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 ($a > 0.9$). 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 opportunistich, 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-presures 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-presesses, 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-scholls, 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-empirical-literature, on-peer-effects, traditionally, does not distinguish, between the-effect, on test-results, deriving-from unobservable, pre-determined-characteristics of the-students, and their- unobservable behavioral-choices (Lavy et al., 2012; Imberman et al., 2008). Kerkvliet & Sigmund (1999), for-instance, explore the-determinants of source-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., 2002). 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). 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., 2008). 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-there 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.

1.3. Witnessing cheating-behavior and a peer-pressure
Mansi (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-progress, 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-varies-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.

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-Classic-Test-Theory and the-Theory of Reasoned-Action. The study-design adopted a-descriptive-survey-approach.

2.1.1 Classic-Test-Theory
Classic-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, Classic 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 being 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
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. 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 questionnaire 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 questionnaire

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 (Orroho, 2009). Self-report 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 questionnaire 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 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 coefficient, 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 $a > 0.9$).

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 part 1: 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.
Table 1 shows the summary of responses.
Table 1: Summary of the results of the students' responses

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

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) and 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 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 upbringing’ 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-
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 class-rooms, 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 stress-full-bureaucratic-procedures, implicated in the accusation, and to-be-associated to the-justice-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 ruin 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-younger runs the-risk of failure, at an-importan-tactivity, 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. Analogously, faculty can report the same, so that external independent invigilator or even Chief invigilator will be available, to assist;
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;
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.

6. Acknowledgement

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