton, A.; Fulks, K.; Ryan, K. and Rettinger, D. (2010). "Imitation Is the Sincerest Form of Cheating: The Influence of Direct Knowledge and Attitudes on Academic Dishonesty", *Ethics & behavior*, 20(1), 47–64, ISSN: 1050-8422 print / 1532-7019 online.
- Orodho, J. (2009). *Elements of Education and Social Science Research Methods*, Second Edition. Maseno: Kanezja.
- Powell, B.; Manish, G. and Nair, M. (2010). "Corruption, crime and economic growth", in *Handbook on the Economics of Crime*, Benson B. L. and Zimmerman P. R. eds., Edward Elgar Publishing, Northampton.
- Raffetto, W. (1985). "The cheat", *Community and Junior College Journal*, 1985:56(2); 26-27.
- Rettinger, D. and Kramer, Y. (2009), "Situational and personal causes of student cheating", *Research in Higher Education*, 50, 293–313.
- Richard Felder's "Index of Learning Styles", Available [Online]: http://www2.ncsu.edu/effective_teaching/, (June, 20, 2016).
- Rimer, S. (2003). "A campus fraud that's being copied: internet plagiarism", *New York Times*, September 3, pp. 1-4
- Sacerdote, B. (2001). "Peer Effects with Random Assignment: Results for Dartmouth Roommates", *Quarterly Journal of Economics*, 116(2):681–704.
- Schab, F. (1991). "Schooling without Learning: Thirty Years of Cheating in High School," *Adolescence* 26, no.104 (Winter 1991): 840.
- Scott, E.; Carrell, F.; Malmstrom, V. and West, J. (2008). "Peer Effects in Academic Cheating", *The journal of human resources*, d XLIII d 1, ISSN 022-166X E-ISSN 1548-8004
- Semerici, C. (2006). "Cheating at colleges", *Social Behavior and Personality*, 34, 41–50.

- Simkin, M. and McLeod, A. (2009). "Why Do College Students Cheat?", *Journal of Business Ethics*, Springer 2009, DOI 10.1007/s10551-009-0275-x.
- Stephens, J. and Gehlbach, H. (2007). "Under pressure and under engaged: Motivational profile and academic cheating in high school" in Anderman, E. & Murdock, T. (Eds.) *Psychology of academic cheating* (pp. 107-141), Amsterdam: Elsevier Academic Press.
- Sitati, S.; Starovoytova, D. and Ataro, E. (2016). "Design of a Simple Cell-Phone Radio-Frequency Detector", *Journal of Information Engineering and Applications*, ISSN 2224-5782 (print) ISSN 2225-0506 (online), Vol.6, No.7, 2016.
- Starovoytova, D. and Namango, S. (2016a). "Faculty Perceptions on Cheating in Exams in Undergraduate Engineering", *Journal of Education and Practice*, ISSN 2222-1735 (Paper), ISSN 2222-288X (Online), Vol.7, No.30, 2016.
- Starovoytova, D. and Namango, S. (2016b). "Factors Affecting Cheating-Behavior at Undergraduate Engineering", *Journal of Education and Practice*, ISSN 2222-1735 (Paper) ISSN 2222-288X (Online), Vol.7, No.31, 2016.
- Starovoytova, D.; Namango, S. and Katana, H. (2016a). "Theories and Models Relevant to Cheating Behavior", *Research on Humanities and Social Sciences*, ISSN (Paper) 2224-5766 ISSN (Online) 2225-0484 (Online), Vol.6, No.17, 2016.
- Starovoytova, D.; Ataro, E. and Sitati, S. (2016b). "Design and Testing of a Mobile-Phone-Jammer", *Innovative Systems Design and Engineering*; ISSN 2222-1727 (Paper) ISSN 2222-2871 (Online), Vol.7, No.5, 2016.
- Starovoytova, D. and Cherotich, S. (2016). "Analysis of Masculinities Across Engineering Disciplines", *Research on Humanities and Social Sciences*, ISSN (Paper) 2224-5766 ISSN (Online) 2225-0484 (Online), Vol.6, No.18.
- Starovoytova, D. et al. (2015). "Potential of Theory of Innovative Problem Solution (TRIZ) in Engineering Curricula", *IJISSET - International Journal of Innovative Science, Engineering & Technology*, Vol. 2 Issue 5, May 2015, pp.984-994, ISSN 2348 – 7968.
- Stinebrickner, R. and Stinebrickner, T. (2006). "What Can Be Learned About Peer Effects Using College Roommates? Evidence from New Survey Data and Students from Disadvantaged Backgrounds", *Journal of Public Economics*, 90(8–9):1435–54.
- Ten Reasons not to Cheat, The School for Ethical Education. Available [Online]: www.ethicsed.org, (July 7, 2016).
- Todd-Mancillas, W. and Sisson, E. (1986). "Cheating Among Engineering Students: Some Suggested Solutions," *Engineering Education*, 757, 1986.
- UNESCO (2003). *Combating academic fraud towards a culture of integrity*, International Institute for Educational Planning.
- University of Texas (1991). *Student Discipline for Scholastic Dishonesty: A Guide For Administrators, Faculty, and Hearing Officers*. July 1991.
- Wangeri, T.; Kimani, E. and Mutweleli, S. (2012). "Transitional Challenges Facing University First Year Students in Kenyan Public Universities: A Case of Kenyatta University", *Interdisciplinary Review of Economics and Management*, 2,1 (2012).
- Wankat, P. and Oreovicz, F. (1993). *Teaching Engineering*. New York: McGraw-Hill.
- Wetzels, M.; Odekerken-Schroder, O. and van Oppen, C. (2009). "Using PLS Path Modeling for Assessing Hierarchical Construct Models: Guidelines and Empirical Illustration", *MIS Quarterly*, 33(1), 177–195.
- Whitley, B. and Keith-Spiegel, P. (2003). *Academic Dishonesty: An Educator's Guide*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Whitley, B. (1998). "Factors associated with cheating among college students", *Research in Higher Education*, 39,235–274.
- Whitley, B. and Keith-Spiegel, P. (2002). *Academic Dishonesty: An Educator's Guide*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Wikipedia, Classical Test Theory, Available [Online]: https://en.wikipedia.org/wiki/classical_test_theory, (June, 23, 2016).
- Wikipedia: Connectionism theory. Available [Online]: www.wikipedia_connectionism_theory/ (June 29, 2016).
- Wilkerson, J. (2009). "Staff and student perceptions of plagiarism and cheating", *International Journal of Teaching and Learning in Higher Education*, 20(2), 98-105.
- Yeo, S. (2007). "First-Year University Science and Engineering Students' Understanding of Plagiarism", *Higher Education Research & Development*, 26(2), 199–216.