

Academic Integrity and Ethical Decision-Making in Engineering Undergraduates



Lawrence Tech Assessment Day
September 21st, 2007

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<http://www.engin.umich.edu/research/e3/>



Acknowledgements

- This work is funded in part by
 - Educational Research and Methods (ERM) Division of ASEE
 - Kern Family Foundation
 - Templeton Foundation in conjunction with the Center for Academic Integrity
 - Engineering Education Programs Division of NSF



Goals of the team's research

- Examine students' ideas about cheating
- Understand students' ethical decision-making process
- Improve ethical development of engineers



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WHY?



Past research on cheating

- Unethical behavior of high school students has increased from 1992 to 2002 (*Report Card on the Ethics of American Youth*, The Josephson Institute)
 - Cheating to succeed: 34% → 43%
 - Cheating on exams: 61% → 74%
 - Lying to teachers: 69% → 83%
- 70 to 96% of all college students report cheating at least once in college



Cheating by engineering students

- Engineering students are second among all students in self-reported rate of cheating (1964 to 1997)

● Business	66%	91%
● Engineering	58%	82%
● Natural sciences	47%	73%
● Social science	52%	73%
- Up to 23% of engineering students admit to *repetitive* exam cheating



Implications of cheating

- Lack of comprehension of material by students
- Falsely earned credit or recognition for work
- Undermined efforts to develop moral integrity (character development)
- Reduced faculty and student morale
- Desensitization to cultural norm of integrity
- Unethical behavior in other contexts
 - Risky driving
 - Theft from employers
 - Shoplifting
 - Alcohol abuse
 - Cheating on taxes



Research Conducted over Seven Years

- Perceptions and Attitudes towards Cheating among Engineering Undergraduates (PACES-1)
 - Goal was to investigate general perceptions and attitudes associated with cheating
 - 139 question multiple choice survey
 - 643 engineering u'grads @ 11 institutions
- Work Experiences Study (WES)
 - Goal was to examine classroom and workplace factors that affect ethical decisions
 - 13 quantitative questions and self defined qualitative scenarios in both settings
 - 130 engineering u'grads @ 2 institutions



Research Conducted over Seven Years

■ PACES-2

- Goal was to validate and compare a theoretical model for decision making for both engineering & humanities u'grads
- Multiple choice PACES-2 survey (TPB) and DIT-2
- 527 engineering and humanities u'grads @ 3 institutions

■ Survey of Engineering Ethical Development (SEED)

- Goal is to use a model for ethical development to identify and disseminate best practices
- Three part online survey that includes FE, TPB, and DIT-2
- 4000+ engineering u'grads @ 20 diverse institutions



PACES-1 Study

- Clear relationship between students' attitude toward a behavior (their definition as “cheating”, “unethical but not cheating”, or “neither”) and their self-reported behavior
- Students engage in behaviors that they know are wrong and that they know have significant consequences
- Factors that influence students' decisions about cheating vary by context (i.e., exams versus homework)
- *Moral obligation* and *shame* are unilateral deterrents
- Students often rationalize cheating behavior using *instructor-based* neutralizations
- Individual efforts to improve teaching and show concern for learning may reduce cheating and promote integrity



WES Study

- Past unethical behavior predicts subsequent unethical behavior in both college and workplace
- The decision-making process for college extends to the workplace
- Common factors influence decisions across setting
- College interventions could extend to professional settings



PACES-2 Study

- Engineering undergraduates cheat more in college than those in humanities, independent of number of opportunities
- Results revealed a statistically significantly different moral reasoning score for humanities students
- These differences do not exist in high school
- Psychological factors are common predictors across context and discipline
- Emphasizing higher-order learning skills and using more qualitative assessments may promote better behavior
- Understanding the common aspects of ethical decision-making may result in more effective interventions



SEED Study

- Conduct a national assessment of approaches that positively impact the ethical development of engineering undergraduates
- Validate an empirical model of the ethical development of engineering undergraduates
- Assess the impact of educational experiences (curricular, co-curricular, and cultural) on ethical development
- Identify and disseminate approaches that have the most positive impact on ethical development



Questions to Ponder

- As educators, what does it mean to prepare our students for ethical practice in engineering?
- What kind of educational environment would most likely engender this sort of development? Does the current environment reflect this ideal?
- How can we best move engineering education forward to accelerate the ethical development of our students?

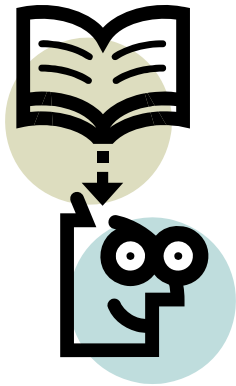


Our Team Belief

- The point is not to stop cheating, but rather to foster moral growth (character development) such that students act with integrity
- Cheating prevention consumes time and energy and really only produces better cheaters
- Current practices focus more on authority (who has it and who is trying to circumvent it)



Foster Moral
Identity



Liberal
Education



Service
Learning



Fair Communities
of Learners

Institutional Character Education!