

“Predicting Academic Integrity When Pedagogy is Viewed as a Game”

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by

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Predicting Academic Integrity When Pedagogy is Viewed as a Game

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Research Question and Specific Aims: The aim of this study is to determine if academic integrity is tied comparatively, relationally, and/or cause-and-effect to viewing academics as a game. This study will explore three research questions:

1. What are the relationships and predictors of academic integrity and game perception?
2. What are the demographic comparisons (i.e., gender, age, school level, school type, and major) between student academic integrity and gaming perceptions?
3. What causes cheating when academics is viewed as a game?

Background and Significance: Business academe prides itself on a close relationship with industry. Yet, recent discoveries of ethical debacles within companies like Enron, WorldCom, and Tyco, have pressed us to consider whether we, as business faculty, in some way, have contributed to, or participated in creating black-hat captains of industry. Most business schools teach ethics courses or weave discussions of ethical dilemmas into core courses. Apparently, it is not enough.

Popular books have described activity in industry as a “game.” They point to gaming terminology which permeates the business environment as evidence; establishing a mission, developing strategies, engaging tactics, working the deal, positioning, maneuvering, competitive edge, etc. (see Hall, 2002; Venneri, 2005). For many, the adrenaline rush of the competitive nature of business is what drew them to this profession in the first place. Most business and management faculty have either considerable industry experience or have served as consultants to the industry prior to entering academia. Therefore, vocabulary and methods that business and management scholars use mirrors industry and gaming.

Gaming has grown exponentially in the United States. This generation of business students, like no others, has access to gaming on a level previously unheard of through the use of video games and Internet gaming sites. The Interactive Digital Software

Association (2004) cited recent surveys that indicate that 60 percent of Americans play video games. Of those, 43 percent are female and 60 percent are male. Fifty-six percent have been playing games for 6 or more years. Of particular note, with regard to this research, is the accepted use of “cheats.” These are online websites where cheating strategies are published so that game players will be more able to effectively navigate the gaming environment of their favorite video game (www.cheatcc.com). Users of these sites are often encouraged to post any new cheating strategies that they discover. Disturbingly, students have also remarked that they see education as “a game.” Is it possible that students are taking accepted behaviors in video gaming into other forms of perceived games such as getting a college degree, getting a job, getting a promotion, etc.? If so, where will it stop, when they have reached the coveted role of the CEO?

Academic cheating can be defined as the use or attempted use of unauthorized materials, information, or aids in an academic setting. There is a large amount of literature relating to academic cheating or dishonesty. Whitley (1998) reviewed 107 studies on the topic of cheating among college students published between 1970 and 1996. He discovered cheating was becoming more common than the 60’s and 70’s. Some of the strongest correlates of cheating were related to “expectations of success, having cheated in the past, studying under poor conditions, holding positive attitudes toward cheating, perceiving that social norms support cheating, and anticipating a large reward for success” (p. 235). Niels (1997), moreover, cited a comprehensive study of Who’s Who High School Students in 1993. He found that close to 80% confessed to some form of academic cheating. In 1999, McCabe and Drinan noted that 75 percent of students cheated.

The focus of academe for students has changed. McCabe (1996) reported that students in college have, over the years, changed their focus from getting an education to getting a degree. He estimates the 85 percent want a “degree” and want to do the minimal amount of work to achieve it. A degree is the necessary requirement for entering the job market or further degrees.

Competitive pressures are now the norm in academe. McCabe, Treviño, and Butterfield (1999) stated that pressure to compete for the top job and academic slots can funnel to academic dishonesty. Moreover, research also demonstrates that cheating is often overlooked or treated lightly by faculty (see McCabe, 1993). Students who normally would not cheat observe the lack of consequences, view their honesty as a disadvantage, and also begin to cheat to “level the playing field.” This competitiveness within academe, Perry, Kane, Bernesser, and Spicker (1990) suggest, is a catalyst for cheating. They went on to say that competitive type A-scoring students were more likely to cheat than non-competitive type B-scoring students. In their qualitative work, Payne and Nantz’ (1994) looked for cheating metaphors that brought forward this competitive perspective. These metaphors include seeing “cheating as a type of game,” “winning is important,” “cheating as an addiction,” “cheating as the easy way out,” and “cheating as a team effort.”

This research will explore the linkage between cheating and game playing and perceptions. Moreover, it will consider factors such as gender, ethnicity, grade level,

academic institution, major, technology uses, and other demographics to see if there are ties to cheating.

Issues for business faculty that arise from this research include:

- If students view academics as a game do we as business faculty perpetuate an environment fertile for cheating since so much of the terminology we use includes gaming language (strategy, tactics, competitive edge, winning, losing, etc.)?
- What about the use of simulations? Do they, induce students to “learn” to cheat in the safe confines of a virtual-world, only to expose themselves in the real-world of business at some later date?
- Do we need to discover more effective ways to instill ethical principles into the hearts and minds of our business students?
- Have we been too soft with regard to dealing with cheaters that students no longer consider the consequences as deterrence?

Research Design and Methods

Subjects

Sixty-five respondents, 46% males and 54% females, at a private faith-based university served as subjects. Ages ranged between 19 and 23 years old ($M = 21.18$, $SD = 0.85$). The majority were seniors (78.5%) with the remaining being freshman to sophomore plus one graduate student. The racial distribution of the students was 76.6% Caucasian and 23.4% Minority.

Procedures

Participants were invited to participate but were not required. To reduce potential bias effects, the self-assessment instrument was administered over several days and with various groups. Confidentiality was guaranteed. Moreover, the participants were informed of the purpose of the study, warned of any risks and inconveniences, explained the benefits of participating, and offered the opportunity to be removed from the study at any time. Seven instruments (out of an original 72) were not analyzed in the study because of potential responses bias (no or little variation in response to questions was noted).

Instrumentation

An instrument was developed covering seven constructs: Interest in games, type of games played, perceptions on “life as a game”, perceptions on winning, perceptions on risk-taking, perceptions on rule compliance, and perceptions on cheating. The original self-developed instrument contained 66 questions and was tailored to 57 questions following

an initial pilot study. Further reduction of questions ($N = 48$) occurred following inter-reliability ratings. Alphas indicated moderate to good reliability ($\alpha = .77$ to $.89$) for each construct except for perceptions on rule compliance ($\alpha = .54$).

The seven constructs were designed to measure self-perceptions. Following is a sample of the questions for each construct:

Interest in Games

1. I view computer, video, and online games are harmless.
2. Computer, video, and online games are enjoyable.
3. Computer, video, and online games are fun.

Type of Games Played

1. I enjoy playing action (e.g. Tomb Raider, Doom) video, computer, or online games.
2. I enjoy playing sports (e.g. Football, Basketball) video, computer, or online games.
3. I enjoy playing strategy (e.g. Chess, Poker, Sim City) video, computer, or online games.

Perceptions on “Life as a Game”

1. High school academics was like a game
2. Taking a college class is like a game
3. Meeting a professor’s course requirements is like a game

Perceptions on Winning

1. Being first is important to me.
2. I work hard to come first in everything I do.
3. It is important for me to be viewed as a winner.

Perceptions on Risk-Taking

1. I like to test myself occasionally by doing something a little risky.
2. Sometimes I will take a risk just for the fun of it.
3. I sometimes find it exciting to do things that might get me into trouble.

Perceptions on Rule Compliance

1. It is important to follow procedures at all times.
2. An action that violates a law is always wrong.
3. I am guided by a personal set of standards.

Perceptions on Cheating

1. It is OK to get an answer from someone else during a test.
2. It is alright to turn in the same paper in two different classes.
3. Copying and pasting portions of a paper without citing it is sometimes justifiable.

The data was analyzed using SPSS 13.0 and AMOS 5.0. Analysis was completed using Cronbach's alpha, path analysis, ANOVAs, T-tests, regression analysis, correlation analysis, as well as basic descriptive statistics.

Design and Analysis

Following reliability assessment of the constructs, a model was developed to evaluate the effects of gaming (types of games, interest in games, and life as a game) and the connection to academic integrity (see Fig. 1). In order to identify the model, several methods suggested by Joreskog and Sorbom (1986) were employed: (1) consideration of alternative plausible models, (2) factor analysis, and (3) elimination of constructed variables. In addition, Pearson correlations on composite constructs to determine relevant associations plus linear and multiple linear regression were employed to determine direction and validate associations. Factorial ANOVAs and independent sample t-tests were accomplished to assess the differences in the various demographics (e.g., ethnicity, gender) on cheating.

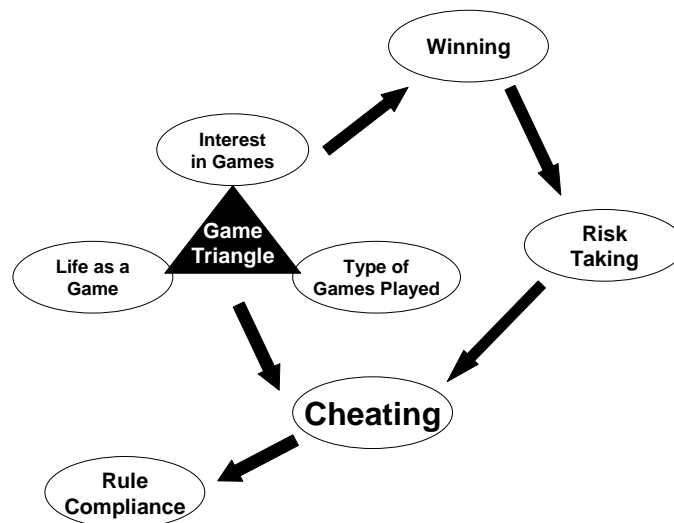


Fig. 1. Game - Cheating Model

The model suggests two potential paths to cheating—the direct and indirect approach. The direct approach suggests that interest in games, types of games played, and viewing life as a game (hereafter known as the “game triangle”) can lead directly to cheating. The model also suggests that the game triangle can lead to a winning attitude, then to risk-taking, and finally to cheating. In both paths, rule compliance is the outcome of cheating. It is not, however, a cause of cheating. In other words, if individuals are willing to cheat they are also more likely not to comply with rules. Because of the low reliability of the rule compliance construct ($\alpha = .54$), it was omitted from the path analysis statistics.

Findings

AMOS 5.0 generates a chi-square statistic to determine significance and squared multiple correlation coefficients to determine variance. Because the chi-square test of absolute model fit is sensitive to sample size and non-normality in the underlying distribution of the input variables, various descriptive fit statistics to assess the overall fit of a model are provided. These include the Tucker-Lewis Index (TLI), the Comparative Fit Index (CFI), and the Root Mean Square Error of Approximation (RMSEA). Most commonly reported are the chi-square statistic and the squared multiple correlation coefficients.

For the direct path (e.g. game triangle to cheating) the chi-square was 225.54 ($p < .001$). This indicates that a significant cause and effect path occurred with less than 1 in 1000 chance. AMOS 5.0 further provides an estimate of squared multiple correlation that accounts for the variance in the path. In this case, 95.1% of the variance can be explained (see Table 1). In other words, expressing interest in games, playing certain types of games, and viewing life as a game within the game triangle accounted for 95.1% of the variation in favorable cheating perceptions. TLI, CFI, and RMSEA indicate the direct model was a strong fit.

Table 1. Direct path squared multiple correlations

<i>Path</i>	<i>Squared Multiple Correlation</i>
Game Triangle to Cheating	.951

For the indirect path (e.g. game triangle to winning to risk-taking to cheating) the chi-square was 291.32 ($p < .001$). This indicates a significant cause and effect path as well (less than 1 in 1000 this would occur by chance). AMOS 5.0 provides three estimate of squared multiple correlation that accounts for the variance in the path (see Table 2). For game triangle to winning, 93.6% of the variance can be accounted for; winning to risk-taking, 96.3% of the variance can be accounted for; and risk-taking to cheating, 95.7% of the variance can be accounted for. TLI, CFI, and RMSEA indicate the indirect model to cheating was a strong fit.

Table 2. Indirect path squared multiple correlations

<i>Path</i>	<i>Squared Multiple Correlation</i>
Game Triangle to Winning	.936
Winning to Risk-taking	.963
Risk-taking to Cheating	.957

Comparative analysis was accomplished to determine differences in the demographic data with perceptions of cheating. Gender was compared across the various constructs (see Table 3). In every construct except rule compliance, males scored significantly higher than females: Interest in Games ($t = 6.41, p < .01$), Type of Games Played ($t = 3.92, p < .01$), Life is a Game ($t = 2.14, p = .04$), Winning ($t = 2.53, p = .01$), Risk-taking ($t = 2.96, p < .01$), Cheating ($t = 2.13, p = .04$), and Rule Compliance ($t = -2.12, p = .04$),

Table 3. Means of gender for t-test across constructs.

Construct	Gender	N	Mean	SD
Interest in Games	male	27	2.75	0.69
	female	32	2.15	0.47
Type of games played	male	27	2.87	0.67
	female	32	1.82	0.59
Life is a game	male	27	2.63	0.68
	female	32	2.30	0.49
Winning	male	27	2.80	0.57
	female	32	2.48	0.43
Risk-Taking	male	27	2.89	0.30
	female	32	2.55	0.54
Cheating	male	27	2.06	0.41
	female	32	1.86	0.32
Rules Compliance	male	27	2.77	0.30
	female	32	2.94	0.32

Further analysis was done to compare ethnicity and major across the various constructs. There were no significant results comparing ethnicity (i.e., Caucasian vs. Minority) or for major (i.e., Business vs. non-Business degrees).

One-way ANOVAs were completed to determine if there were significant differences in time spent playing games monthly (i.e., zero, 1-9, and 10 or more) across the constructs. Three significant results were found: Interest in games ($F = 30.18, p < .01$), Type of games played ($F = 18.43, p < .01$), and Cheating ($F = 7.43, p < .01$). Further Tukey post hoc analysis indicates the following significant differences (see Table 4 and Table 5).

Interest in Games: Those playing 10 or more hours per month had significantly greater interest in games than those spending no time or 1-9 hours. In addition, those playing 1-9 hours per month had significantly greater interest in games than those spending no time.

Type of Games Played: Those playing 10 or more hours per month had significantly greater interest in the type of games played (i.e., action, strategy, etc.) than those spending no time or 1-9 hours. Furthermore, those playing 1-9 hours per month had significantly greater interest in type of games played (i.e., action, strategy, etc.) than those spending no time.

Cheating: Those playing 10 or more hours per month had significantly higher interest in cheating than those spending no time or 1-9 hours. In addition, those playing 1-9 hours per month had significantly higher interest in cheating than those spending no time.

Table 4. Mean from one-way ANOVA comparing hours playing games

Construct		N	Mean	SD
Interest in Games	zero hrs per month	18	1.83	0.45
	1-9 hrs per month	27	2.46	0.49
	10 or more hrs per month	19	2.99	0.40
Type of games played	zero hrs per month	18	1.62	0.51
	1-9 hrs per month	27	2.41	0.76
	10 or more hrs per month	19	2.93	0.62
Cheating	zero hrs per month	18	1.70	0.37
	1-9 hrs per month	27	1.99	0.31
	10 or more hrs per month	19	2.12	0.36
		64	1.95	0.37

Table 5. Tukey post hoc analysis comparing hours playing games

Dependent Variable	Game hours 3 groups	Game hours compared	Mean Diff.	Sig.
Interest in games	zero hrs per month	1-9 hrs per month	-.63(*)	.000
		10 or more hrs per month	-1.16(*)	.000
	1-9 hrs per month	zero hrs per month	.63(*)	.000
		10 or more hrs per month	-.53(*)	.001
	10 or more hrs per month	zero hrs per month	1.16(*)	.000
		1-9 hrs per month	.53(*)	.001
Type of games played	zero hrs per month	1-9 hrs per month	-.79(*)	.001
		10 or more hrs per month	-1.30(*)	.000
	1-9 hrs per month	zero hrs per month	.79(*)	.001
		10 or more hrs per month	-.52(*)	.028
	10 or more hrs per month	zero hrs per month	1.30(*)	.000
		1-9 hrs per month	.52(*)	.028
Cheating	zero hrs per month	1-9 hrs per month	-.29(*)	.018
		10 or more hrs per month	-.42(*)	.001
	1-9 hrs per month	zero hrs per month	.29(*)	.018
		10 or more hrs per month	-.13	.415
	10 or more hrs per month	zero hrs per month	.42(*)	.001
		1-9 hrs per month	.13	.415

* The mean difference is significant at the .05 level.

There was not enough variation to compare freshman, sophomore, juniors, and senior or to evaluate age differences.

Conclusion and Recommendations

Cheating is not a new phenomenon, but the rise of competitive gaming and acceptable “cheats” is relatively new, at least in great numbers, and it appears to have helped hide the line between right and wrong for some students. This is essentially what we observe in the direct path, where students go from the game triangle straight to cheating. In the

direct path, we appear to have students who extend their schema for reasoning and deciding about games into the domain of higher education.

This is an inappropriate cognitive transfer and needs to be dealt with, but it is important to note that this is the “good” group. That is, these students have mistakenly applied one of their most available means-ends judgment and decision making schemata to higher education, but they would likely embrace a more apt metaphor or other schema than gaming if available. Such a paradigm shift is the business of education, and one of the recommended future research directions arising from this study.

So what about the other group, students on the indirect path? This group is more problematic as they are so focused on “winning” that they consciously choose risky behavior to achieve their ends. Whereas the direct path might be thought of as naïve kids who do not appreciate they are cheating as the consequence of an inappropriate metaphor-based schema, the students on the indirect path are Machiavellian types who consciously choose risky inappropriate behavior in pursuit of their goals. Trying to change such a student’s behavior is much more challenging than merely helping them identify a more apt and productive metaphor.

To address this challenge, we plan to conduct further research designed to provide negative reinforcement through the indirect path, while at the same time providing a more productive judgment and decision making schema. We are essentially building on what we see in the direct path group—that students transfer productive schemata from one domain to another—and using this to help students on the indirect path move to a more appropriate and productive cognitive process. More specifically, we will develop an experiential exercise where some students initially start out on the indirect path, but through negative reinforcement, are motivated to move to a less Machiavellian approach.

In proposing this research topic, we listed several issues relevant to CBFA faculty. In concluding the paper, we’ll address what we learned regarding each of these issues.

- If students view academics as a game do we as business faculty perpetuate an environment fertile for cheating since so much of the terminology we use includes gaming language (strategy, tactics, competitive edge, winning, losing, etc.)?

Yes, sports and war metaphors are ubiquitous in business, and business school texts, and this rhetoric is consistent with the types of games that best explain cheating behavior. While we need to use such rhetoric to make abstract ideas more concrete, we need to be more explicit with students about how far they can ride these metaphors, and that winning and losing in business is not the same as winning and losing in the Christian life.

- What about the use of simulations? Do they, induce students to “learn” to cheat in the safe confines of a virtual-world, only to expose themselves in the real-world of business at some later date?

Maybe. Simulations are much like the competitive games where students first learned to do whatever it takes to win. So left unchecked, simulations may further stimulate cheating behavior. However, simulations are also powerful tools for modeling successful honorable business practices, and can memorably illustrate solid Christian business praxis. We will experiment with simulations as a means to shaping more apt and productive schema for Christian business praxis.

- Do we need to discover more effective ways to instill ethical principles into the hearts and minds of our business students?

Yes. Our students need practical Christ-centered mental models for navigating through complex situations and ethical dilemmas. It's clear that they currently lack strong principled frameworks for resolving ethical dilemmas in daily life. Importantly, as we learned with the "healthy foods" businesses that failed in the 1970s and 1980s, it's not enough for a food to be healthy; it needs to taste good too. With respect to thinking about higher education and cheating behavior, it's not enough to be principled, we need mental models that help achieve results too.

- Have we been too soft with regard to dealing with cheaters that students no longer consider the consequences as deterrence?

Maybe. While many secular schools have moved to strict anti-cheating policies such as one strike and you're out, many Christian colleges and universities have very lenient "grace" oriented policies that may serve to facilitate a cheating culture. Unintentionally allowing cheating to go on in our business schools undermines both a student's self-respect and respect for our programs. It also leads to inappropriate spiritual formation that can take a lifetime to correct. We owe it to ourselves and our students to conscientiously deal with this issue of cheating. It is fundamental to the mission of our programs.

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