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Budget Habits of College Students: An Empirical Analysis of Expectations and Realizations

James C. Brau, Marshall Ringwood, and Jessica West*

Brigham Young University, Brigham Young University, Stetson University

Using a sample of more than 500 college students from a large, private university, this study seeks to analyze spending expectations of students, their realized habits, and the dispersion between the two. We first ask the students to project what they think their monthly budget will be throughout the semester. We then ask them to track their expenses for three months. The students do the same for income they receive. The students then report their actual spending habits and answer various questions related to their demography, family, and life experience. We use simple univariate correlation methods to explain factors that may influence their expected income and spending as well as their actual income and spending. Additionally, we consider the association specifically between these factors and credit spending, both projected and realized. Using the same estimation method, we determine the degree to which a student adheres to a personal budget, which is known as expenditure dispersion. We then estimate a multivariate model on expenditure dispersion. Our findings identify factors that predispose college students to favorable and unfavorable budget outcomes.

Keywords: Budgeting, College Students, Emerging Adults, Personal Finance

Disciplines of Interest: Personal Finance, Financial Planning, College Students

INTRODUCTION

William E. Gladstone once said, "Budgets are not merely affairs of arithmetic, but in a thousand ways go to the root of prosperity of individuals, the relation of classes and the strength of kingdoms" [Cleveland, 1919]. On the other hand, George W. Bush is reported as once saying, "It's clearly a budget. It's got a lot of numbers in it" [Reid, 2000]. The difference between these two excerpts underscores the contrasting opinions people have on budgeting—budgeting is both imperative to being successful and a frustrating mechanism for constraint.

A large university campus provides a natural experiment for a budgeting study with a focus on financial literacy. To measure budgeting habits, we asked a sample of more than 500 college students in an introductory finance course to report projected and realized income and spending over a three-month period. The students answered questions in categories ranging from personal income to money spent on airfare, with 9 categories for income and 27 categories for expenditures. Though it is not the main scope of this paper, grouping income and expenditures by variable allows for examination of both student spending habits and financial independence. The students also answered a survey to provide data on their demographic and family background. Similar survey methods have been used in Brau, et al. [2016], Brau, et al. [2017], and Brau, et al. [2020].

To begin our analysis, we first use Spearman correlations to determine the pairwise association between expected income, expected spending, actual income, and actual spending with a set of factors derived from the survey. We also measure the correlation between the independent variables and the dispersion between expected and realized spending. This income dispersion is the variable that holds the most importance for us. This variable represents whether a student has a personal budget deficit or a surplus.

Out of these correlations, the following independent factors are deemed to have a statistically significant association with one of the aforementioned dependent variables: having a college graduate parent, having parents who make less than $30,000 annually, having been involved in financial decisions growing up, reading business news regularly, having had a job in high school, having a checking account for five or more years, having invested in the stock market, having owned two or more credit cards, having paid for at least 50 percent of one's own college expenses, and having paid for some or all personal expenses in high school.

We also use Spearman correlations to show the association between each independent variable and expenditures using a credit card, in both the projected and realized amounts. We do this largely because of the focus given to credit spending by Hayhoe et al. [2000].

At this stage, we then estimate a multivariate model, taking an ordinary least squares (OLS) approach to estimate the marginal effect of each independent variable on expenditure dispersion. We hypothesize that variation in

independent factors will explain variance in the designated dependent variable. It follows that typical budget variance reflects unpredictable factors that cause an individual to spend more (or less) than one expects in a personal budget.

In connection with our testing, we find explicit factors that statically demonstrate a high level of predictability of outcomes with regard to expenditure dispersion and student budgeting behavior. Ultimately, we find that having a college graduate parent and having parents who make less than $30,000 a year to be statistically significant in the model with spending dispersion as the dependent variable.

We next introduce an additional control on the multivariate model, where we restrict the data set to include only the values of students who we believe were taking the exercise the most seriously. We measure this by taking the absolute value of the difference between the variables for actual income and actual spending and the variables for projected income and projected spending. Our results are robust to this alternative specification.

LITERATURE REVIEW

The increased financial burden on students to obtain a college degree was recently highlighted in Lucca, Nadauld, and Shen [2019]. They use econometric identification strategies to show causality between increases in federal student loan programs and increases in tuition. Lucca et al. [2019] show that for each dollar of increased student loans, tuition is raised 60 cents for subsidized loans and 20 cents for unsubsidized loans. That is, colleges and universities raise their tuition because the federal government is making larger amounts of student loans available and easier to get. With this increasing lending capacity and higher tuition, student budgeting and financial discipline are nontrivial subjects to study.

In examining how college students manage their finances, Henry, Weber, and Yarbrough, 2001 find that women are more likely to have budgets, whereas married students are more likely to follow their budgets. Older students, age 36–40, however, are the most likely to follow their budgets most of the time. Their study consists of 126 students, wherein 84 percent of the sample are female, average income is just below $16,000 dollars, and average debt is found to be $13,000 dollars. Henry et al. [2001], on noticing a conspicuously high amount of debt on average, find that 40 percent of undergraduate students and 96 percent of graduate students participating in the study have some amount of debt.

Hayhoe et al. [2000] focus their research specifically on credit card spending among college students. Between the years 1988 and 1990, the number of undergraduate students with a credit card increased by over 30 percent; in fact, during the time that this study took place, 70–80 percent of all college students

were estimated to have at least one credit card. Furthermore, a study by Xiao et al. [1995] finds that 82 percent of the 480 people surveyed have positive attitudes on credit card use. Davies and Lea [1995] find that college students' attitudes toward incurring debt remarkably change from when they begin college to the time they complete their undergraduate degrees.

First, Hayhoe et al. [2000] consider the impact of gender on credit use, then the impact of credit use on purchasing and financial management behaviors. This line of inquiry is consistent with Williams [1991], who shows that men are less likely than women to have a budget, keep financial records, plan order and sequence spending, set aside time for financial management work, pay finance charges, carry through financial plans, and shop for best buys. Bruin, Muskie, and Swift [1997] finds that credit cards are most commonly used for school supplies, gasoline, travel, and small personal items.

Poor prior credit usage does not seem to lead to personal implementation of additional financial management practices, such as budgeting [Walker, 1996]. According to Muske and Winter [1998], a budget plan should go beyond the extent of credit card statement reconciliation and requires regular generation of financial statements; budgeting; control of spending; recording income and expenses; and tax, insurance, investment, retirement, and estate planning.

Hayhoe et al. [2000] use logit models and show that age, marital status and gender are all significant beyond the 0.05 level with a written budget as the binary dependent variable. They also include a number of findings about particular spending habits among the sexes: females in the study use credit cards more than males for clothing; males use credit cards more than females for electronics, entertainment, and food away from home. These results are consistent with a finding by Dittmar et al. [1996] that women spend more on appearance, whereas men spend more on leisure activities.

Furthermore, Hayhoe et al. [2000] find gender to be statistically significantly correlated with a number of financial practices as the dependent variable, including having a written budget, shopping with a list, keeping bills/receipts, and saving on a regular basis. In each of these cases women are more likely to say that they do them. In general, a higher number of credit cards with a balance are correlated with lack of financial management practices.

Not all academic literature argues that budgets create value, though this literature pertains mostly to corporate budgets. Hope and Fraser [2003] argue that budgeting (among firms) causes ineffective behavior and wastes management time, ultimately leading to firms not keeping up with competition; because of this, they argue that budgeting is a fundamentally flawed practice and should be done away with (as cited in Libby and Lindsay [2010]). Also, some accounting literature describes potential negative effects that arise when firms blindly link budgets to performance evaluation techniques [Merchant and Manzioni, 1989].

Libby and Lindsay [2010] conducted a survey through the membership directories of Certified Management Accountants of Canada and the Institute of Management Accountants in the United States. The survey included only firms with a vice president, CFO, director of budgeting, or division manager. Out of the approximately equal subsamples of manufacturing and service sector firms, 79 percent use budgets for control [Libby and Lindsay, 2010]. In Libby and Lindsay [2010], 94 percent of firms surveyed plan on maintaining their budgeting practices; however, 46 percent of Canadian firms stated that they want to change their budgeting practices within the next two years.

DATA AND METHODS

We use a sample of 508 students in an introductory finance class at a large, private, western U.S. university. The survey first asks students a series of control questions in four principal categories. These categories are referred to in this paper as demography, family, financial knowledge, and life experience. In the demography category, students are asked for their age range (e.g., under 17, 18–20, etc.), gender, whether or not they are international, how long they have been married (students can respond that they are not married), number of children (students can respond that they have no children), and academic standing (freshman, sophomore, junior, or senior).

In the category for family information, students are asked if they have a parent who is a college graduate, if they received an allowance as a child, the income range of their parents, and the degree to which they were involved in financial decisions in the home growing up.

For the financial background questions, students are asked the following: if they have taken a high school finance, high school accounting, or college accounting course; if they read business news such as the *Wall Street Journal* on a regular basis; if they watch business news video; and if they are enrolled in one of the four main business disciplines offered at the university (management, finance, accounting, or information systems).

Finally, regarding their life experience, students are asked if they had a job in high school, how long they have had a checking account (not having one is also an option), if they have invested in the stock market, how many credit cards they have (if any), the percentage of college expenses they pay themselves, and the portion of high school expenses they paid themselves.

Students are asked to project their income and expenditures at the beginning of the semester for the ensuing three months as part of an initial assignment. Students project income and expenditures in a series of categories and enter said information into a survey. Students then tracked their actual income and expenditures throughout that period in those same categories over the next three months. In the second half of the survey, students entered the exact

numbers from the assignment for their realized income and expenditures. In the greater category of income, students recorded their projected and realized income in the following categories: personal income, spouse income, cash savings (money already in a student's checking account, for example), parent income (money that a student's parents gave the student throughout the course of the assignment), financial aid, grants, loans, social security payments, and a miscellaneous income (all money received through mediums not covered by the previous categories). Projected and realized expenditures were recorded in the following 27 categories: tuition, school books, rent, utilities, phone, internet, groceries, fast food, car payment, car insurance, gas, car repairs, airfare, medical insurance, medical copay, clothing, grooming, laundry, gifts, entertainment, charitable donations, credit card payments, miscellaneous debt payments, life insurance, vacation, money set aside for savings, and a category for any other payments not listed.

In Table 1 we report the sample descriptive statistics. Approximately half of these variables have the full 508 observations. The other half have between five and nine missing observations. Perhaps out of reluctance to disclose hints at one's socioeconomic upbringing, parent income is missing the most observations at nine. To generate interpretable results from our regressions, we turn each variable with more than a yes-or-no response into a dummy variable for each of its responses. We show indicator variable results for the following variables: age, academic standing, checking account, credit cards, percentage of college expenses paid for by the student, length of time student has been married (if married at all), number of children (if the student has children), combined income of the student's parents, degree to which parents involved student in financial decisions in the home, and how much of the student's high school expenses were paid for by the student.

Students age 21–23 are the largest age group at 55.9 percent of the sample. Juniors and seniors make up 41.5 percent and 43.9 percent of the sample, respectively. Students who have had a checking account for at least five years make up 57.1 percent. Students with exactly one credit card make up 41.1 percent. Students who pay 100 percent of their college expenses are the largest group in that category at 38.6 percent. Unmarried students make up 65.3 percent of the sample. The vast majority of students have no children at 92.3 percent. The most common income bracket for students' parents is that of $100,000–200,000 per year at 27.8 percent, which indicates that parents' income is fairly evenly distributed in the sample, although a plurality of the students are from relatively higher income families. The most common category for involvement in financial decisions in the home is the self-report of "seldom" being involved at 45.7 percent. A clear majority of 67.1 percent of the students report having paid "some" of their high school expenses.

Table 1. Descriptive Statistics

Variable	N	Mean	Median	Std Dev	Min	Max
Female	508	0.268	0	0.443	0	1
HS Finance	508	0.106	0	0.309	0	1
HS Accounting	508	0.154	0	0.361	0	1
Col. Accounting	508	0.919	1	0.273	0	1
Read Business	508	0.287	0	0.453	0	1
TV Business	508	0.079	0	0.270	0	1
Parent Attend College	508	0.839	1	0.368	0	1
Allowance	508	0.470	0	0.500	0	1
HS Job	508	0.624	1	0.485	0	1
Stock Market	508	0.260	0	0.439	0	1
International	508	0.108	0	0.311	0	1
Age 24+	508	0.303	0	0.460	0	1
Upperclassman	508	0.856	1	0.351	0	1
2+ Credit Cards	508	0.352	0	0.478	0	1
50+% College Exp. Paid by Student	508	0.736	1	0.441	0	1
Married	508	0.331	0	0.471	0	1
1+ Children	508	0.061	0	0.240	0	1
Age 18–20	508	0.128	0	0.334	0	1
Age 21–23	508	0.559	1	0.497	0	1
Age 24–26	508	0.254	0	0.436	0	1
Age 27–29	508	0.039	0	0.195	0	1
Age 30+	508	0.010	0	0.099	0	1
Freshman	508	0.006	0	0.077	0	1
Sophomore	508	0.128	0	0.334	0	1
Junior	508	0.415	0	0.493	0	1
Senior	508	0.439	0	0.497	0	1
Graduate	508	0.002	0	0.044	0	1
No Checking Account	508	0.010	0	0.099	0	1
Checking Account 1 Year	508	0.018	0	0.132	0	1
Checking Account 2–3 Years	508	0.146	0	0.353	0	1
Checking Account 4–5 Years	508	0.242	0	0.429	0	1
Checking Account 5+ Years	508	0.571	1	0.495	0	1
No Credit Cards	508	0.226	0	0.419	0	1
1 Credit Card	508	0.411	0	0.493	0	1
2 Credit Cards	508	0.201	0	0.401	0	1

Table 1. Descriptive Statistics (Continued)

Variable	N	Mean	Median	Std Dev	Min	Max
3 Credit Cards	508	0.102	0	0.303	0	1
4 Credit Cards	508	0.033	0	0.180	0	1
5+ Credit Cards	508	0.016	0	0.125	0	1
0% College Exp. Paid by Student	508	0.083	0	0.276	0	1
1–25% College Exp. Paid by Student	508	0.169	0	0.375	0	1
26–50% College Exp. Paid by Student	508	0.120	0	0.325	0	1
51–75% College Exp. Paid by Student	508	0.102	0	0.303	0	1
76–99% College Exp. Paid by Student	508	0.128	0	0.334	0	1
100% College Exp. Paid by Student	508	0.386	0	0.487	0	1
Not Married	508	0.654	1	0.476	0	1
1 Year Married	508	0.197	0	0.398	0	1
2–3 Years Marr.	508	0.114	0	0.318	0	1
4–5 Years Marr.	508	0.014	0	0.117	0	1
5+ Years Marr.	508	0.006	0	0.077	0	1
No Children	508	0.923	1	0.266	0	1
1 Child	508	0.039	0	0.195	0	1
2 Children	508	0.016	0	0.125	0	1
3+ Children	508	0.006	0	0.077	0	1
Parents Income <30k	508	0.079	0	0.270	0	1
Parents Income 30-50k	508	0.120	0	0.325	0	1
Parents Income 50-85k	508	0.175	0	0.381	0	1
Parents Income 85-100k	508	0.154	0	0.361	0	1
Parents Income 100-200k	508	0.278	0	0.448	0	1
Parents Income >200k	508	0.177	0	0.382	0	1
Never Involved in Family Fin Decisions	508	0.311	0	0.463	0	1
Seldom Involved in Family Fin Decisions	508	0.457	0	0.499	0	1
Usually Involved in Family Fin Decisions	508	0.152	0	0.359	0	1
Often Involved in Family Fin Decisions	508	0.071	0	0.257	0	1
0% HS Exp. Paid by Student	508	0.098	0	0.298	0	1
Some HS Exp. Paid by Student	508	0.671	0	0.470	0	1
100% HS Exp. Paid by Student	508	0.220	0	0.415	0	1

The indicator variables we use in univariate correlations as well as our regressions include each dummy variable originally taken from the survey in addition to the following selection of variables from the new binary assortment: being at least 24 years old; being an upperclassman (junior, senior, or graduate student); having a checking account for at least five years; owning at least two credit cards; paying for at least 50 percent of college expenses; being married; having at least one child; parents earning less than thirty thousand dollars per year; being either seldom, usually, or often involved in financial decisions growing up (as three separate variables); paying some of amount of high school expenses; and paying 100 percent of high school expenses.

Table 2 reports the summary statistics for each of the projected and realized budget variables. Due to outliers, all variables dealing with student budgeting practices have been winsorized at the 98 percent level. For projected income variables, the variable with the highest mean is cash savings. The average spouse income is $287.85 per month. It is important to note, however, that the median value for spouse income is zero. This finding is explained by the fact that most students are not married and therefore do not have a spouse income. The projected expenses variable with the highest mean is rent, with a mean of $422.02 and a median of $320.00. The realized income variable with the highest mean value is cash savings, with a mean of $1,223.20, followed by spouse income with a mean of $284.84. The realized expense variable with the highest mean is rent, with a mean value of $418.37.

We now consider the dispersion variables for both income and expenses, as well as for aggregated income and expenses, all found in Table 3. The general format we follow for income dispersion variables is the actual (or realized) variable subtracted by the projected variable. A positive dispersion income value indicates that a student has made more money than anticipated, and a negative dispersion value will indicate that a student has made less money than anticipated. For the dispersion between expenditure variables, we choose the opposite approach: the dispersion is equal to the projected variable subtracted by the realized variable. The choice to use the opposite approach for dispersion variables is because with expenses, a higher value for the realized variable than for the projected variable means the student is overspending the budget. Essentially, we assume that the relationship between projected and realized values for income is converse to the relationship between projected and actual values for expenses. Also found in Table 3 are two variables that we use as additional controls for our multivariate model: net actual income and net projected income, which are aggregated income subtracted by aggregated expenses for both actual and projected variables, respectively. The net variables serve as a measure of robustness because we can limit the regression to include only observations for which the absolute value of one of these variables is within a certain band. Perhaps students who fit this criterion took the assignment more seriously.

Table 2. Projected and Actual Budget Variables

Variable	Projected Budget Variables						Actual Budget Variables					
	N	Mean	Median	Std Dev	Min	Max	N	Mean	Median	Std Dev	Min	Max
Personal Income	468	59.4	1	212	0	1379	467	885.1	465	2537	0	19179
Spouse Income	469	287.9	0	646	0	3600	469	284.8	0	648	0	3600
Cash	468	1255.9	3	2920	0	15280	469	1223.2	3	2797	0	15000
Parent Income	471	171.1	0	359	0	2000	471	207.3	0	429	0	2500
Financial Aid	469	143.4	0	499	0	2800	470	160.2	0	582	0	4000
Grants	471	200.3	0	827	0	5500	471	194.9	0	796	0	5500
Loans	471	106.7	0	670	0	5500	471	107.5	0	671	0	5500
Social Security	471	0.4	0	4	0	35	471	0.4	0	4	0	40
Miscellaneous	471	79.9	0	298	0	2000	471	112.8	0	387	0	2626
Tuition	434	382.3	0	973	0	4600	436	384.9	0	976	0	4450
School Books	437	55.1	0	136	0	600	437	53.3	0	120	0	600
Rent	437	422.0	320	491	0	4000	437	418.4	320	485	0	3940
Utilities	436	36.0	20	56	0	360	436	37.0	21	59	0	360
Phone	429	3.0	0	14	0	90	430	3.0	0	14	0	89
Internet	436	29.4	0	44	0	200	435	33.0	0	59	0	350
Groceries	437	154.6	120	172	0	1400	437	161.1	117	197	0	1600
Fast Food	434	42.4	25	54	0	300	434	52.8	31	65	0	350
Car Payment	433	28.4	0	91	0	560	433	31.8	0	105	0	705
Car Insurance	435	30.9	0	63	0	400	435	31.7	0	68	0	460
Gas	436	85.9	60	167	0	1500	436	89.8	60	164	0	1425
Car Repairs	436	12.1	0	36	0	220	436	22.5	0	70	0	450
Air Fare	437	24.4	0	133	0	1000	436	41.5	0	196	0	1400
Medical Insurance	437	29.5	0	114	0	900	437	29.5	0	117	0	900
Medical Co-pay	437	10.0	0	30	0	200	437	15.5	0	52	0	387
Clothing	437	24.2	0	55	0	360	437	35.7	0	91	0	600
Grooming	437	11.1	0	21	0	150	437	12.5	0	27	0	150
Laundry	435	4.9	0	8	0	40	436	4.1	0	7	0	38
Gifts	436	15.6	0	57	0	500	437	17.6	0	60	0	500
Entertainment	435	39.7	30	45	0	300	437	45.9	27	65	0	426
Tithing	437	130.0	60	296	0	2300	437	137.9	63	294	0	2200
Credit Card	434	61.3	0	157	0	884	437	77.4	0	203	0	1235
Debt Payment	437	22.0	0	113	0	845	437	33.3	0	166	0	1249
Life Insurance	437	1.7	0	10	0	78	437	1.8	0	10	0	78
Savings	435	90.2	0	465	0	4137	437	88.9	0	424	0	3500
Vacation	434	9.1	0	41	0	300	434	19.7	0	91	0	663
Other	435	19.9	0	80	0	630	435	27.2	0	93	0	680

Table 3. Dispersion Variables

Variable	N	Mean	Median	Std Dev	Min	Max
Personal Income	465	829.2	383	2543.5	−202.0	19178.0
Spouse Income	469	−3.0	0	122.4	−1800.0	615.6
Cash	468	−30.1	0	636.8	−11345.0	3300.0
Parent Income	471	36.2	0	190.6	−650.0	2500.0
Financial Aid	469	17.1	0	146.1	−50.0	1800.0
Grants	471	−5.5	0	249.4	−4950.0	2050.0
Loans	471	0.7	0	11.5	0.0	200.0
Social Security	471	0.1	0	0.5	0.0	5.0
Miscellaneous	471	32.9	0	246.1	−1000.0	2626.0
Tuition	434	−4.4	0	135.2	−2250.0	1105.0
School Books	437	1.8	0	58.0	−600.0	350.0
Rent	437	3.7	0	61.5	−544.0	650.0
Utilities	436	−1.0	0	18.2	−160.0	100.0
Phone	429	0.0	0	5.0	−39.0	90.0
Internet	435	−3.6	0	29.0	−285.0	80.0
Groceries	437	−6.6	0	59.9	−349.0	205.1
Fast Food	434	−10.4	−1.15	30.8	−163.4	122.0
Car Payment	431	−3.4	0	37.1	−705.0	30.0
Car Insurance	435	−0.8	0	17.4	−246.8	119.0
Gas	436	−3.9	0	34.5	−291.0	105.2
Car Repairs	436	−10.5	0	54.1	−450.0	130.0
Air Fare	436	−17.0	0	125.2	−1400.0	510.0
Medical Insurance	437	0.0	0	26.5	−298.0	380.0
Medical Co-pay	437	−5.6	0	44.4	−386.6	200.0
Clothing	437	−11.5	0	58.4	−550.0	200.0
Grooming	437	−1.5	0	17.4	−120.0	100.0
Laundry	435	0.7	0	4.1	−37.4	37.0
Gifts	436	−2.0	0	38.4	−500.0	500.0
Entertainment	435	−6.4	0	42.0	−426.0	113.0
Tithing	437	−7.8	0	67.8	−445.0	485.0
Credit Card	434	−16.5	0	93.1	−1235.0	200.0
Debt Payment	437	−11.3	0	83.3	−1249.0	200.0
Life Insurance	437	−0.1	0	1.8	−37.0	0.3
Savings	435	0.9	0	147.9	−1942.4	700.0
Vacation	434	−10.6	0	75.9	−662.8	200.0
Other	434	−7.4	0	61.9	−665.0	623.0

Table 3. Dispersion Variables (Continued)

Variable	N	Mean	Median	Std Dev	Min	Max
Actual Income	462	3109.9	1558	4582.5	0.0	28600.0
Actual Spending	410	1859.9	1238	2406.1	0.0	19216.0
Projected Income	461	2274.6	1058	3560.1	0.0	26780.0
Projected Spending	401	1691.1	1099	2279.2	0.0	18642.0
Net Actual Income	403	1304.9	202.1	3615.1	−6761.0	24285.3
Net Projected Income	392	574.1	−133	3351.4	−13587.0	16715.0
Spending Dispersion	397	−134.6	−40	365.7	−2790.0	1000.0
Income Dispersion	458	850.3	456.5	2581.1	−10035.0	20369.0

Table 4. Univariate Spearman Correlation Coefficients: Demographics

	Age 24+	Female	Intl.	Married	Children
Actual Credit	0.098^*	0.002	−0.006	0.037	0.080
	0.040	0.960	0.896	0.440	0.094
	437	437	437	437	437
Projected Credit	0.091	0.012	−0.014	0.048	0.098^*
	0.059	0.809	0.764	0.319	0.041
	434	434	434	434	434
Actual Income	0.214^*	$−0.103^*$	$−0.096^*$	0.362^*	0.177^*
	<.0001	0.0262	0.0398	<.0001	0.0001
	462	462	462	462	462
Projected Income	0.165^*	−0.061	−0.056	0.362^*	0.146^*
	0.0004	0.1908	0.228	<.0001	0.0016
	461	461	461	461	461
Actual Spending	0.286^*	−0.015	−0.012	0.439^*	0.193
	<.0001	0.7574	0.8148	<.0001	<.0001
	410	410	410	410	410
Projected Spending	0.284^*	−0.013	−0.002	0.442^*	0.188^*
	<.0001	0.7902	0.9612	<.0001	0.0002
	401	401	401	401	401
Expend. Dispersion	$−0.126^*$	0.042	0.140^*	$−0.173^*$	−0.077
	0.0118	0.4026	0.0053	0.0005	0.1267
	397	397	397	397	397

[*]Significant at 0.05 level.

Table 5. Univariate Spearman Correlation Coefficients: Family

	Parent	Allowance	<30 k	Seldom	Usually	Often
Actual Credit	−0.111*	0.044	0.080	−0.018	0.134*	−0.025
	0.0203	0.3627	0.0962	0.7081	0.0051	0.6037
	437	437	437	437	437	437
Projected Credit	−0.127*	0.035	0.105*	−0.028	0.110*	−0.005
	0.0082	0.4620	0.0283	0.5556	0.0222	0.9229
	434	434	434	434	434	434
Actual Income	−0.011	−0.021	0.000	0.041	0.050	−0.033
	0.8112	0.6578	0.9995	0.3828	0.2805	0.4806
	462	462	462	462	462	462
Projected Income	0.038	−0.004	−0.004	0.046	0.042	−0.003
	0.4155	0.9316	0.9253	0.3294	0.3655	0.9417
	461	461	461	461	461	461
Actual Spending	0.032	−0.032	0.078	0.058	0.050	0.021
	0.5139	0.5224	0.1133	0.2379	0.3114	0.6644
	410	410	410	410	410	410
Projected Spending	−0.014	−0.011	0.103*	0.057	0.059	−0.001
	0.7839	0.8251	0.04	0.2551	0.2413	0.9872
	401	401	401	401	401	401
Expend. Dispersion	−0.114*	−0.035	0.143*	−0.009	−0.026	0.064
	0.0230	0.4909	0.0043	0.8574	0.6007	0.2046
	397	397	397	397	397	397

*Significant at 0.05 level.

The average dispersion for personal income is \$829.17. This dispersion is larger than any other variable's average dispersion. Most of the variables used have a dispersion somewhere between –30 and 30.

EMPIRICAL RESULTS

We first consider results from pairwise Spearman correlations in Tables 4–7. We choose Spearman as opposed to Pearson due to our extensive use of binary and ordinal explanatory variables. As our dependent variables, we consider seven different variables. Six of these variables are sets of actual and projected variables. The different dependent variables are actual credit card spending, projected credit card spending, actual total income, projected total income, actual total spending, projected total spending, and the dispersion

Table 6. Univariate Spearman Correlation Coefficients: Financial Knowledge

	HS Fin.	HS Acc.	Col. Acc.	Read Bus.	TV Bus.	Business
Actual Credit	−0.004	0.058	−0.055	−0.020	0.039	−0.047
	0.9337	0.2249	0.2528	0.6746	0.4157	0.3343
	437	437	437	437	437	431
Projected Credit	0.003	0.067	−0.059	−0.025	0.037	−0.067
	0.9477	0.1612	0.2182	0.5975	0.4394	0.1686
	434	434	434	434	434	428
Actual Income	0.015	0.012	0.039	0.136*	0.098*	0.053
	0.7400	0.7911	0.4012	0.0035	0.0359	0.2581
	462	462	462	462	462	456
Projected Income	0.020	0.004	0.046	0.156*	0.078	0.042
	0.6703	0.9277	0.3232	0.0008	0.0955	0.3766
	461	461	461	461	461	456
Actual Spending	−0.052	−0.004	0.051	0.087	0.040	0.035
	0.2898	0.9324	0.3071	0.0771	0.4148	0.489
	410	410	410	410	410	404
Projected Spending	−0.047	−0.003	0.093	0.108*	0.066	0.037
	0.3526	0.953	0.0624	0.0305	0.1872	0.4584
	401	401	401	401	401	395
Expend. Dispersion	0.080	0.062	0.091	−0.019	0.041	−0.008
	0.1108	0.2158	0.0701	0.7000	0.4133	0.8720
	397	397	397	397	397	391

*Significant at 0.05 level.

between projected spending and actual spending. This last variable is our main measure to explore a student's aptitude for keeping a budget.

Starting first with realized credit card spending as the dependent variable, we find that being at least 24 years old, being an upperclassman, being usually involved in family financial decisions, having at least two credit cards, and paying for at least 50 percent of the student's own college expenses are positively correlated with the dependent variable at the 0.05 level. The only independent variable negatively correlated with actual credit card spending is the variable indicating that at least one of the student's parents is a college graduate.

In the case where projected credit card spending is the dependent variable, results are largely similar. The variables indicating the student having at least one child, being an upperclassman, the student's parents collectively earning less than

Table 7. Univariate Spearman Correlation Coefficients: Life Experience

	HS Job	Acct. 5+ Yr.	Stock Mkt.	2+ Credit	Col. Paid 50%	HS Some	HS Full
Actual Credit	0.014	0.083	0.044	0.179*	0.105*	0.067	−0.034
	0.7631	0.0824	0.3606	0.0002	0.0281	0.1593	0.4835
	437	437	437	437	437	437	437
Projected Credit	0.035	0.086	0.042	0.188*	0.104*	0.086	−0.059
	0.4658	0.0719	0.3797	<.0001	0.0297	0.0719	0.2200
	434	434	434	434	434	434	434
Actual Income	0.165*	0.187*	0.084	0.249*	0.130*	0.095*	−0.154*
	0.0004	<.0001	0.0714	<.0001	0.0052	0.0412	0.0009
	462	462	462	462	462	462	462
Projected Income	0.100*	0.168*	0.078	0.216*	0.060	0.065	−0.096*
	0.031	0.0003	0.0943	<.0001	0.1977	0.1626	0.0384
	461	461	461	461	461	461	461
Actual Spending	0.074	0.267*	0.121*	0.282*	0.133*	0.123*	−0.090
	0.1365	<.0001	0.0143	<.0001	0.007	0.0126	0.0675
	410	410	410	410	410	410	410
Projected Spending	0.083	0.256*	0.126*	0.291*	0.135*	0.129*	−0.061
	0.0969	<.0001	0.0115	<.0001	0.0068	0.0099	0.2245
	401	401	401	401	401	401	401
Expend. Dispersion	−0.047	−0.161*	−0.014	−0.057	0.001	0.009	0.140*
	0.3521	0.0013	0.7786	0.2541	0.9887	0.8635	0.0053
	397	397	397	397	397	397	397

*Significant at 0.05 level.

$30,000 per year, being usually involved in household financial decisions growing up, having at least two credit cards, and paying for at least 50 percent of college expenses are all positively correlated with the dependent variable at the 0.05 level. Once again, having a parent with a college degree is negatively correlated and also significant. It is interesting to note than no explanatory variables in the financial knowledge group show significant correlations with credit card spending, realized or projected. In reference to Hayhoe et al. [2000], we find no significant correlation between credit card spending and gender.

Now we consider pairwise correlations between actual total income and the various independent variables. We find that being at least 24 years old, being married, having at least one child, being an upperclassman, reading business news regularly, watching business news on television regularly, having had a job in high school, having a checking account for at least five years, having at least two credit cards, paying for 50 percent of college expenses, and

having paid some high school expenses are all positively correlated with realized total income at the 0.05 level. The explanatory variables negatively correlated are being female, being an international student, and having paid for all high school expenses.

When projected total income is used as the dependent variable, the pairwise results where there is a positive correlation are the same as for actual total income, except that viewing news on television, paying at least 50 percent of college expenses, and having paid some high school expenses are no longer significant. Having paid all high school expenses is the only explanatory variable negatively correlated with the dependent variable at the 0.05 significance level.

For expenses, we find that actual total spending is positively correlated with the following explanatory variables at the 0.05 level: being at least 24 years old, being married, being an upperclassman, having a checking account for at least five years, having invested in the stock market, having at least two credit cards, paying for at least 50 percent of college expenses, and having paid some high school expenses. No explanatory variable holds a negative significant correlation with actual total spending.

The same significant correlations hold between projected total spending and specific explanatory variables, but with the addition of three more variables that are positively correlated with the dependent variable: having at least one child, having parents who collectively make less than $30,000 per year, and reading business news regularly. Like its actual counterpart, there are no explanatory variables negatively correlated with projected total spending at the 0.05 significance level.

Finally, we consider all significant pairwise correlations between explanatory variables and our principal dependent variable of interest, which is expenditure dispersion. If an independent variable is positively correlated with expenditure dispersion, it indicates that the variable is correlated with students not effectively adhering to their budgets. Likewise, negatively correlated variables are associated with students adhering to their budgets. We find that being an international student, having parents that make less than $30,000 per year, and having paid for all high school expenses are positively correlated with expenditure dispersion at the 0.05 level. These relationships seem intuitive, because each variable is associated with people needing to adopt more austere financial practices to get by, especially while attending college. On the other hand, being at least 24 years old, being married, having a parent with a college degree, and having a checking account for at least five years are significantly correlated with expenditure dispersion and have a negative sign on their respective coefficients.

Next, we extend our analysis to a multivariate approach using OLS. We use each independent variable from all four previously established categories in our regression equation and consider expenditure dispersion as the dependent variable.

Table 8. General Regression for Spending Dispersion

Variable	Parameter	Std Err	*t*-value	*p*-value	VIF
Intercept	−24.9	92.8	−0.27	0.7888	0
Female	−17.5	44.9	−0.39	0.6971	1.22
HS Finance	59.9	67.3	0.89	0.3739	1.17
HS Accounting	37.2	54.1	0.69	0.4926	1.16
Col. Accounting	83.0	69.1	1.2	0.2306	1.11
Read Business	−0.3	43.9	−0.01	0.9949	1.21
TV Business	−9.1	73.0	−0.13	0.9004	1.16
Parent	−116.1*	53.0	−2.19	0.0292	1.19
Allowance	2.7	38.1	0.07	0.9444	1.12
HS Job	29.2	43.7	0.67	0.5045	1.40
Stock Market	−1.0	41.9	−0.02	0.9814	1.07
International	25.7	74.7	0.34	0.7313	1.68
24+ Years Old	−87.8	48.9	−1.79	0.0735	1.59
Upperclassman	−79.9	53.7	−1.49	0.1376	1.19
Acct. 5+ Years	−61.7	43.7	−1.41	0.1591	1.47
2+ Credit Cards	−0.9	42.5	−0.02	0.9833	1.27
Col. Paid 50+%	54.3	43.5	1.25	0.2133	1.19
Married	−52.2	46.6	−1.12	0.2636	1.50
1+ Children	−130.3	79.8	−1.63	0.1034	1.22
Parents <30k	150.5*	72.0	2.09	0.0372	1.20
Seldom Involved	−8.1	42.6	−0.19	0.8489	1.39
Usually Involved	−80.3	56.6	−1.42	0.1570	1.34
Often Involved	10.5	84.8	0.12	0.9016	1.18
HS Paid Some	20.8	65.9	0.32	0.7524	1.15
HS Paid 100%	7.7	55.5	0.14	0.8905	1.68

*Significant at 0.05 level.

First, consider a general regression using spending dispersion as the independent variable. These results are found in Table 8. We find that having at least one parent with a college degree and having parents that aggregately make less than $30,000 per year are the only variables that are statistically significant. These two variables are arguably opposites of each other; consequently, we would expect the coefficients to have different signs. No variable has a variance inflation factor (VIF) of greater than 10.7, indicating no significant multicollinearity between the independent variables.

We then estimate the regression specification found in Table 8, except we winsorize all budget variables at the 90 percent level. We find that the

Table 9. Regression Controlled for Net Actual Income

Variable	Parameter	Std Err	*t*-value	*p*-value	VIF
Intercept	−23.2	78.8	−0.29	0.7683	0
Female	−26.8	40.8	−0.66	0.512	1.23
HS Finance	64.7	58.9	1.10	0.2732	1.17
HS Accounting	−12.1	48.3	−0.25	0.8026	1.21
Col. Accounting	51.9	66.4	0.78	0.4351	1.20
Read Business	−16.5	42.5	−0.39	0.6972	1.21
TV Business	117.4	74.0	1.59	0.1138	1.12
Parent	−67.2	49.4	−1.36	0.1752	1.27
Allowance	9.6	34.9	0.27	0.7843	1.14
HS Job	−58.8	40.0	−1.47	0.1432	1.45
Stock Market	−16.9	37.9	−0.45	0.6558	1.09
International	35.3	67.0	0.53	0.5988	1.57
24+ Years Old	−47.7	47.7	−1.00	0.3188	1.66
Upperclassman	−61.4	48.4	−1.27	0.2059	1.29
Acct. 5+ Years	−10.0	40.3	−0.25	0.8036	1.53
2+ Credit Cards	26.3	41.8	0.63	0.5297	1.38
Col. Paid 50+%	110.5*	39.9	2.77	0.0060	1.29
Married	−89.9*	44.6	−2.01	0.0452	1.50
1+ Children	48.9	85.4	0.57	0.5674	1.19
Parents <30k	102.0	68.7	1.48	0.1393	1.23
Seldom Involved	−38.5	39.1	−0.98	0.3260	1.43
Usually Involved	−24.3	55.6	−0.44	0.6623	1.37
Often Involved	23.4	81.7	0.29	0.7751	1.19
HS Paid Some	149.4*	74.2	2.01	0.0452	1.13
HS Paid 100%	−32.6	47.4	−0.69	0.4927	1.60

*Significant at 0.05 level.

same two variables are significant at the 0.05 level, but the marginal effects are lower in magnitude: the parent college degree variable with a coefficient of −103.76 and the $30,000 variable with a coefficient of 87.64. Additionally, being an upperclassman is significant, with a parameter estimate of −64.92.

We next introduce an additional control to the same regression framework, where we restrict the observations to ones where the absolute value of either the net actual income (NAI) or net projected income (NPI) is below a certain value. Restricting the observations to a reasonable band could eliminate observations where the assignment was not taken seriously.

Table 10. Regression for Net Projected Income

Variable	Parameter	Std Err	*t*-value	*p*-value	VIF
Intercept	−45.1	108.2	−0.42	0.6774	0
Female	42.3	55.3	0.77	0.4450	1.25
HS Finance	68.2	80.5	0.85	0.3980	1.16
HS Accounting	4.0	65.4	0.06	0.9509	1.22
Col. Accounting	51.4	89.3	0.58	0.5653	1.20
Read Business	27.8	58.6	0.47	0.6356	1.25
TV Business	115.9	100.2	1.16	0.2484	1.21
Parent	−117.0	68.6	−1.71	0.0893	1.24
Allowance	15.7	47.1	0.33	0.7400	1.14
HS Job	21.1	54.0	0.39	0.6963	1.44
Stock Market	−29.0	51.4	−0.56	0.5728	1.08
International	−109.5	94.8	−1.15	0.2496	1.61
24+ Years Old	−35.0	64.2	−0.55	0.5859	1.54
Upperclassman	−99.6	67.2	−1.48	0.1398	1.34
Acct. 5+ Years	−28.1	53.9	−0.52	0.6019	1.49
2+ Credit Cards	−80.5	57.6	−1.40	0.1641	1.34
Col. Paid 50+%	125.2*	52.9	2.37	0.0189	1.26
Married	−82.0	60.1	−1.36	0.1740	1.41
1+ Children	14.7	129.9	0.11	0.9098	1.25
Parents <30k	146.0	96.9	1.51	0.1334	1.27
Seldom Involved	−5.2	52.8	−0.10	0.9218	1.41
Usually Involved	−69.3	72.3	−0.96	0.3387	1.31
Often Involved	−42.2	105.4	−0.40	0.6892	1.17
HS Paid Some	4.1	99.5	0.04	0.9669	1.12
HS Paid 100%	−15.1	63.4	−0.24	0.8124	1.57

*Significant at 0.05 level.

In the first of such controls we consider, we eliminate all observations where the net actual income is outside the interval between −1,000 and $1,000. The results for this regression are found in Table 9. We find that paying for at least half of college expenses is significant, with a coefficient of 110.52; being married is significant, with a coefficient of −89.88; and having paid some high school expenses is significant, with a coefficient of 149.40.

Now consider the first case with the separate control variable, net projected income. The results of this regression are found in Table 10. As with the previous regression, observations are restricted to those in which net projected income is between −1,000 and $1,000. We find in this specification that

Table 11. Regression for Net Actual Income

Variable	Parameter	Std Err	t-value	p-value	VIF
Intercept	9.9	87.7	0.11	0.9100	0.00
Female	20.3	49.3	0.41	0.6809	1.19
HS Finance	81.6	81.2	1.01	0.3164	1.17
HS Accounting	−100.6	60.9	−1.65	0.1005	1.34
Col. Accounting	−3.3	89.0	−0.04	0.9708	1.41
Read Business	15.6	50.4	0.31	0.7566	1.20
TV Business	133.9	92.1	1.45	0.1480	1.15
Parent	−53.9	63.7	−0.85	0.3984	1.56
Allowance	−11.5	42.2	−0.27	0.7865	1.20
HS Job	−61.4	47.7	−1.29	0.1995	1.49
Stock Market	−61.1	45.3	−1.35	0.1791	1.16
International	15.5	76.4	0.2	0.8396	1.57
24+ Years Old	−76.0	57.1	−1.33	0.1849	1.65
Upperclassman	−1.3	55.2	−0.02	0.9806	1.35
Acct. 5+ Years	−27.0	50.7	−0.53	0.5948	1.75
2+ Credit Cards	123.7*	53.5	2.31	0.0221	1.47
Col. Paid 50+%	93.4*	45.9	2.03	0.0439	1.32
Married	−136.6*	57.3	−2.38	0.0184	1.63
1+ Children	137.9	116.2	1.19	0.2374	1.25
Parents <30k	115.4	81.5	1.42	0.1588	1.27
Seldom Involved	−29.4	47.2	−0.62	0.5348	1.52
Usually Involved	15.8	67.5	0.23	0.8158	1.39
Often Involved	−51.4	96.0	−0.54	0.5930	1.25
HS Paid Some	233.5*	100.3	2.33	0.0213	1.22
HS Paid 100%	−79.4	57.4	−1.38	0.1689	1.72

*Significant at 0.05 level.

paying for at least half of the student's own college expenses is the only significant variable, with a marginal effect of 125.25. This is to say that students who pay for at least half of their college expenses on average see an increase of $125.25 to their spending dispersion.

We now consider identical regressions to those discussed in the last two paragraphs, but each with the budget variables winsorized to 90 percent instead of 98 percent. In the 90 percent case, using net actual income we find having a college graduate parent and having parents who make less than $30,000 per year are once again significant at the 0.05 level. The marginal effects are respectively −76.52 and 103.50. In the 90 percent case, using net projected

Table 12. Regression for Net Projected Income

Variable	Parameter	Std Err	*t*-value	*p*-value	VIF
Intercept	20.5	131.2	0.16	0.8759	0
Female	56.1	80.1	0.70	0.4849	1.28
HS Finance	−4.5	146.4	−0.03	0.9755	1.19
HS Accounting	−5.4	109.9	−0.05	0.9610	1.39
Col. Accounting	18.7	120.1	0.16	0.8763	1.34
Read Business	74.4	87.0	0.86	0.3942	1.31
TV Business	−117.4	180.3	−0.65	0.5162	1.38
Parent	−109.4	106.8	−1.02	0.3079	1.38
Allowance	6.9	72.5	0.10	0.9244	1.33
HS Job	−52.3	80.4	−0.65	0.5168	1.62
Stock Market	−60.1	76.2	−0.79	0.4319	1.16
International	−137.1	133.5	−1.03	0.3067	1.76
24+ Years Old	−164.7	91.7	−1.80	0.0751	1.56
Upperclassman	−45.1	95.8	−0.47	0.6388	1.63
Acct. 5+ Years	−35.7	78.6	−0.45	0.6508	1.57
2+ Credit Cards	−45.1	85.3	−0.53	0.5985	1.32
Col. Paid 50+%	207.8*	76.9	2.70	0.0079	1.45
Married	−197.7*	91.3	−2.17	0.0325	1.48
1+ Children	311.2	287.9	1.08	0.2821	1.20
Parents <30k	261.8	147.1	1.78	0.0778	1.34
Seldom Involved	−32.9	81.1	−0.41	0.6856	1.65
Usually Involved	−143.5	118.7	−1.21	0.2292	1.39
Often Involved	3.4	137.9	0.02	0.9802	1.30
HS Paid Some	145.6	157.1	0.93	0.3561	1.21
HS Paid 100%	−78.9	94.0	−0.84	0.4034	1.70

*Significant at 0.05 level.

income, we find two new variables to be statistically significant: having taken finance in high school and having a checking account for at least five years. The coefficients on these variables are 76.57 and −54.52. This finding indicates that a high school finance class may be associated with more effective budgeting.

To conclude our empirical results, we consider four last regressions according to the same style as those found in Tables 9 and 10. In the regressions in Tables 11 and 12, any observations where the absolute value of net actual income is greater than $500 are deleted. We estimate these regressions

both with the 98 percent winsorization and the 90 percent winsorization. Tables 11 and 12 report the results of a 98 percent winsorization. (All robustness test tables are available from the authors upon request.)

Let us first jointly examine Tables 11 and 12. In Table 12, we find three variables to be statistically significant: having at least two credit cards, paying for at least half of own college expenses, and being married. The coefficients are 123.70, 93.39, and -136.58, respectively. We see the college expenses and marriage variables as part of a common theme throughout this study. In the net projected income case (Table 12), we find similar results, with paying for at least 50 percent of college and being married both statistically significant. The marginal effects here are 207.83 and -197.74.

DISCUSSION AND CONCLUSION

This paper studies student budgets, comparing projected income and spending to realized income and spending. We document several factors that are involved in how students anticipate and carry out financial decisions. The factors that we find to be statistically significant in a multivariate framework are the variables for having a college graduate parent, parents making less than \$30,000 per year, being married, paying for at least half of student's own college expenses, having paid some high school expenses, having taken a high school finance class, having a checking account for at least five years, and having at least two credit cards. Parents making less than \$30,000 per year and paying for at least half of college expenses consistently have positive coefficients, in both pairwise and multivariate models. The parent income variable and being married consistently show negative coefficients and are often statistically significant.

The significance of the marriage variable is consistent with data collected at the University of Louisiana at Lafayette, as reported by Henry et al. [2001]. The Lafayette study indicates that married students are more likely than others to keep to their budgets. Our regression analysis yields negative correlation coefficients between marriage and adjusted income dispersion, meaning that married students more effectively predict their future financial situation and therefore presumably keep more accurate budgets, consistent with the Lafayette students.

The results of our study are also consistent with a study at the University of South Alabama conducted by Javine [2013]. Javine's analysis identifies a relationship between student loan debt and what Javine terms "financial independence," defined as whether or not a student could be claimed as a dependent by the student's parents for federal income tax purposes. Because federal income tax laws define a dependent using the percentage of upkeep paid by parents, Javine's financial independence variable should experience high overlap with our variable pertaining to students paying more than 50 percent of

their educational costs. These variables are associated with student loan debt and budget inaccuracy by their respective studies, suggesting that in both public (South Alabama) and private (our study) universities, students paying for college by themselves are more likely to experience unexpected budget fluctuation and borrow money than students with significant family support.

A study conducted by Archuleta, Dale, and Spann [2013] at a midwestern university's financial counseling center examines, in part, demographic data as it relates to student financial anxiety. Although the level of financial anxiety of a student does not, per se, indicate the student's level of budgeting accuracy, we expect students with poor budgeting skills to be more anxious than those whose budgets effectively predict future performance. The findings of Archuleta et al. [2013] pertaining to demographics deviate from our own on two points: 1) The Archuleta study finds a correlation between gender and financial anxiety; and 2) The Archuleta et al. study finds no correlation between marriage and financial anxiety. In the case of age, the Archuleta study, like our own, fails to find enough correlation to dismiss the null hypothesis. The differences between the Archuleta study and our own could come from the previously discussed difference in the dependent variable, university location, or selection bias, among other issues. (The Archuleta et al. study examines only students who sought treatment for financial anxiety, whereas our study contains students who were disposed to take an introductory finance class).

In 2004, a study of 189 students from a large eastern university [Kidwell and Turrisi, 2004] examines why college students might or might not be motivated to make budgets. The study finds that the motivation of a student to budget depends on that student's self-perceived aptitude at budgeting. Students who consider themselves effective planners tend to budget because of a subjective norm (i.e., because they feel like it is expected of them by those close to them), whereas students who consider themselves ineffective planners tend not to budget because of fear and other negative emotions. Our study finds that students whose parents made less than $30,000 per year had larger income dispersions than those who came from wealthier families. Students from poorer families may be less likely to come from households with a subjective norm of stable budgets; therefore, even students who believe they are confident with finances might not practice budgeting as much as students who came from households where budgeting is the subjective norm. Thus, our findings support a main prediction from the Kidwell study: students coming from potentially unstable financial situations will not be experienced budgeters.

Finally, we address the issue of variations in regional financial culture. Because many studies we have cited, including our own, are conducted at individual universities, local and regional cultures have the potential to impair comparisons across studies and universities. To better explain the effect of regional culture on financial habits, we turn to a study conducted by Jorgensen et al., [2017], which shows that financial achievement attitudes, financial power

attitudes, and levels of irresponsible spending (of which the latter is most likely a contributor to the income dispersion variable that we report herein) vary over the three regions of the United States into which Jorgensen et al. [2017] group their data. Because of these regional variations, we cannot be sure that our results at a Western university are characteristic of the average budget for all American students; however, we can state that our identified contributors to budget accuracy have been observed in other studies that focused on other facets of college-student budgeting (e.g. student financial literacy, financial planning, and financial anxiety).

To conclude, we have provided an analysis of college student budgeting expenditure dispersion. Our paper is informative to both academics and practitioners alike. For academics, our analysis advances the study of college budgeting and outcomes and suggests new areas for research. For practitioners, our study provides factors that financial planners can use to help college students, and perhaps others, create and adhere to budgets.

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Can Higher-Order Active Learning Modalities Improve Student Learning Outcomes in a Marketing Principles Class?

Jeffrey W. von Freymann* and Barry P. Cuffe
Wingate University

This paper examines whether adding higher-order active learning modalities in the forms of semester-long problem-based learning (PBL), simulation, or community social service/project-based learning (CSS/ PBL) assignments in a marketing principles class improve learning outcomes. While there is much support from the literature on using such higher-order modalities, significant grade improvements versus other forms have not been consistently identified. However, it is suggested here and is the contribution of this paper that such significance may exist, at least for marketing principles classes. Study results, established using single-factor analysis of variance (ANOVA) calculations, showed significant differences in content mastery when project-based learning and simulation modalities were added to the course. As such, these may be useful pedagogies for effectively reaching Generation Z and later generations of college student cohorts.

Keywords: Active Learning, Cooperative Learning, Collaborative Learning, Problem-Based Learning, Project-Based Learning, Case Studies, Social Entrepreneurship, Community Service, Generation Z Students
Disciplines of Interest: Marketing, Management, Business Analytics, Statistics and Optimization

INTRODUCTION

For many years, even before the turn of the century, educators had been concerned that lecture-focused classes may not be the best approach to greater student understanding and learning success [Barr and Tagg, 1995]. While researchers espoused other forms of teaching, the lecture format continued to

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*(Contact Author) Jeffrey W. von Freymann, Wingate University, Wingate, NC 28174. Phone: (843) 607-5889. E-mail: jvonfreymann@wingate.edu.

dominate higher education classes into the new millennium [Bligh, 2000]. During this period, however, educators came to realize that teaching for real learning was more complex and required much more from students than just memorization [Barr and Tagg, 1995]. Real learning, it was suggested, came when students were more engaged in the process, switching from passive to active learners, and being more involved in activities requiring process participation using higher-level thinking in problem assessments, analyses, and solutions [Prince, 2004; see also Ritchhart, Church, and Morrison, 2011; Roehl, Reddy, and Shannon, 2013].

By increasing student engagement, suggested as a means for improving learning success, active learning was offered as a possible alternative, presented as a series of best practices or categorical approaches, to better serve students in the learning process [Chickering and Gamson, 1987; Prince, 2004]. Prioritization was suggested in six levels of engagement from the simplest with questions/contributions in class discussions to the more complex involving project-based collaborative or cooperative student exchanges [Kuh et al., 2005]. Caution was raised, however, that when comparing higher-order active learning activities to other forms of classroom engagement, it has historically been difficult to demonstrate significance due to the mix of different practices included, especially with problem-based learning [Prince, 2004].

In this context, this paper will explore and compare students' content mastery as a function of different higher-order active learning modalities which were included in marketing principles classes from 2006 to 2018, all taught by one college professor, using one testing instrument. The higher-order modalities included four variations, differing from lower-order forms such as class questioning and participation and simple in-class group work as defined by Kuh et al. [2005]. Principles sections with traditional static casework as presented in their textbook served as the higher-order control. The second modality consists of sections that included open-ended, group-assigned, live business problems with directions from outside partners. This represented the initial move in a cooperative, problem-based learning (PBL) direction. The third variation was a community social service/*project*-based learning (CSS/PBL) scenario (as suggested by Kuh et al., 2005; see also Sigmon, 1979 and 1994) which allows the student groups to select and drive the project within established course guidelines. The fourth variation, simulation projects (with or without partners) provided another form of PBL for consideration in comparing student outcomes.

In choosing these different modalities, the instructor was informed and influenced by generational aspects, the modality applicability and compatibility of which will also be discussed in the paper. This step is included based on indications from the literature of the need of inclusion of the Generation Z students (and beyond) in modality selection, given multiple mentions of their need for involvement and feedback in the education process combined with their desire for class engagement [Mohr and Mohr, 2017; Wondergem, 2017].

However, part of this generational need may be due to the uncertain cultural and economic times in which we now live, driving a shift in educational considerations and choice of more extrinsic things like better jobs and higher incomes [Twenge and Donnelly, 2016]. Such considerations may be even more apparent in the new generations coming into marketing and other professional studies classes.

HYPOTHESIS TO BE TESTED

For this paper, the hypothesis to be tested is whether adding a higher-order active learning framework to the introductory marketing classes is a statistically sound practice. Could doing so lead to improved student learning and knowledge retention, as seen by better learning outcomes over those of students who are exposed only to traditional case-driven coursework? Therefore, the intent is to determine whether a class project addition significantly enhances students' abilities to better understand and retain basic start-up steps in the marketing process. This will be especially important to Generation Z and later generational cohorts of marketing students as they consider moving into their careers and whether they have the emotional stamina to make such a move [Mohr and Mohr, 2017; Kring, 2018].

LITERATURE REVIEW

Active Learning and its Higher-Order Derivatives

Active learning and its derivatives in cooperative, problem-based learning (PBL) and community social service/project-based learning (CSS/PBL) could be possible answers to calls for enhanced engagement, concept application, and content retention with their concept-driven, operative processes now more fully applied in a flipped classroom environment [Bishop and Verleger, 2013; Roehl, et al., 2013].

However, for the Generation Z cohort (1996–2012) [Dimock, 2019], even when technology is fully employed in the classroom, it is still only a platform [Wondergem, 2017]. Meaningful professorial involvement and engagement with the students must go beyond simple delivery of content to taking steps to connect them more effectively to the world outside the classroom [Mohr and Mohr, 2017; see also Baraldés, Benito, and Rigall-I-Torrent, 2011].

All of the active learning parts, emphasizing student engagement at their core, need to be considered by educators as proffered by Kuh et al. [2005] because "[s]tudents learn more when they are intensely involved in their education and have opportunities to think about and apply what they are learning in different settings. Furthermore, when students collaborate with others in solving problems or mastering difficult material, they acquire valuable skills that

prepare them to deal with the messy, unscripted problems they will encounter daily during and after college" [Kuh et al., 2005, 193].

Generational Considerations

Some educators, especially those in marketing education where extensive use of casework has been employed in classes for many years, may wonder if considering other higher-order active learning components for marketing principles courses is really engaging students more effectively and improving outcomes more than what marketing educators have traditionally been doing since before the turn of the century [Bonney, 2015]. All current generations, even the Silent Generation, have been exposed to some form of case study in their business education, especially those who are marketing majors [Perry, 1998]. As such, the concept-casework study approach has been accepted by many as a proven way to actively involve and engage students at all levels.

In addition, given the new demands of the Generation Z cohort of college students, the question remains whether any intensified active learning paradigm is making a meaningful difference [Wondergem, 2017]. A 2001 study posited that Millennial (1980–1995) cohort data on learning styles, among other key educational indicators, did not necessarily support cohort homogeneity in such learning styles and student attitudes [DiLullo, McGee, and Kriebel, 2011]. In other words, the 2001 study, in a review of the literature, suggested that none of the new curricula strategies (specifically intended to better engage Millennials) had significantly higher outcomes over other past alternatives. On the other hand, more recent studies [Bonney, 2015] suggest that casework in the classroom, either instructor-developed or unaffiliated, produced 25 percent higher mean scores than the traditional control in student learning using traditional lecture methods and/or class discussions.

Higher-Order Modalities

To successfully implement a collaborative or cooperative learning approach [Kuh et al., 2005], one needs to assess and integrate the various levels that will work best into the specific class environments [Bonwell and Eison, 1991; Karns, 2006; Levy, 2017]. In marketing classes, for example, first three or four simple engagement steps in Kuh et al. [2005] (e.g., class questioning, discussions, etc.) would be appropriate for principles classes, with higher-order steps of collaborative and cooperative learning perhaps more appropriate for upper-level marketing classes [Stowe et al. 2011].

In most higher-order modalities, collaborative learning will have students working in groups (pairs at a minimum), involved and engaged in a common learning activity. In this process, they would share with each other what was learned and thereby gain deeper understanding of critical concepts in the

sharing. More importantly, they would apply the concepts to assigned problems for a solution [Panitz, 1996; Kuh, et al., 2005; Stowe et al., 2011].

Adding Cooperative Learning with PBL and CSS/PBL Modalities

Cooperative learning is similar to collaborative learning in employing group work. However, while cooperative learning includes the use of collaboration skills, it adds four other necessary critical components for student involvement: positive interdependence, individual accountability, face-to-face interaction, and group processing [Johnson, Johnson, and Smith, 1991; Felder and Brent, 2007]. Such steps, however, may be difficult to effectively apply in marketing principles classes where the students may be experiencing their first or second exposure to the marketing curriculum.

As another consideration for the mix, service learning as described by Sigmon [1979, 1994] and refined by Furco [1996] can encompass a wider number of experiential learning possibilities, falling onto a continuum between community service and volunteerism on one side and field education and internship on the other. In this scenario, the extreme left of the continuum is benefiting the recipient with a service focus, and the extreme right is benefiting the provider with a learning focus. More recently, as proposed by Kuh [2008], community-based service learning may be best experienced in a group project where students are involved in directing and applying curriculum learning through reflection in real-world experiences. In these scenarios, benefits accrue to the student, the partner and community, and the university [Govekar and Rishi, 2007; Grant et al., 2010; see also Schwab, Greenwood, and Dustin, 2014].

Given these considerations, community social service/project-based learning (CSS/PBL) could be an even better enactment of the service and learning typology, giving service goals and learning goals similar weight as expressed by Sigmon [1994]. The CSS/PBL scenario, which is different from problem-based learning (PBL), allows the student groups to drive the project and be social entrepreneurs, to investigate problems or opportunities in their locale, research the situation, find and rely on a community partner for guidance, and provide recommendations for consideration [Blumenfeld et al., 1991; Dees, 1998; Prince, 2004; Greeno, 2006; Kuh, 2008; Markham, 2011; Perrault and Albert, 2017]. The argument could be made that traditional problem-based learning (PBL) as exemplified by static casework, specific client-driven open-ended PBL projects, or simulation projects, tend to all be more narrowly defined, thereby limiting broader class application and learning opportunities [Markham, 2011; Perrault and Albert, 2017].

Difficulties in Measurement

Unfortunately, because of the many variables involved, active learning educational success can generally be quite difficult to measure [Prince, 2004], and

improvements in test scores are often obscured by challenges associated with other factors. However, two accepted findings do present themselves in the literature: both PBL and CSS/PBL produce positive attitudes in students when completed, and students retain knowledge gained longer than with traditional casework methods, improving their skills in critical thinking and problem solving [Hmelo-Silver, 2004; Dunlop, 2005; Strobel and van Barneveld, 2009; Stowe et al., 2011; Perrault and Albert, 2017].

Perhaps added mentoring should also be considered, as seen in Stanford's P^{5}BL model, where cross-discipline collaboration includes "Problem-, Project-, Product-, Process-, and People-based learning^{TM}" [Fruchter and Lewis, 2003, 663] to increase project-based learning opportunities for students.

STUDY OBJECTIVE AND DEVELOPMENT PROCESS

The inspiration for this paper surfaced in 2005 when business faculty at a southern university in the United States wondered whether higher-order active learning projects should be added to current traditional marketing coursework (concept lectures/casework) to better engage students and thereby improve learning outcomes, as suggested in the literature [Kuh et al., 2005; 2006].

The primary objective for this study was to collect data to determine whether adding the higher-order effort would support the efficacy of such a move, namely adding cooperative live problem-based learning (PBL) projects driven by outside business partners [Hernandez, 2002; Wee et al., 2003; Elam and Spotts, 2004].

A secondary objective, which essentially evolved organically, was to adapt project modalities to complement the preferences, needs, and emotional states of generational cohorts and their associated personal effects as described in current literature [Seemiller and Grace, 2016; Mohr and Mohr, 2017; Twenge, 2017]. It can be argued that such delineations could more properly accommodate the educational needs, challenges, and learning demands of each cohort and, in so doing, enhance student engagement. If such modalities and adaptations could enhance engagement, then higher levels of learning may result [Bovill, Cook-Sather, and Felton, 2011; DiLullo, McGee, and Kriebel, 2011; Kuh et al., 2005].

Analysis was to be based originally on student testing data (pre-/posttesting using the same 25 concept questions for all) for marketing principles classes to compare a 2006 control group ("NO PROJ") using casework with no comprehensive project to another group. The other group had data collected from 2007 through 2009 and included cooperative live problem-based learning (PBL) projects driven by outside business partners. The purpose was to determine if a significant difference in outcomes might exist between the two groups and to decide whether or not the new modality would be worthwhile to

continue using in the marketing principles classes (and certain other business classes as well) for enhancing learning and retention and improving concept mastery.

Why Two Additional Modalities Were Added

Initially, only two modalities were to be studied and compared, the existing traditional concept lecture/casework approach and the higher-order PBL approach which used a business partner-directed group project. However, in 2009, it was determined, due to the lack of PBL consistency in projects and due to various operational difficulties experienced with the live business part-ner-directed modality [Kirschner, Sweller, and Clark, 2006; see also Wood, 2003], that a change to another modality was needed. As a result, given the encouragement of the literature and business school colleagues at the univer-sity, a shift in project focus was adopted in 2009 with student-selected, com-munity-based, social entrepreneurship projects replacing those from the prior PBL approach [Kuh et al., 2005; Kuh, 2008]. These newly introduced projects applied community social service/*project*-based learning (CSS/PBL) and offered engagement with local organizations' support (but not their problem-based direction). A few years later, when the university pushed to develop its online offerings in 2014, a fourth modality surfaced that introduced a market-ing simulation as the project component of online marketing principles classes. As a result, four modalities presented themselves over the now expanded study period of 2006–2018 for assessment of significance and are included in the overall research focus for this paper.

The primary objective of the study did not change as the various modal-ities evolved; and importantly, the expanded study adhered to the instructor's commitment (second objective) to build in projects during the study periods that would match the current generational cohorts and their associated educa-tional needs and preferences. Such matching was extended to include the Generation Z (Gen Z/iGen) cohort as the instructor moved to an online format [Young, 2014; Seemiller and Grace, 2016; Mohr and Mohr, 2017].

Study Background

The initially intended data collection period for this paper was 2006 through 2009 and encompassed all principles of marketing classes taught by a tenured marketing professor in the fall and spring semesters of each school year. During this period, the same in-class pre-/posttest was used to conduct the study. In 2006, data from classes using a traditional concept lecture/case-work format and basic nonproject forms of active learning (NO PROJ) were collected to act as the control period. Classes from 2007–2009 implemented higher-order active learning pedagogy by adding cooperative learning via

project-based learning (PBL) projects. These projects included working with a local farmer's food truck, a Charlotte Center horse and carriage company, a regional USDA extension service, local growers, a muscadine grape winery, local town planning, corn maize events, an heirloom tomato grower, a local hair salon group, a regional recycler, a regional farmers' market, and other agritourism and local small businesses.

By early 2009, logistical and operational difficulties had to be acknowledged and student resistance became well-documented. This suggested that another form of, or alternate to, PBL projects should be considered and tested within the marketing classes. With positive results from the testing, problem-based learning (PBL) projects were replaced with community social service/project-based learning (CSS/PBL) projects as the next higher-order active learning modality going forward [Kuh, et al., 2005]. These new project-based assignments were all nonprofit-focused and included partnerships with the local office of Wounded Warriors, the Andrew Jackson Museum, African Methodist Episcopal (AME) and Hispanic churches' ministry to the poor, a therapy riding stable, local community awareness groups, a Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) program with the local farmers' market, and an area hospice/palliative care facility.

Finally, from 2014 to 2018, the same professor, now acting as an adjunct professor, delivered nineteen blended online sections of the course (using Google Hangout for weekly discussions) to over two hundred students. These online classes included a simulation-based ("SIMUL") active learning project which required each student to market a backpack using all the basic strategies of the typical marketing plan. As a result, the analogous data from these classes were included as a fourth active learning modality in the comparative assessment of alternative project delivery methods.

By 2018, all in all, there had been more than eleven hundred students pre- and posttested for this comprehensive study, all using the same multiple-choice, 25-question concept-testing instrument, now covering the period from 2006 to 2018 in four modalities. During this period, 24 undergraduate principles of marketing sections were tested, with students required to worked on various types of course projects in groups of 2–4 participants. That all students in this study were taught the same course, by the same professor, using the same testing instrument contributes significantly to the robustness of the study. All pre- and postcourse exams used were developed from the text-supported McGraw-Hill Higher Education (MHHE) test services. The consistency of textbooks and testing instruments used also strengthened the validity of the analysis that follows.

Based on the challenges under study here, the review of the literature, and the specific case data available, a null hypothesis is suggested. Data analysis will be used to assess the hypothesis based on a level of significant difference where the p-value ≤ 0.05.

Developing projects To Support Course Content

From 1998 through 2006, all principles of marketing classes at the university used the traditional concept lecture format, complemented by group discussions of publisher-written and published, video-supported case studies. In addition, some basic forms of active learning techniques were introduced in all classes. This move was based on professor predilection and experience and included regularly asking students questions and encouraging two-way professor-student discussions on concepts and case situations, especially designed to stimulate the application of chapter concepts. Such pedagogy was initiated to increase student engagement and to foster greater student application and concept retention [Jackson, 2001]. Since this was a required course for all business majors, class makeup generally consisted on average of about 30 percent marketing majors, 45 percent management majors and other business majors, and 25 percent a mix of communications, sports management, and general liberal arts students.

In 2007, community group projects in the form of problem-based learning (PBL) experiences were added to all the principles of marketing classes with the idea that the group PBL, using local partners and presented as a semester-long, in-class internship, would benefit all business students and, more specifically, marketing majors (as shown in part by Wee et al., 2003). Such projects would also benefit the local business community served, as well as a wider university-attending audience (which included students in other liberal arts majors who were also taking the class as a requirement in their major or to expand their knowledge base).

What drove this PBL course design initiative was, first, a sense that students would benefit more from hands-on experience with real, current, local problems than they did from published static cases and that students might be more empowered by seeing actual changes happen based on their participation and recommendations. Secondly, local small businesses had approached the university for help. Thirdly, students could reference these projects under their educational experience on their resumes, bring copies of their projects on interviews, and help the university show that its students were getting extended benefits from these semester-long, in-class internships. In all, more 300 students highlighted these projects on their resumes, which became an added incentive for taking the principles of marketing class. In addition, local interviewing businesses welcomed the project discussions with the students as part of their job interviews. Student feedback indicated that being able to document and speak about such projects set them apart from those who came in with just their resumes.

Shift to Community Social Service/Project-Based Learning (CSS/PBL)

However, beginning in the spring of 2010, there was another modality shift, this time to community social service/project-based learning (CSS/PBL),

as suggested by Kuh [2008] (see also Williams and Linn, 2002). This shift replaced the PBL projects that had been used previously with projects that were more consistently aligned with course content and were easier to identify and direct than those that represented the PBL paradigm.

The six reasons for this new focus and paradigm shift were as follows:

1) it had become difficult to find, continue, and manage a steady stream of appropriate local small business projects;
2) these projects, while helpful to student learning, were limited in scope to the problem at hand for the partner and were often not broad enough for all the desired student learning and retention effects;
3) community social service projects were more readily available to develop;
4) students would be able to identify opportunities and select their service partners where they could more directly impact marketing and communications efforts;
5) students would take ownership of their project more readily given this chance at self-directed service (still an ongoing problem with PBL); and
6) in a preliminary comparison of pre-/postcourse tests of 2006 data versus 2007–2008, outcomes were significantly lower with the PBL paradigm addition, likely due to the myriad problems already mentioned.

The spring and fall semesters of 2010 were used to test the viability of the community social service/project-based learning (CSS/PBL) direction and the application of its broader assignment of project self-selection within course guidelines to see if any meaningful improvement could be discerned over prior (PBL) problem-directed efforts. Based on more positive student feedback, the greater availability of nonprofit partners and their desired participation, the student self-selection process, and the broadened assignment, the university's marketing education faculty opted to continue the CSS/PBL project effort in 2011 to run at least through 2012 (creating an opportunity to compare the 2010–2012 data to the 2006 base year and to the 2007–2009 period). In 2013, new marketing faculty were to be added who supported the flipped classroom but not the added CSS/PBL project approach. The main reasons were a lack of faculty experience with such an approach, the double-to-triple faculty workload/time increase per project per class, and a lack of supporting university resources.

The pre-/postclass testing, introduced in 2006 as an ongoing requirement of the university's business school in response to accreditation expectations mandated by the Southern Association of Schools (SACS) and Accreditation Council for Business Schools and Programs (ACBSP), has served as a consistent metric for student performance for the duration of this study. One multiple-choice, 25-question, concept pre-/posttest was used in all classes by one professor. Paired sample t-tests were completed for students in each principles of

marketing class from 2006 onward, expecting to confirm significant learning within each section, but also hoping to determine if significant differences existed in the understanding and retention of the class content among sections taught using the different modalities. The pre-/posttesting continued from 2013 to 2018 with the online classes, which included the simulation projects as well.

FINDINGS

Principles of marketing classes at this southern university have used the same pretest/posttest instrument from the fall of 2006 through the fall of 2018. Paired-sample t-tests have been conducted and reported annually using these pre- and postclass test results for students. Not surprisingly, each group showed significant improvement between their pretest and posttest scores. As one might naturally suspect, the associated p-values generated were all miniscule, well below the p-value $=0.05$ level required to demonstrate significance. These perfunctory tests have consistently and overwhelmingly demonstrated that students have a better mastery of course content after they have completed the course.

We present this data in aggregated fashion to first assess the effectiveness of including active learning projects in the course, in general, and secondly to compare the relative effectiveness of the different higher-order modalities that had naturally evolved. Samples were arranged into four cohorts: NO PROB or class sections with no in-class projects (2006), PBL or problem-based learning project (2007–2009), PROJ or community social service/project-based learning (2010–2012), and SIMUL or simulation project (2013–2018).

With these designations, the four sample project modalities as defined give rise to the following null hypothesis:

H_0: There is no significant difference in content mastery once the course is completed for classes with practitioner-driven PBL projects, classes with student-driven CSS/PBL projects, classes with simulation projects, or classes without such projects with regard to post-test scores of each in principles of marketing classes; represented as μ(NO PROB) $=$ μ(PBL) $=$ μ(PROJ) $=$ μ(SIMUL).

As a first pass, comparing mean posttest scores for the four sample project modalities (with a single-factor ANOVA) was undertaken. That statistical process (outlined below) reveals that each of the six possible pairs of mean posttest scores differed significantly with $\mu_{PROJ} > \mu_{SIMUL} > \mu_{NO\ PROB} > \mu_{PBL}$ (Table 2).

Table 2 suggests that there is a significant difference between mean posttest scores in at least some pairs of cohorts. To identify which of the 6 pairs differed, we conducted a Tukey test.

ω = Tukey's honestly significant difference $=1.82935$. Thus, the means presented in Table 1 differed significantly in all 6 pairs of these four modalities

Table 1. ANOVA Results

Source of Variation	SS	df	MS	F	*p*-value	*F*-crit
Between Groups	5215.5647	3	1738.5216	144.7127	3.08E-51	2.64679
Within Groups	2570.9124	214	12.013609			
Total	7786.4771	217				

Table 2. Comparing Mean Posttest Scores

Summary	Count	Sum	Average	Variance
Groups				
NO PROB	31	442	14.258065	4.597849
PBL	73	492	6.739726	6.695205
PROJ	44	818	18.590909	12.52643
SIMUL	70	1170	16.714286	20.46791

(i.e., $\mu_{PROJ} > \mu_{SIMUL}$, $\mu_{PROJ} > \mu_{NO\ PROB}$, $\mu_{PROJ} > \mu_{PBL}$, $\mu_{SIMUL} > \mu_{NO\ PROB}$, $\mu_{SIMUL} > \mu_{PBL}$ and $\mu_{NO\ PROB} > \mu_{PBL}$).The PBL mean of about 6.74 places it well below the means of all three of the other modalities, thus confirming (along with the implementation issues already reported) the professor's judgment in abandoning the PBL project approach.Eliminating the PBL modality from consideration (due to its varied implementation challenges and poor learning outcomes), a natural revision to the original question arises. Can we conclude that building either a CSS/PBL project or an online simulation project into the principles of marketing course leads to significantly higher posttest scores? That is, is doing so worth the extra effort required?To answer this question, the 2006 (NO PROB) scores were compared to those collected between 2010 and 2018. The *t*-test reported below (Table 3) was used to conduct this comparison.We conclude that the students in the courses that included either a CSS/PBL project or an online simulation project did score significantly higher on the posttest than the students who completed the class with no comprehensive project. This speaks to the intrinsic benefit of comprehensive projects and at least opens debate as to whether (with creative and more effective implementation) including PBL projects might produce similar gains.

As a final use of the data, a comparison between CSS/PBL projects and the online simulation projects is presented below (Table 4). Can we conclude that using a CSS/PBL project (PROJ) is significantly more effective than using an online simulation project (SIMUL)? Given all other things being equal in coursework, this output suggests that the in-class community-based social service modality led to significantly higher mean posttest scores. (It is not clear

Table 3. *t*-Test a: Two-Sample Assuming Equal Variances

	NO PROB	PROJ/SIMUL
Mean	14.25806	17.43859649
Variance	4.597849	18.10681571
Observations	31	114
Pooled Variance	15.27277	
Hypothesized Mean Difference	0	
df	143	
t Stat	−4.01782	
$p(T \leq t)$ one-tail	4.73E-05	
t (Critical one-tail)	1.655579	
$p(T \leq t)$ two-tail	9.46E-05	
t (Critical two-tail)	1.976692	

Table 4. *t*-Test b: Two-Sample Assuming Equal Variances

	PROJ	SIMUL
Mean	18.59091	16.71429
Variance	12.52643	20.46791
Observations	44	70
Pooled Variance	17.41895	
Hypothesized Mean Difference	0	
Df	112	
t-Stat	2.337164	
$p(T \leq t)$ one-tail	0.010604	
t (Critical one-tail)	1.658573	
$p(T \leq t)$ two-tail	0.021208	
t (Critical two-tail)	1.981372	

whether this ought to be attributed to the nature of such projects, the class being delivered face-to-face as opposed to online, or both.) These overall findings provide conclusive evidence for the null hypothesis to be rejected.

Anecdotal observations of the live classes from 2006–2012 and the online classes from 2013–2018 further suggest that active learning and its derivatives were worthwhile added inclusions in the teaching process. Although grade distributions for students in these courses did not always support better content mastery, the professor's class observations, student evaluations, and alumni

responses over the years point toward such project considerations as valued enhancements in the marketing education process for future generations, especially Gen Zers [Stowe et al., 2011].

In addition, with the CSS/PBL format, the project rubric could be changed, as recommended by others, to include increased emphasis on product/market fit and how to build the distinctive competence hypothesis into a value proposition. The CSS/PBL format made it easier to include the value proposition in the start-up process. However, the new start-up entrepreneurial rubric still allowed service partner inputs (but not complete direction) in student development and confirmation of the product/market fit, need verification, project viability, and potential demand for the group project's goods and/or services [Andreesen, 2007; Hassan, 2012].

CONCLUSIONS AND RECOMMENDATIONS

Some have found it difficult to secure meaningful outcomes for measuring the value of higher-order active learning modalities. This may be due to the differing number of independent and confounding variables possibly affecting such outcomes [Prince, 2004; Hung, 2011]. Conversely, findings from several meta-analyses suggest better long-term results over traditional methods. Using postproject measurements, these analyses suggested increased knowledge retention, skills building, student/teacher satisfaction, and significant positive student attitude shifts for project-based delivery versus traditional methods that do not include projects [Prince, 2004; Strobel and van Barneveld, 2009; Stowe et al., 2011; Perrault and Albert, 2017].

This study is relevant because it compares four different higher-order active learning modalities and is based on an analysis of related data collected for more than a decade. Our findings suggest, as is supported by the literature, that higher-order, more broadly conceived, community social service/project-based learning (CSS/PBL) group projects could be a reliable direction moving forward with Gen Z students and beyond, especially in principles of marketing classes. While much of the study data covered Millennials, it is expected that Gen Zers would also gravitate to CSS/PBL for in-class projects. Significance shown for courses with simulation projects for Gen Z cohorts over traditional coursework points toward adopting those kinds of alternative projects as well.

Embracing Generational Involvement and Beyond

It was not the objective of this study to measure generational correlations, as this was beyond the scope of the primary effort. Because of the timeline for data collection in this study, most of the data covered Millennials, although later these comingled with Gen Z respondents. However, given the seminal

work of Twenge [2017] and others (see Seemiller and Grace, 2017; Mohr and Mohr, 2017; Elmore, 2018), the authors are compelled to discuss the extent to which generational research affected the development of their active learning modalities and provide insight to interpret the paper's findings. Given these trying times, students and educators are trying no doubt to cope with the rippling effects of the COVID-19 pandemic. This makes it especially important to consider the Generation Z mindset, the positive and newly revealed negative implications [Twenge, 2017], how educators need to respond, and how the reactions from both sides may impact future generations.

The Gen Z (or iGen) Cohort

Gen Zers, seen as digital natives [Seemiller and Grace, 2017; Kring, 2018] and now the dominant generational cohort attending college, have come of age living the technology, not just applying it, as Millennials may have [Seemiller and Grace, 2016]. Unlike Millennials, Gen Zers tend to be nonlinear and irregular learners, multitasking through various online sites and devices in the web/mobile environment (especially the mobile side). They are career oriented and determined to make their financial investments pay off, especially considering the economic recession they lived through and what has happened with prior generations [Young, 2014; Seemiller and Grace, 2016]. Gen Zers expect more time interacting with full-time faculty, they plan to volunteer while in college, they want access to internships to complement their job search at graduation, and they expect their college or university to help them arrange these activities. Google (with all its extensions) is still their primary go-to source to see the world, adapting to new devices, internet methods (texting over emails), and social media platforms that allow greater multitasking but less privacy than for any prior generation, including Millennials [Mohr and Mohr, 2017; Strauss, 2018].

In spite of the positive challenges of the Gen Z drive for involvement and engagement [Seemiller and Grace, 2017; Wondergem, 2017], red flags are showing up as to their overall mental health, impacted by the cultural, emotional, environmental, and economic effects of the Internet and cohort's social media dependence, a dependence unlike that of any other generation [Twenge, 2017]. They may be conflicted with many things (collaborating/cooperating with peers, yet critical of group work; and acting entrepreneurial, yet feeling uncreative), and less likely to want to work with others, yet concerned about missing out [Strong, 2016].

Steps to Engagement

To engage and involve Generation Z learners more effectively in marketing education classes, all levels of active learning could be useful, [Kuh et al., 2005; Kuh, 2008; Ackerman and Hu, 2011; Cook-Sather, 2011; Wee et al.,

2003; Seemiller and Grace, 2016; Beall, 2017]. However, CSS/PBL could be the most useful, given Gen Zers expressed need to be more involved in selecting and controlling their educational options than prior cohorts, their predilection for understanding how the projects will help them get a job, and to contribute to their future career. The CSS/PBL form of learning includes field-based student research efforts, combined with community social partners who help and counsel students along with their professors to apply class concepts. The application comes in experiencing and assessing an open-ended social situation *in situ* and providing a cooperative solution for consideration based on their applied research [Kuh, 2008; see also Frontczak and Kelley, 2000].

As other research has suggested, Gen Z students are not just extended Millennials; rather, they are more fiscally careful, worldly concerned, entrepreneurially focused, and more fully immersed than any prior generation in the digital tools and platforms that help them actively engage in their education [Strong, 2016]. However, "they are obsessed with safety and fearful of their economic futures, and they have no patience for inequality … They are at the forefront of the worst mental health crisis in decades," [Twenge, 2017, 12]. As a counter, they welcome volunteer opportunities and actively search for internships, all with the goal of helping them be a step ahead of their peers. Gen Zers appear to be more entrepreneurially focused and seek service-learning opportunities and internships, in addition to being actively engaged in their education program [Seemiller and Grace, 2016; Mohr and Mohr, 2017]. However, given these trying times, there are also intrinsic emotional as well as extrinsic cultural and economic drivers affecting Gen Zers that need special educator attention [Twenge and Donnelly, 2016; Twenge, 2017; Kring, 2018; see also Kozinsky, 2017; News@Northeastern, 2014].

Consideration for All Higher-Order Forms of Active Learning

Given the findings in learning outcomes across the board in this study, mean posttest scores in all six pairs of modalities differed significantly, with $\mu_{PROJ} > \mu_{SIMUL} > \mu_{NO\ PROB} > \mu_{PBL}$. These findings (where μ_{PROJ} is significantly ahead of all other variations) clearly suggest that the active learning considerations as proposed (CSS/PBL group projects) are moving in the right direction. Successful implementation of CSS/BPL and simulation group projects have shown to offer a higher level of student involvement and possibly better long-term outcomes, providing benefits for the community, volunteers, teachers, the university, and students alike [Kuh, 2008].

Topping the list, CSS/PBL group projects can provide three important additions versus partner-driven problem-based learning (PBL), based on the experiences in this paper's principles of marketing classes:

1) Students are allowed more open entrepreneurial-driven research and discovery,

2) Professors can provide more guidance to such entrepreneurial spirit by showing students how to appropriately plan and start up a non-profit or for-profit business, and

3) Students and professors may find even more rewarding experiences and fulfilling memories to last a lifetime of those helped and in possibly making a difference.

Recent reports by Hebel at *The Chronicle of Higher Education* [Hebel, 2018] and Levin [2019] at *The New York Times* indicate "Gen Z is the most diverse generation in American history" and shared their "voices of diversity" in special section inserts, respectively. Both efforts echoed much of what has been noted here, supported by research and observations and from the Gen Zers in their own words. "Above all, they want an education they can apply. They prize project-based learning and undergraduate research that will hone crucial, marketable skills for life," [Hebel, 2018, 3].

At the very least, given these diverse active learning tools discussed here, experienced business educators have much to confidently choose from and include in their curricula. And with the observations of this study and works of others in higher levels of active learning, cooperative projects of any type (active learning case work, PBL, project-based learning, or simulation) will provide added student learning benefits. The authors hope that this study confirms the wisdom of utilizing in-class active learning projects and offer context to aid educators in selecting a modality that is best suited for them and for their students.

IMPLICATIONS FOR FUTURE RESEARCH

While the significance shown in the findings is encouraging, educators need to take care in implementing active learning activities at higher orders in their classes. More research and testing are encouraged to determine the efficacy of such moves in all disciplines. These efforts may help build educator approval and support to address Gen Z student needs and concerns moving forward, as well as those the following generations who may have been deeply affected by the pandemic.

Given the findings in this study, all curricula should consider inserting basic active learning engagements. However, more needs to be done to substantiate what it is about these projects that leads to improved outcomes and to assist educators in selecting what type of projects to embed in their courses, especially in the flipped classroom environment. In this scenario, experienced business educators should be better able to manage and control the education process and help deliver higher outcomes.

Limitations and Delimitations

This case study is limited by the exam data collected and group activity observed via selected students' performance outcomes and their simulation, problem-, and project-based learning activities. All collections were conducted in person or online at a southern university from January 2006 through May 2018 in sections of a MARK 301 class.

The study is delimited by the professor teaching these classes and the cross-sectional selection of students from the principles of marketing classes selected there for study, the students' pre- and postcourse testing assessments, and the anecdotal observations of the professor involved in each of his classes.

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A Novel Approach to Business Case Study Analysis: The Creative Thinking Toolbox

Brooke R. Envick and Eileen Wall Mullen*

University of Nebraska–Kearney, St. Mary's University

The purpose of this paper is to present a "Toolbox," or collection of classroom exercises drawn from creativity development research that we've found especially useful in developing students' creative thinking skills in business case study analysis. The article is organized into four sections: (1) introduction, (2) a description of the Creative Thinking Toolbox with a brief review of the literature underlying it, (3) an example of one of the tools applied to a case, and (4) some preliminary conclusions.

Keywords: Creativity, Innovation, Teaching Creativity, Creative Thinking Skills, Innovative Problem-Solving, Design Methods, Workforce Innovation, Organizational Creativity
Disciplines of Interest: Management, Marketing, Entrepreneurship

INTRODUCTION

Each year, LinkedIn publishes a list of the skills companies need most in their employees, and creativity tops the 2019 list [Petrone, 2019]. Creative thinking is the act of generating new ideas or conceiving something original, and it is generally seen as a precursor to innovation, which is the act of implementing those new ideas. Therefore, innovation is the successful exploitation of creativity in profitable outcomes such as new products, services, and processes that create value. Anderson, Potocnik, and Zhou [2014] proposed an integrative definition where creativity and innovation together are considered the process, outcomes, and products of attempts to develop and introduce new and improved ways of doing things.

One important way organizations can become more innovative is by fostering a culture that supports creative thinking [Hunter, 2013], and there has been an increased interest in creativity in the workplace [Serrat, 2010]. Barsh, Capozzi, and Davidson [2008] discovered that a large number of managers consider innovation to be a primary determinant of organizational success and

that promoting workplace creativity increases an organization's success in being innovative. In fact, creativity is being strongly encouraged by professionals in the workplace because it is a major factor in creating a distinct competitive advantage, business success, and economic growth [Woodman, Sawyer, and Griffin, 1993; West, 2002; Anderson, De Dreu, and Nijstad, 2004; Harvey, 2014; Zhou and Hoever, 2014; Loo, 2017].

Forbes and *Fast Company* name the world's most innovative companies each year, and many of these companies hire college graduates. For example, Amazon (most recently *Forbes'* #3 and *Fast Company's* #5) was the most popular company for recent college graduates [Bowley, 2018]. Other top-ranked innovative companies that hire college graduates include Walmart, Intuit, and Marriott International. Common entry-level positions include business analyst, marketing coordinator, and account manager. Because innovation is so crucial for success in today's business world, companies must hire employees who are capable of creative thinking and are confident in their creative abilities.

In a recent *Fortune Magazine* article focusing on why creativity is crucial in today's workplace, Dyer [2015] states that creativity is a discipline that begins with learning how to look at situations from multiple angles, removing blinders, and opening possibilities. We contend that business schools should work to develop students' creative thinking skills, because they are critical for their success when they enter the workforce. This is especially true for students majoring in management, marketing, and entrepreneurship. A common teaching tool many business schools utilize is case studies. Here, we introduce the Creative Thinking Toolbox, which is a collection of classroom methods instructors can use to enhance the creative thinking skills of students in analyzing cases that require them to demonstrate some level of creative thinking.

The purpose of case studies is to present students with real business situations to develop skills to effectively analyze these situations and generate new ideas and/or solutions. According to Harvard Business School [Harvard Business School, 2018], when students are presented with a case, they place themselves in the role of decision-maker. In this structured method, when analyzing business case studies, students must utilize *critical* thinking, which is the objective analysis of facts to form a judgement [Glaser, 2017]. However, beyond the traditional Harvard Case Method, many instructors use cases in a variety of ways to achieve learning goals other than, or in addition to critical thinking. For example, many case situations in management, marketing, and entrepreneurship also require students to "think outside the box," i.e., to use *creative* thinking skills as well as critical thinking skills for example, an entrepreneurship case requiring students to develop a new product concept for a particular target market, or a marketing case that requires students to develop a promotional campaign for the launch of a new brand.

Creative thinking is about how fluently, flexibly, and imaginatively people approach problems [Amabile, 1998; Sullivan and Harper, 2009; Zhou and

Shalley, 2011]. While there is a well-established history of instructor guidance in the use of the traditional case method to improve critical thinking skills in business, the literature in developing creative thinking skills in business is much less developed. A plethora of creativity development exercises certainly exists, but many have been problematic or challenging to apply in a business school context. The sheer number of techniques often makes it challenging for instructors to select ones that are applicable in business.

We conducted an extensive review of the literature on creativity to extract a large number of methods used to develop creative-thinking skills. We tested a number of these methods in case studies, class exercises, and other projects in multiple classes at two different universities. The result of our literature review and applications of these methods is the Creative Thinking Toolbox, which we developed to help instructors easily identify and implement creative-thinking case studies, exercises, and other projects that develop students' creative-thinking skills in business situations.

THE CREATIVE THINKING TOOLBOX

The Creative Thinking Toolbox (CTT) is a collection of creative thinking methods instructors can utilize to help students become more effective at generating ideas and solving problems presented in business case studies that require some level of creative thinking. The toolbox was designed to allow for instructor flexibility—one or more of the tools can be chosen for different case studies or other projects depending on situational factors such as the purpose or goals of the case, its complexity, level of creativity needed, time required to complete, number of participants, and other people involved.

The CTT contains ten methods (presented in Tables 1 to 10). Each table provides the steps for implementing the tool, as well as a practice exercise for use in the classroom. The authors recommend the practice exercises to introduce each tool to the students before they utilize them in case study analysis. These practice exercises also provide instructors with an idea of the type of cases for which a technique might be useful.

We are familiar with dozens of creative thinking tools used to generate new ideas and solve problems. However, not all are appropriate for the scope of case study analysis. Our goal is to provide instructors with a set of creative thinking tools that we have found to be most effective and efficient for case study analysis given a typical number of students, classroom setting, resources available, and time required (50 to 75 minutes, perhaps with a homework assignment). A couple examples of creative thinking tools that fall outside of this scope include "Experience Simulation" and "Field Activity."

Experience Simulation requires the investigators to literally build an environment that simulates a different experience for users. Some

Table 1. A Fresh View

Description:

This tool uses the views of outsiders to provide a fresh perspective on existing issues or situations. It is based on the assumption that the more a person becomes an "expert," the more he or she tends to narrow or specialize his or her thinking.

Steps for Implementation:

1. State the challenge in a very simple way so that outsiders can understand it.
2. Have students present the challenge to one or more outsiders. An outsider should have little to no knowledge or experience with the challenge statement under analysis.
3. Instruct students to carefully listen to and record all outsiders' ideas. They should ask for clarification when necessary. They are not to judge outsiders' ideas as good or bad or dismiss any idea that is offered.
4. Have students then review ideas offered by the outsiders. Each idea should be openly considered, because one outsider's view may spark more of the participants' ideas. Even the use of a single word by an outsider may help reframe previous ideas or solutions.

Have participants revise their original ideas or solutions by taking the "fresh view" of the outsiders into consideration.

Practice Exercise:

As part of a short assignment in a business course, have students seek the opinions of non-business majors. The assignment is best done in small teams. First, have students conduct the assignment without the "fresh view" of outsiders and turn in the results. Then, hand back the assignment and instruct them to revise their answers after implementing the steps of A Fresh View. Many students will be surprised by how their answers changed when seeking and implementing the input from students majoring in fields such as engineering, psychology, education, biology, or any other non-business major.

Citations:

Heye, 2006; Michalko, 2006

simulations can last several weeks. This requires time and resources well beyond what is typically available to instructors and likely goes beyond the necessities of case study analysis. Field Activity is another example of a creative thinking tool that is useful for some applications but is inappropriate for case study analysis. Field Activity requires investigators to engage participants in some kind of contextual activity, observe them, and then interview them. Again, this involves time and resources that are generally not available and is likely to be inappropriate for case study analysis.

The creative thinking tools we present are also unique enough from each other that they provide students with different experiences and approaches.

Table 2. Attribute Listing

Description: This tool takes an existing good, service, process, or system, breaks it into parts, and identifies various ways of achieving each part. In turn, it prompts different ways to modify or improve each attribute and recombine them to identify new forms of the good, service, process, or system.
Steps for Implementation: 1. Clearly state the challenge to participants. For example, you might identify a good that could be changed or improved.   2. Have participants generate a detailed list of all of its attributes (size, weight, function, design, material, color, style, durability, etc.)   3. Instruct them to generate multiple variations of each attribute.If relevant to the case, have participants combine new variations on the attributes listed to identify unique approaches to redesign the good, service, process, or system in the challenge statement.   Ask participants to discuss the feasibility of implementing the alternatives identified and choose the most feasible idea(s).
Practice Exercise: Have students identify ways to improve the textbook used for the class to practice Attribute Listing. They will create a list that contains attributes such as the book's format, number of chapters, number of pages, chapter titles, how the book is organized, and contents of chapters such as discussion questions, exercises, and case studies. Students then generate variations on many of these attributes, with some being fairly easy to combine. After a significant amount of time is dedicated to the creative thinking part of Attribute Listing, the students should discuss the most feasible idea(s).
Citations: Morgan, 1993; Smolensky and Kleiner, 1995

Another reason these tools were selected is because each one can be linked to real-world business examples to demonstrate success. Kumar [2012] contends that practicing such creative thinking tools allows people to embark on a variety of ideas that help businesses innovate and build the future. We have observed several benefits of having our students use these tools. They help students

- Broaden their mindsets
- Identify more opportunities and solutions
- Organize and refine ideas
- Reveal patterns and relationships between variables
- See abstract ideas in a more concrete way
- Deepen their understanding of problems and situations

Table 3. Brainstorming

Description:
Brainstorming is a tool designed for developing new ideas by unrestrained and spontaneous participation in discussion. It is designed to generate a large number of ideas on a specific issue. It is great for generating numerous ideas in a short period of time, and it requires few material resources.
Steps for Implementation:
1. Clearly and concisely define the challenge. It should be phrased as a question. 2. Determine group sizes. Groups of 10 participants or fewer are generally more effective. 3. Nominate or appoint a facilitator in each group to manage the process. The facilitator should be someone who can manage time and be inclusive of and sensitive to all participants in the group. 4. Set a time limit. Normally, 15–25 minutes is adequate. Larger groups generally require more time. You can also set a limit on the number of ideas each group is allowed to generate. 5. Have the facilitator(s) begin the session. To begin, the facilitator might offer the first one or two ideas. All ideas are recorded on a flipchart or screen where everyone can see the progress. Ask the groups to discuss the ideas by combining similar ones, eliminating unworkable ones, and then ranking the remaining ones.
Practice Exercise:
A good practice exercise for the Brainstorming tool is to focus on fundraising ideas for student scholarships or student clubs. You can even select one specific student scholarship for a particular major club. Students generate as many ideas as they can within a given time period. During the idea generation phase, convergent thinking is encouraged. Then in step six, students can combine similar ideas, eliminate ones that do not seem workable, and rank their top three ideas. If time permits, groups can share their top three ideas and discuss which ones are similar, more feasible, and conclude with an overall top-three ranking for the class.
Citations: Mindtools [n.d.]; Isaksen, 1998

- Improve collaboration with each other
- Develop more comprehensive analyses to cases
- Challenge common assumptions
- Improve self-perceptions of their creative thinking abilities
- Recognize external motivation factors that enhance creative thinking

The first technique in the toolbox is "A Fresh View." This tool uses the views of outsiders to provide a fresh perspective on existing issues or situations. It is based on the assumption that the more a person becomes an

Table 4. Circle of Opportunity

Description: Circle of Opportunity is a tool based on the random combination of selective attributes of a problem, opportunity, or situation. By focusing on a select number of attributes, participants process the different combinations of attributes in new and different ways, which allows them to assign meaning to them. This leads to new ideas and insights.
Steps for Implementation: 1. On a flipchart or white/blackboard, draw a circular clock with the numbers in the correct places of a standard analog clock. 2. Clearly state the challenge to participants. 3. Have the participants generate six common attributes. These should be things that are very common to almost all problems, opportunities, or situations. Examples are time, cost, and quality. 4. Have the participants generate six attributes specifically related to the challenge. Examples related to academic advising and registration for students include the number of open classes, adviser availability, and access to academic records. 5. Randomly place the 12 attributes generated on the 12 numbers on the clock. Then, roll a pair of dice to select six of them. If a number is rolled twice, roll again until six unique attributes are selected. 6. Have participants engage in "free association," which is finding connections between pairs of attributes. Looking at two attributes combined tends to generate new ideas. Write down all paired associations and then begin combing them. This helps participants generate ideas and solutions that include all important attributes of the challenge statement.
Practice Exercise: Begin by asking students if they know the university's slogan or tagline. Most students will know it or get it almost correct. Let them engage in a short discussion about their opinions of the current slogan without discussing suggestions for a new slogan. Then place students in groups (if needed) to begin the steps of Circle of Opportunity. The challenge statement is to generate ideas for a new university slogan. The attributes identified in step three should be general, and the ones generated in step four should be directly related to the university. After the free-association step, students must generate at least one idea for a new slogan.
Citations: Michalko, 2006; VanGundy, 2005

"expert," the more he or she tends to narrow or specialize his or her thinking (Heye, 2006; Michalko, 2006). A Fresh View is a great tool to challenge "silo thinking" in business disciplines.

The second technique, "Attribute Listing," takes an existing good, service, process, or system and breaks it into parts, then identifies ways of achieving

Table 5. Mind Mapping

Description: Mind Mapping is a tool that redefines or reframes a problem, opportunity, or situation through visual links. The visual nature of this tool helps participants restructure their thoughts. It can be considered "visual brainstorming." The visual diagram represents words, ideas, tasks, or other items linked around a central word or theme. It is similar to a semantic network, but it is not restricted on the kinds of links used.
Steps for Implementation: 1. Using a flipchart or whiteboard, write the challenge statement in as few words as possible and circle it. 2. Using at least three different colors, draw lines outward from the center circle. 3. Generate the same number of attributes as you have lines that are related to the challenge. For example, if the word in the center is "transportation," you may have "vehicles," "roads," and "signage" on the lines. Draw at least three lines from the new attributes listed and generate more attributes. For example, from the word "vehicles," you may have "trucks," "cars," and "bikes". Each new branch triggers more branches so that you have a visual map of all the attributes involved in your problem, opportunity, or situation. This process and the results help participants identify the most important attributes as well as connections between attributes. This leads to deeper insights and more ideas.
Practice Exercise: To practice Mind Mapping, have students tackle the issue of improving student recruitment to your university. Divide students into groups (if required), and have each group write the words "student recruiting" in the center and circle it. Then each group identifies three major attributes related to recruiting to put on separate lines from the central them. Each group can choose different attributes (e.g., marketing materials, use of social media, personal interactions, etc.). Monitor the progress of each group by making sure they are adding more branches to each major attribute for a well-rounded visual map of the important issues. Once a good visual Mind Map is in place, students can begin generating ideas for how the university can better recruit students.
Citations: Anderson, 1993; Michalko, 2006

each part. In turn, it prompts different ways to modify or improve each part and recombine them to identify new forms of the good, service, process, or system (Morgan, 1993; Smolensky and Kleiner, 1995). Brainstorming is designed for developing new ideas by unrestrained and spontaneous participation in discussion. This tool is designed to generate a large number of ideas on a specific issue. It is great for generating numerous ideas in a short period of time, and it requires few material resources (Mindtools, n.d.; Isaksen, 1998).

Table 6. Reversal

Description:	
Reversal allows participants to see a challenge very differently. The assumptions behind the problem, opportunity, or situation are stated in the opposite form to gain a completely different view. Assumptions structure social reality. When assumptions change, so does the reality of the situation. This helps participants produce different consequences.	
Steps for Implementation:	
1. State the challenge and list all the relevant assumptions related to it. 2. Have students reverse all the assumption statements. Most statements can be changed by assigning the opposite verb or adjective. For example, a common assumption regarding restaurants is that "Waiters/waitresses must be friendly." The reversal could be "Waiters/ waitresses must be rude." 3. Have participants use the reversal statement to generate novel ideas and concepts. Initially, the ideas do not come forward easily because Reversal completely "flips the script" and forces people to think opposite of what they believe is good or right. Have participants select at least one Reversal statement and completely develop a workable idea around it. For example, Dick's Last Resort is a restaurant with seven locations. Their claim to success is their rude and obnoxious wait staff. Customers view them as fun and entertaining.	
Practice Exercise:	
Most college classrooms look very much the same. Very common assumptions include that each classroom has desks, chairs, a white/blackboard, a computer with a projection screen, and other technology. Use Reversal to have students generate ideas on how to redesign a college classroom. You can use the specific classroom you are in or have them focus on classrooms in general. One example Reversal statement would be "Classrooms do not have chairs and desks." In step four, students must develop a workable classroom idea about how a classroom can be effective without chairs and desks.	
Citations:	
Mattimore, 1995; McFadzean, 1999	

While many people are familiar with brainstorming, we find that most students have never engaged in the activity under proper procedures. Brainstorming is not the act of sitting around the table and throwing out ideas. Instead, brainstorming requires a facilitator, a time limit, and a flipchart to record all ideas, among other things (see Table 3). It is important for students to engage in brainstorming using the proper steps for implementation. It is also important to note that brainstorming is not an outdated tool. As Kumar [2012] points out in his book, the design firm IDEO is one of the most well-known users of the brainstorming tool. It has helped them launch a slew of iconic

Table 7. Rich Pictures

Description: Rich Pictures is ideal for problems, opportunities, or situations that are complex. Drawings and pictures are created by the participants to describe the challenge, which allows their intuition to surface. The process brings forth contextual issues that may go unnoticed. This leads to new insight, a better understanding of the complex issue(s), and new patterns of thinking, which foster more ideas to emerge.
Steps for Implementation: 1. As a group, have participants state the challenge in their own words and write it on a flipchart or white/blackboard. 2. Have individuals draw a picture of the current state of the challenge. Pictures can be metaphors such as animals or vehicles. Individuals should not share their pictures at this point. 3. Have individuals draw a picture of how they would like to see the challenge or situation in the future. 4. Ask individuals to share their two pictures with the rest of the participants. Ask them to describe each picture including the properties of each, the relationships between the two pictures, and reason(s) the behind the images. As the descriptions emerge, encourage participants to generate new ideas and solutions. This reveals patterns, relationships, and perceptions that may not have emerged without visuals. It also provides more information on "what is" versus "what is desired."
Practice Exercise: Campus social life is a good practice topic for the Rich Pictures tool. Students can talk about the social life in general, or focus on one aspect of social life such as student clubs. A good challenge statement is to simply have them address how social life can be improved at the university. Individuals draw a picture of how they currently perceive social life and then a picture of how they would like to see it in the future. This process encourages students to share their personal experiences and deepens understanding among all students about how social life is perceived by their peers. New ideas for social events and clubs emerge as a result.
Citations: McFadzean, 1998; Proctor, Hua Tan, and Fuse, 2004

products, and their methods have made headlines in *BusinessWeek* and *Fast Company*. Today, you can still find "brainstorming" on their website under the resources tab. We include it in the toolbox as it can be useful in combination with many of the other techniques, as we will demonstrate in our example.

The next tool is "Circle of Opportunity" (Michalko, 2006; VanGundy, 2005). This tool is based on the random combination of selective attributes of a problem, opportunity, or situation. By focusing on a select number of

Table 8. Six Hat Thinking

Description:
The Six Hat Thinking tool allows participants to view a problem, opportunity, or situation from six different perspectives called "hats," as follows: (1) white—data, information, and facts; (2) red—hunches, intuition, and emotions; (3) black—problems, dangers, and difficulties; (4) yellow—positives, optimism, and benefits; (5) green—ideas, possibilities, and alternatives; and (6) blue—containment, management, and control. It promotes a comprehensive, well-thought-out process.
Steps for Implementation:
1. Clearly state the challenge to participants and let them know they will be thinking about it from a variety of perspectives.
2. Describe the perspective of each hat color to students. They must all be wearing the same hat at the same time when discussing the challenge. For example, if they are discussing the benefits and positive perspectives (yellow hat), no one is allowed to bring forth any problems or difficulties (black hat).
3. Have a facilitator begin the discussion by choosing one of the hats. Generally, it is best to begin with white hat thinking (basic facts). When a certain amount of time has passed, or when participants begin to repeat the same information or opinions, the facilitator calls out a different hat color. All participants must switch their discussion to the perspectives of the new hat.
All hat colors must be utilized to generate a well-rounded discussion of the challenge. This tool works very well with complex problems, opportunities, and situations, as well as ones where participants have very different opinions.
Practice Exercise:
Academic advising and registration is a good process to address for Six Hat Thinking. It is a complex issue that involves several people and offices, time management issues, and finances for many students. Most students have some issue to contend with, whether it is access to their academic advisor, holds on their accounts, timing of financial aid, or the availability of courses they need to keep on track with their intended graduation date. Students are able to discuss this complex process in a comprehensive manner before generating ideas on how to improve the overall process.
Citations:
Bono, 1995

attributes, participants process the different combinations of attributes in new and different ways, which allows them to assign meaning to them. This leads to new ideas and insights.

"Mind Mapping" is a tool that redefines or reframes a problem, opportunity, or situation through visual links. The visual nature of this tool helps participants restructure their thoughts. It can be considered "visual brainstorming." The visual diagram represents words, ideas, tasks, or other items

Table 9. Wishful Thinking

Description: Wishful Thinking engages student motivation. Participants discuss the problem, opportunity, or situation by beginning each sentence with the words, "I wish." As each participant completes the sentence, issues that are intrinsically important to the group are revealed. When experiences become more widely known, more insight is gained. This leads to more ideas that are central to everyone's true desires.
Steps for Implementation: 1. Clearly state the challenge for participants and let them know the goal of the exercise is to paint a picture of an idealistic or "perfect future." 2. Encourage participants to form "I wish" statements around the challenge. Statements can also begin with things like, "If I were in charge" or "It would be great if." For example, "If I were in charge, everyone would get a raise." 3. Have students extract practical issues are from the more "wishful" statements. For example, "It seems that people are concerned with compensation, job security, and workload." Move the discussion "back to reality" and ask more practical questions. For example, "How can we redistribute the workload in a more fair way?" This process unveils what is really on the minds of participants by having them state things in a more positive "I wish" manner than in a negative way by complaining or arguing. Then, steps three and four bring the discussion back to more practical issues that can actually be addressed and resolved.
Practice Exercise: A good exercise for Wishful Thinking is to allow students to take on the role of dean in your college or even president of the university. Remember, Wishful Thinking begins in a very idealistic manner. In step two, students can begin their statements with, "If I were dean (president)." By doing this, more practical issues that students deeply care about are revealed (step three). A discussion can then take place that is more reality-based about issues brought to light in step four, leading to many possible ideas and solutions to come forth in step five.
Citations: Couger, Higgins, and McIntyre, 1993; McFadzean, 1998

linked around a central word or theme. It is similar to a semantic network, but it is not restricted in the kinds of links used (Anderson, 1993; Michalko, 2006).

"Reversal" is a great tool to encourage students to look at a problem very differently. With this tool, the assumptions behind the problem, opportunity, or situation are stated in the opposite form to gain a completely different view. Assumptions structure social reality. When assumptions change, so does the reality of the situation. This helps participants produce different consequences (Mattimore, 1995; McFadzean, 1999). We have found it especially useful in

Table 10. What If Analysis

Description: The What If Analysis tool approaches problems, opportunities, and situations from a question-and-answer approach. It is a systematic but loosely structured assessment of the issues. It allows participants to reflect on existing practices, procedures, or rules and helps them see possible alternatives and changes. This leads to the improvement of existing practices, as well as the invention of new ones.
Steps for Implementation: 1. Clearly state the challenge and identify its major elements. For example, common elements to most challenges involve people, time, and money.   2. Have participants select one major element at a time and generate What If questions. These are hypothetical scenarios that can be brought forth by any of the participants.   3. Have students with the most knowledge and experience with each major element help answer the What If questions posed in step number two.   4. As each major element is addressed, ask participants to develop new ideas and solutions for improvement.   Have participants combine the new ideas/solutions to address the original challenge stated in step one. By breaking down the challenge statement into smaller elements, more ideas and solutions are generated, and the issues are addressed in a more comprehensive manner.
Practice Exercise: One common student complaint on many university campuses is the parking. They often complain about the cost of parking, distance between parking lots and buildings on campus, and the lack of available parking spots. The parking situation on your campus is likely a good practice exercise for What If Analysis. Commuters are the ones who contribute most to step three; however, students who live on campus are close enough to the situation that they can understand the problem and participate fully in the discussion. If parking is not a problem for students on your campus, have students identify another campus situation or process that they believe can be improved.
Citations: Michalko [2006]; Sloane [2006]

getting students out of a "creative rut." If your students seem to be just "going through the motions" to solve a case challenge, Reversal is a fun and effective way to spark new creative life into the project.

The next tool in the Toolbox is "Rich Pictures." Rich Pictures is ideal for problems, opportunities, or situations that are complex. Drawings and pictures are created by the participants to describe the challenge, which allows their intuitive consciousness to communicate. The process brings forth contextual issues that may go unnoticed. This leads to new insight, a better understanding

of the complex issue(s), and new patterns of thinking, which foster more ideas to emerge (McFadzean, 1998; Proctor, Hua Tan, and Fuse, 2004).

The "Six Hat Thinking" tool allows participants to view a problem, opportunity, or situation from six different perspectives called "hats," as follows: (1) white—data, information, and facts; (2) red—hunches, intuition, and emotions; (3) black—problems, dangers, and difficulties; (4) yellow—positives, optimism, and benefits; (5) green—ideas, possibilities, and alternatives; and (6) blue—containment, management, and control. It promotes a comprehensive, well-thought-out process (Bono 1995).

"Wishful Thinking" is a tool that engages intrinsic motivation. Participants discuss the problem, opportunity, or situation by beginning each sentence with the words, "I wish." As each participant completes the sentence, issues that are intrinsically important to the group are revealed. When experiences become more widely known, more insight is gained. This leads to more ideas that are central to everyone's true desires (Couger, Higgins, and McIntyre, 1993; McFadzean, 1998).

Finally, the "What If Analysis" tool approaches problems, opportunities, and situations from a question-and-answer approach. It is a systematic but loosely structured assessment of the issues. It allows participants to reflect on existing practices, procedures, or rules and helps them see possible alternatives and changes. This leads to the improvement of existing practices, as well as the invention of new ones (Michalko, 2006; Sloane, 2006).

THE CREATIVE THINKING TOOLBOX IN ACTION

One of the main benefits of the CTT is its versatility. The tools can be used on a variety of case lengths and types, and two or more tools can even be combined to diagnose one case study. Many educational tools, such as textbooks, contain minicases within a chapter or short case studies at the end of each chapter. Some of these cases are as short as one or two paragraphs. In this section, we present an example of such a case, which focuses on advertising and promotion, with the application of two of the creative thinking tools.

Many instructors also use case studies acquired from case study journals such as the *Journal of Business Cases and Applications* (*JBCA*). These cases range in length from one to 10 pages long, and, most often, specific questions are provided at the end of each case. We discuss two of these case studies with the application of five of the creative thinking tools. One of these cases focuses on an ethical dilemma, and the other case focuses on strategic planning.

Harvard Business Review (*HBR*) offers even longer case studies, with some being more than 20 pages long. Unlike the *JBCA* case studies, *HBR* cases rarely have questions to guide the students toward specific issues. We discuss one of these cases, which focuses on new product development, with the application of three of the creative thinking tools.

Advertising and Promotion Example

This is an example of a how the CTT can be used for a minicase with the application of two tools: Circle of Opportunity and Brainstorming. A student team played the part of an advertising agency challenged to create a novel promotional campaign for an airline. They were given twelve descriptors of the brand, as well as demographic and psychographic information about the target market. Each team drew a Circle of Opportunity and randomly placed each of the following descriptors around the circle at numbers one through twelve: affordable, mobile, user friendly, fun, heavy, flexible, friendly, important, comfortable, fast, colorful, and customized. They threw a pair of dice twice and ended up with "flexible" and "fun." The students then brainstormed promotional ideas based on this combination of descriptors. This resulted in the following ideas:

1) Designate 3 to 5 common places where people go for fun, like Las Vegas, and discount them
2) Offer travel vouchers good for one year that can be used at any time and to any destination
3) Allow customers to create their own vacation of what they consider to be "fun"
4) Allow customers to select their departure date and leave the return date open at no extra cost

Their final idea was to select four of the most popular destinations for "fun" travel. Airline tickets to these four places would be discounted by 25 percent. Customers could purchase a voucher for that price within a designated 30-day period. The voucher would be good for up to one year from the date they purchased it to allow for flexibility We have observed that Circle of Opportunity is effective when instructors wish to help students take a more focused approach in the generation of creative ideas.

Ethical Dilemma and Decision Making

Marcillo and Naatus [2018] present a one-page case study with discussion questions about an environmental scandal involving an upscale hotel dumping raw sewage into a river. The case also involves a whistleblower and environmental advocacy group. This case focuses on the ethical obligations of the parties involved. For this case study, we present the usefulness of two of the creative thinking tools: Six Hat Thinking and Reversal.

Six Hat Thinking is highly effective at getting students to analyze all angles of the situation before answering the case questions (see Table 8). When teams discuss facts, emotions, logic, and creative ideas all at once, it leads to confusion and complications. The Six Hat Thinking tool allows teams

to focus on one thing at a time, which leads to a more productive discussion where teams can simplify and streamline their collaborative inputs and outputs.

Reversal (see Table 6) is a useful tool to get students to think about the issues from the opposite viewpoint. In this case study, students consider what our environment would be like if the act of dumping sewage into rivers was encouraged and even rewarded. This tool forces them to think in the opposite way of what most people generally believe is good or right. Another reversal position for this case study is to consider an environment where whistleblowers can be fired or even prosecuted. This gets the students to genuinely look at the issues from different viewpoints and opposing angles before they answer the case questions.

Strategic Planning and Change Management

Yarbrough [2017] presents a 6-page case study with discussion questions about Chuck E. Cheese, where students examine strategic planning and change management for a company that has been in existence for four decades. For this case study, we present how three of the creative thinking tools can be applied, namely What If Analysis, Attribute Listing, and Wishful Thinking.

In the abstract, the author asks, "After 40 years of operation, *what if* the idea of 'kid' has changed? This immediately lends itself to the What If Analysis tool. As Table 10 outlines, this creative thinking tool gets students to focus on existing practices and possible alternatives and improvements. In the first step of the implementation process, students can readily identify that the challenge involves people and time by discussing how kids may or may not have changed over the past 40 years. As they move through the other implementation steps, students pose "what if" questions, answer those questions, develop ideas and possible solutions, and then combine those ideas and solutions to answer the questions presented in the case study.

Attribute Listing is another very useful creative thinking tool for this particular case study. Chuck E. Cheese offers numerous goods and services to its target markets. Attribute Listing prompts students to look at their specific offerings in more detail in step two of the implementation process (see Table 2). Then, students generate different variations of these products in addition to discussing the feasibility of implementing their ideas.

Another effective creative thinking tool for this type of case is Wishful Thinking (see Table 9). The discussion usually begins with students talking about what they wish they had when they were kids. However, the first step in the implementation process pushes them towards the future. Their initial wishful statements are generally not feasible, which is expected with the use of this tool. But, while step four of the implementation process steers the students back to reality, they are able to answer the case questions in more creative ways than if they had not engaged in Wishful Thinking.

New Product Development

Ofek [2013] presents a 19-page case study without discussion questions about a small manufacturing company that wants to create a clock that would appeal to children and their parents by facilitating kids' sleeping and waking routines. This new product is called Clockiddie. They have already realized commercial success with their first clock product for adults, called Clocky. Exhibits at the end of the case show initial sketches for Clockiddie as well as pictures of 3-D renderings and the initial prototypes. For this case study, we present how three of the creative thinking tools can be applied, namely Mind Mapping, Rich Pictures, and A Fresh View.

Mind Mapping is useful for this type of case because it allows the students to visually organize the many variables and issues that exist with these longer cases (see Table 5). Most student groups begin by writing the new product in the center circle and then draw a branch to each of the markets the entrepreneur is trying to appeal to, namely kids and parents. This helps them organize their thoughts on important factors such as marketing research, product design, and retail price points.

A second creative thinking tool that works very well with this type of case is Rich Pictures (see Table 7). One strategy we use with this case is to allow students to draw pictures of what they think Clockiddie should look like before they see the exhibits of the actual sketches and prototypes. After they see the exhibits, they can easily communicate why they drew what they drew and how it looks similar or different from the actual exhibits. This helps them understand the position of the entrepreneur, demonstrates similarities and differences, and generates more ideas and possible solutions.

A Fresh View (see Table 1) is another creative thinking tool that is useful for this type of case either by itself or in conjunction with Rich Pictures. The first step of A Fresh View is for students to explain the new product to outsiders. If students have younger siblings or work with kids, we encourage them to try to explain Clockiddie to them and then ask the kids for their ideas. If the students incorporate Rich Pictures in this process, they have the kids draw what they would want Clockiddie to look like. Then, the student groups compare their drawings to the drawings obtained from kids. This provides more insight into the important factors according to the main target market, before students begin generating suggestions and solutions for the entrepreneur in the case study.

CONCLUSION

Here, we have presented the Creative Thinking Toolbox, a collection of classroom exercises curated from creativity development research that the authors have found especially useful in enhancing students' creative thinking

Table 11. Summary of the Creative Thinking Tools

Table	Technique	Description
1	A Fresh View	This is an especially useful tool to challenge silo thinking in business disciplines and encourage students to think outside their majors. We have found it especially effective in New Product Development cases.
2	Attribute Listing	Attribute Listing is useful for cases involving a good, service, process, or system with many parts that students are asked to improve or modify, such as Strategic Planning and Change Management cases.
3	Brainstorming	Brainstorming is useful in a wide variety of cases when combined with many of the other techniques as we demonstrate in our example.
4	Circle of Opportunity	This is useful when instructors wish to help students take a more focused approach to the generation of creative ideas, such as our advertising and promotion case example.
5	Mind Mapping	Mind Mapping is useful for longer cases with many variables and issues, such as new product development cases. this tool helps students visually organize their thoughts on the important case factors.
6	Reversal	Reversal requires students to think about an issue from the opposite viewpoint. It can be used in a number of cases, but is especially effective in ethical dilemma and decision-making cases, as we discussed earlier.
7	Rich Pictures	Rich Pictures is good for complex problems. Participants create drawings to describe the challenge, which allows their intuition to surface. This leads to new insights and a better understanding of the issues, and new patterns of thinking, which fosters more ideas to emerge.
8	Six Hat Thinking	Six Hat Thinking is highly effective at getting students to analyze all angles of the situation before generating a case solution. It is very helpful in cases that involve many people and complex issues such as the ethical dilemma and decision-making cases we discussed earlier.
9	Wishful Thinking	Strategic planning and change management.
10	What If Analysis	This technique prompts students to focus on existing practices and their possible alternatives or improvements. As we discussed, it can be useful in strategic planning and change management cases.

skills. For ease of instructor reference, a summary of the ten tools is provided in Table 11.

The importance of developing these skills in management, marketing and entrepreneurship students is evident in today's business world. As the workplace demands graduates from business schools be fluent in creative thinking skills, it is incumbent on instructors in disciplines such as marketing, management, and entrepreneurship to develop such skills. While the tools are not exhaustive in creative thinking skills development, they do provide instructors in business a place to start, as they only include exercises from the creativity literature that have a demonstrated application in the business world. We hope our colleagues find it useful in developing students' creative thinking skills.

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The Dark and the Light: Investigating the Impact of Social Media Addiction and Attachment on Student Performance

Rebecca A. VanMeter*, Erik T. Nesson, and Kesha K. Coker
Ball State University

To examine the impact of social media in the classroom on student performance, this research explores the relationship between social media addiction and attachment to social media, how each is affected by a social media course, and how each relates to student performance. The results indicate that social media addiction and attachment to social media are separate but related constructs. The dark side of social media (addiction) is unchanged by taking a social media course and is not associated with a change in academic performance. The light side of social media (attachment) is associated with a positive change in academic performance.

Keywords: Social Media, Attachment, Addiction, Academic
　　　　　　　Performance, Education
Disciplines of Interest: Marketing, Education, Social Media

INTRODUCTION

Social media marketing has now become an integral part of business operations. In 2019, more than 81,800 jobs mentioned social media in the description, up from more than 54,000 in 2015 according to Indeed.com. Marketing educators have taken note of the shift in the labor market, responding by 1) using social media to teach a variety of subjects [Richardson, 2015] and 2) creating courses where social media marketing is the subject of instruction, not just the medium of instruction. However, the increased exposure to social media marketing on the job and in the classroom is a balancing act. On the one hand, social media marketing skills are in high demand, as they have

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　*(Contact Author) Rebecca A. VanMeter, Department of Marketing, Miller College of Business, Ball State University, 2000 W. University Ave. Muncie, IN 47306, Telephone: (765) 285-6008, E-mail: vanmeter@bsu.edu.
　Erik T. Nesson, Department of Economics, Miller College of Business, Ball State University.
　Kesha K. Coker, Miller College of Business, Ball State University.

become an essential component of the marketing strategies used to achieve organizational outcomes. On the other hand, there may be a dark side to social media use on the job, with some employers concerned that social media is a "productivity killer." A recent statistic indicates that more than 50 percent of employers block social media access on the job [Bizzi, 2018].

Although employers have expressed concern, academics have also noted the potential issues associated with social media use on the job. Zivnuska, Carlson, Carlson, Harris, and Harris [2019] recently demonstrated that job performance decreases when employees suffer from social media addiction, as well as when they emotionally respond to social media posts. Further, excessive use of social media has been noted to have spillover effects, e.g., distractions on the job [Olmstead, Lampe, and Ellison, 2016, decreased life satisfaction [Kuss and Griffiths, 2011], and impaired decision-making equivalent to the effects of substance use and behavioral addictive disorders [Meshi, Elizarova, Bender, and Verdejo-Garcia, 2019], along with reduced job performance [Griffiths and Kuss, 2018]. Thus, this dark side of social media causes concern among educators who worry that its excessive use may impair students' ability to succeed in the classroom and their future careers.

In light of these concerns, educators find themselves in a peculiar position—understanding they must teach the social media skills that are being demanded by today's job market while also ensuring the safety of their students. Marketing professors have a unique opportunity to help students gain an understanding of the business strategies associated with social media and to teach students how to use it to achieve organizational outcomes. Teaching students to view social media through the lens of marketing and business strategy outcomes is the learning goal. In this way, the classroom becomes an incubator for business-minded use of social media. However, the flipside could also occur: Although marketing educators are helping students develop a skill set that is highly desirable for industry, they unknowingly could also be reinforcing maladaptive, excessive use of social media [Griffiths, Kuss, and Demetrovics, 2014]. In acknowledging that the social media marketing function can lead to excessive use of social media, we are left with unanswered questions regarding the effect of increased use of social media on student performance in a dedicated social media marketing course.

In this research, we adopt a definition of *social media* as "an interactive platform that allows social actors to create and share in multi-way, immediate, and contingent communications" [VanMeter, Grisaffe, and Chonko, 2015, p. 71]. Given recent research demonstrating the dark side of social media and its negative consequences not only on work–life balance but also job performance [Zivnuska, et al., 2019], the goal of this research is to examine the use of social media as it pertains to student performance in the classroom. Findings from this research address the call for investigations of impairment that social networking site addicts experience in a variety of life domains [Kuss and Griffiths, 2011]. The work also seeks to add clarification to past studies on the

effects of social media addiction, which are plagued with methodological issues, making generalizations of results challenging [Kuss and Griffiths, 2017]. As a departure from past research, we examine not only social media addiction but also the lesser pull of attachment to social media, and the respective impact each has on student performance. In doing so, our research seeks to explore whether the concern over social media as a productivity killer is a myth or reality.

The objective of this work is, therefore, four-fold: 1) investigate whether engaging in the social media function through a dedicated social media marketing course increases social media addiction, 2) investigate whether being in such a course causes students to become more strongly attached to social media, and 3) determine the impact of social media addiction and attachment on student performance. We also seek to 4) determine whether the outcomes of increased exposure to social media are distinct constructs—addiction versus attachment to social media (ASM). In pursuing this latter aim, we further extend the literature of addiction to the social media context and assess the impact of both addiction and attachment on student performance in the classroom. Such insights are important for instructors and universities in developing content and curriculum designed to enhance students' performance in the marketplace. These insights are also valuable to employers hiring students to use social media to accomplish business goals.

LITERATURE REVIEW

Key Concepts

Before presenting our conceptualizations and hypotheses, we define the components of our research. We draw on recent studies related to the dark side of social media to define *social media addiction* as the excessive use and habitual monitoring of social media, manifested in compulsive usage that occurs at the expense of other activities [Zivnuska et al., 2019]. The research related to the light side of social media distinctively defines *attachment to social media* (ASM) as the strength of a bond between a person and social media [VanMeter, Grisaffe, and Chonko, 2015]. Psychologists and addiction treatment specialists generally agree that there is a conflicting correlation between addiction and attachment [Flores, 2001]. Although this relationship has been investigated in the context of gambling, hypersexual activity, etc. [Felitti Anda, Nordenberg, Williamson, Spitz, Edwards, Koss, and Marks, 1998], it has not been investigated in the context of social media. Due to social media's predominant role in contemporary corporate marketing strategies and the marketing curriculum, it is imperative that the constructs measuring attachment and addiction are investigated. Although these two individual-level variables arguably are theoretically distinct, there is a need to determine whether they

are empirically distinguishable. Whereas the primary purpose of this research is not to resolve the conflict, we examine the discriminant validity of the two constructs, and we seek to answer the following research question:

Research Question 1 (RQ1): Are social media addiction and social media attachment empirically distinct constructs?

Social Media Addiction

In this research, we define *addiction* as a condition of dependence on an object or activity, or a combination of the two, and usually used in reference to some measure of substance abuse or other inhibiting behavior [e.g., Robinson and Berridge, 1993]. The cause of addiction has been posited in two different camps: 1) environmental, in that it is a consequence of insecure attachment to our caregivers in early childhood, or 2) nonenvironmental, in that it is an inherited vulnerability [Felitti et al., 1998]. Regardless of its genesis, addiction results in the addict learning to consume substances or behave in certain "rewarding" ways.

At a surface level, social media is thought to be a source of information and to provide a sense of connection that could enhance the user's mood, boost energy, and catalyze personal acts [Carlson, Zivnuska, Carlson, Harris, and Harris, 2016], with potential to motivate collective action for social change [Kende, van Zomeren, Ujhelyi, and Lantos, 2016]. For example, individuals may check social media to relax or to feel joyful for friends and family who share personal celebratory moments. However, social media use can also have concurrent negative outcomes [Carlson et al., 2016]. For example, it has been associated with a variety of damaging effects, including psychological distress [Koerner, 2010], narcissism [Andreassen, Pallesen, and Griffiths, 2017], and loneliness [Kross, Verduyn, and Demiralp, Park, Lee, Lin, Shablack, Jonides, and Ybarra 2013]. This research aims to 1) extend previous research that considered the positive results from using this resource and 2) explore potential detrimental consequences of social media on student performance by examining both social media addiction and social media attachment.

We define *social media addiction* as "the excessive use and habitual monitoring of social media, manifested in compulsive usage that comes at the expense of other activities" [Zivnuska et al., 2019, p. 747]. Research on the outcomes of social media addiction shows the dark side of this preoccupation. Excessive use of social media has been noted to have spillover effects, e.g., distractions on the job [Olmstead, Lampe, and Ellison, 2016, reduced work–family balance [Zivnuska et al., 2019], negative mood [Sagioglou and Greitemeyer, 2014], depression [Cambron, Acitelli, and Steinberg, 2010], decreased life satisfaction [Kuss and Griffiths, 2011], impaired decision-making equivalent to the effects

of substance use and behavioral addictive disorders [Meshi et al., 2019], and reduced job performance [Griffiths and Kuss, 2018].

Recent research demonstrates that people addicted to using social media experience symptoms similar to those experienced by people who suffer from addictions to substances or other behaviors [Kuss and Griffiths, 2011; Meshi et al., 2019]. As it relates to students, Koc and Gulyagci [2013] suggest that internet addiction is akin to the cultivation of disturbing patterns of internet use that include online gaming and the overuse of social networking sites (SNS). In their research, they concluded that students who portrayed a deeper desire to belong, as well as those who were deemed to be weak-minded, were more susceptible to Facebook addiction. Severe depression, anxiety, and insomnia are residual effects of addictive behavior derived directly from social media overuse [Koc and Gulyagci, 2013].

Although there is no consensus on a framework, measurement, or treatment [Kuss and Griffiths, 2011], researchers proposed that SNS addiction disorder is plausible because some people who use SNS excessively exhibit the addiction criteria, such as neglect of personal life, mental preoccupation, escapism, mood-modifying experiences, tolerance, and concealing the addictive behavior [Young, 2009]. When students are increasingly exposed to and expected to use social media in the classroom, the possibility of social media addiction emerges and with it comes the possibility of impaired performance. In a noteworthy study, 63 percent of social media courses used social media engagement as a teaching method, 87 percent of courses used social media projects, and 93 percent of courses listed practical use of social media as an objective [Brocato, White, Bartkus, and Brocato, 2015]. Although the use of social media in the classroom has been discussed as an effort to improve student engagement [Neier and Zayer, 2015], courses and assignments that encourage students to engage in social media activities have the potential to cause or increase social media addiction. Further, although there was no theoretical reasoning provided, one study even alleged that women are at greater risk than men for developing addictions to SNS [Revoir, 2008]. In light of the literature, we hypothesize the following:

H_1: An individual's social media addiction will be strengthened through a course (T4 will be more attached than T1).

H_2: Individuals who are more addicted to social media will underperform compared to those who are less addicted to social media.

Attachment to Social Media

Attachment theory describes strong "bonds" between mothers and infants as attachment that meets fundamental needs for safety and security through maintenance of proximity [Ainsworth and Bell, 1970]. Attachment is a psychological

construct that involves assessments of the "strength" of a bond [Park et al., 2010]. To have attachment, there must be a deep bond between the person and the attachment object [Bowlby, 1980]. In the context of marketing, attachment theory has been used to examine how people develop attachments to tangible objects such as gifts [Mick and DeMoss, 1990], collectibles [Slater, 2001], or other types of special or favorite objects [Ball and Tasaki, 1992; Kleine, Kleine, and Allen, 1995], brands [Park et al., 2010], and retail places [Brocato, Baker, and Voorhees, 2015], as well as attachment in intangible service-marketing contexts [Mende, Bolton, and Bitner, 2013]. This extended line of research has resulted in a more generalized definition of *attachment* as an emotion-laden, target-specific bond between a person and a specific object [Thomson, MacInnis, and Park, 2005]. Over time, researchers extended attachment to include a host of others who play significant roles in individuals' lives (e.g., friends, siblings, romantic partners, celebrities). In all cases, the attachment between two individuals was found to predict significant relational outcomes [Belk, 1988].

More recently, attachment theory has been extended to the social media context with the construct of *attachment to social media* (ASM), which is defined as the strength of a bond between a person and social media (see VanMeter, Grisaffe, and Chonko, 2015, for more information on the scale, its validity, and predictive ability). Attachment to social media has been shown to predict specific attachment-related outcomes, as well as social- and consumer-related outcomes [VanMeter, Grisaffe, and Chonko, 2015]. Given ASM's demonstrated ability to predict social- and consumer-related outcomes, it stands to reason that attachment theory may also be predictive of educational-related outcomes in a social media marketing course. Specifically, we hypothesize the following:

H_3: Individuals who have a strong attachment to social media will academically outperform those who have a weak attachment to social media "in social media marketing courses.

Cognitive evaluation theory demonstrates that by offering extrinsic rewards for performing a task, an individual's intrinsic motivation for doing the same task is reduced [Deci, Koestner, and Ryan, 1999]. Once a grade in a social media course is offered as an extrinsic reward, it is possible that students' intrinsic motivation for using social media may decline. Thus, based on previous research, it is plausible that the bond between the student and social media may be weakened over time once an extrinsic reward (the grade) is offered. Therefore, we specifically hypothesize:

H_4: An individual's attachment to social media will be weakened through a social media course (T4 will be less attached than T1).

METHODS

To test our hypotheses and research question, data were collected in two semesters of a social media marketing course. Herein, we describe the basics of the courses, the sample, the sampling procedures, the measures, and the analytical approach that includes three related analyses.

Sample and Procedure

The marketing department at a large, Midwestern, public university with a predominantly traditional student population offers an introductory social media marketing course. The course focuses on the strategic use of social media to accomplish goals through the development of strategies and tactics, with a basic introduction to social media analytics. Students enrolled in the social media marketing courses during the spring ($n = 38$) and fall ($n = 39$) were given the opportunity to participate in our research.

The professors from each course provided the email addresses of the students enrolled in the course, and the researchers sent the request to participate to the students. The students received the survey via email to their university email accounts and a reminder email the following week if they had not responded. Students consented to allow the professor to disclose their final grades in the course to the researchers.

Measures

Established scales were used to measure social media addiction and attachment. The 18-item addiction scale was adapted from a Facebook Addiction Scale [Andreassen, Torsheim, Brunborg, and Pallesen, 2012] to measure students' level of social media addiction using a 7-point scale (1 = Never, 2 = Very Rarely, 3 = Rarely, 4 = Sometimes, 5 = Often, 6 = Very Often, and 7 = All of the Time; $\alpha = .97$, AVE = .63, CR = .96). The 27-item ASM scale [VanMeter, Grisaffe, and Chonko, 2015] was used to gauge each respondent's level of attachment to social media using a 7-point Likert scale (1 = "Strongly disagree" to 7 = "Strongly agree"; $\alpha = .95$, AVE = .65, CR = .98). Student performance was measured using the final course grade reported as a percentage.

Pre-Test

To determine whether the students in a social media class are inherently different in terms of their attachment and addiction to social media, we collected data from the university's college of business subject pool. Students in the subject pool are enrolled in either a principles of marketing course or an introduction to management course. The students are business majors or

minors. Participants voluntarily took part in the study ($n = 94$) and received one credit for their course requirements; the survey was the same as the one used for the social media students, except that the instructor did not provide the performance metric. Each scale demonstrated reliability with this sample: attachment to social media $\alpha = .91$ and addiction $\alpha = .93$.

To examine the difference between students enrolled in a social media course ($n = 77$) and those enrolled in a foundational course ($n = 94$), we conducted an independent sample t-test. The results of the analysis revealed no statistically significant difference between students in a social media class and those in a foundational business course in either attachment ($M_{SMC} = 4.98$, $SD_{SMC} = 0.86$ vs. $M_F = 4.78$, $SD_F = 0.78$, $t(169) = 1.638$) or addiction ($M_{SMC} = 3.43$, $SD_{SMC} = 1.29$ vs. $M_F = 3.19$, $SD_F = 1.08$, $t(169) = 1.317$). Thus, we can conclude there is no reason to believe that those who are taking a social media marketing course are inherently more strongly attached to social media or inherently more addicted to social media.

Analytical Approach

First, we address RQ1 by identifying the relationship between social media addiction and attachment to social media, testing whether these constructs are different and whether attachment to social media affects social media addiction. Second, we test our hypotheses on social media addiction and attachment and students' performance in the social media marketing course. We examine whether social media addiction and attachment changed over the course of the students' semester. We also examine the relationship between social media addiction, attachment to social media, and the students' performance (i.e., overall grade in the course).

Identifying the Relationship between Social Media Addiction and Attachment to Social Media

To provide further evidence of the relationship between social media addiction and attachment to social media (ASM), we use two linear regression models to examine whether changes in students' ASM are related to changes in students' social media addiction. To this end, we examine the students in the first semester (Sample 1), who were surveyed four times throughout the semester. We regress social media addiction, standardized to have a mean of zero and a standard deviation of one, on ASM, also standardized to have a mean of zero and a standard deviation of one, as follows:

$$Addiction_{it} = \alpha + \beta_A ASM_{it} + s_{it} + \varepsilon_{it}. \qquad (1)$$

Here $Addiction_{it}$ is the social media addiction for student i at time t; ASM_{it} is the social media attachment for the student; s_{it} is a set of student fixed effects; and ε_{it} is an error term. The set of student fixed effects accounts

for any time-invariant student characteristics, both observable (e.g., gender, race, ethnicity, and age [at least within a semester], overall GPA, year in school) and unobservable (e.g., motivation, personality, susceptibility to addictive behaviors, etc.). Thus, our identification comes from changes in attachment to social media *within* students across time. Because both addiction and ASM are standardized to have a mean of zero and standard deviation of one, our coefficient of interest, β_A, estimates the standard deviation changes in social media addiction associated with a one-standard-deviation increase in attachment to social media.

We then modify Equation (1) to include the lag of attachment to social media (ASM) to examine more of the dynamics between ASM and social media addiction:

$$Addiction_{it} = \alpha + \beta_A ASM_{it} + \beta_{AL} ASM_{it-1} + s_{it} + \varepsilon_{it}. \tag{2}$$

Here, all variables are as defined in Equation (1), except that we now include both the level of ASM and its value lagged by one survey period. Note that this will decrease our number of observations by 38 (the number of students in Sample 1).

Identifying Changes in Social Media Addiction and Attachment to Social Media

Next, we examine how students' social media addiction and attachment evolve across the course of the semester. Here again, we analyze the sample of students from the first semester. For each student, we calculate the difference between their attachment and addiction in the last time period ($t = 4$) and the first time period ($t = 1$). We plot a histogram of each student's changes to visualize the distribution of changes in their attachment and addiction. We also estimate a simple two-sided hypothesis test where the null hypothesis is that the average change is equal to zero, and the alternative hypothesis is that the change is not equal to zero (H_1 and H_4).

Relating Social Media Addiction and Attachment to Social Media to Students' Performance

Finally, we examine the relationship between social media addiction, attachment to social media (ASM), and students' performance. We run linear regression models relating the performance for each student to their social media addiction and ASM. We first run regressions using social media addiction and ASM as the only explanatory variables,

$$Performance_i = \alpha + \beta_{ADD} Addiction_i + \beta_{ASM} ASM_i + \varepsilon_{it}. \tag{3}$$

Here, $Performance_i$ is student i's course grade measured on a scale of 0 to 100; $Addiction_i$ is student i's social media addiction, standardized to be mean

zero and standard deviation one; and ASM_i is student i's ASM, standardized to be mean zero and standard deviation one. Because we do not have observations for students, we cannot include student fixed effects to control for observable student characteristics. Thus, we additionally modify Equation (3) to include student characteristics, namely age measured in years and an indicator equal to one if the student is female and zero otherwise,

$$Performance_i = \alpha + \beta_{ADD}Addiction_i + \beta_{ASM}ASM_i + \beta_{Age}Age_i + \beta_F Female$$
$$+ \varepsilon_{it}. \tag{4}$$

We estimate these two regression models over three different samples. The first two samples are the two different semesters for which we have data. In the third sample, we group the two semesters together and additionally include an indicator for whether the sample is in the first semester or not. In each of these models, to interpret our variables of interest, β_{ADD} and β_{ASM}, one standard deviation in social media addiction/ASM is associated with a β_{ADD}/β_{ASM} increase in performance as measured by the student's course grade.

RESULTS

Summary Statistics

In both semesters, the average course grade is an A- (910.2 percent and 910.7 percent). Sample 2 respondents were slightly more addicted to social media ($M_{S2} = 3.78$, $SD_{S2} = 1.28$ vs. $M_{S1} = 2.95$, $SD_{S1} = 1.27$) and attached to social media ($M_{S2} = 5.24$, $SD_{S2} = 0.69$ vs. $M_{S1} = 4.96$, $SD_{S1} = 0.96$) than those in Sample 1. The average age of the students is 22 in both semesters, with the majority of the students female (61 percent and 69 percent, respectively).

The Relationship between Social Media Addiction and Attachment to Social Media

To assess RQ1, we performed a variety of analyses on the reliability and validity of the measures. To determine the internal reliability of each of the measures, we report Cronbach's alphas of 0.90 or higher. We find that the AVE for attachment to social media (ASM) and social media addiction is 0.65 and 0.63, respectively, and the CR is 0.98 and 0.96, respectively, demonstrating convergent validity. The AVE and CR all meet or exceed the minimum accepted standards of 0.5 and 0.7, respectively [Fornell and Larcker, 1981]. The squared correlation between ASM and attitude is 0.234,

indicating less than 25 percent shared variance between the two constructs [Hair, Black, Babin, and Anderson, 2010]. The variance extracted estimates are greater than the squared correlation estimates, therefore providing good evidence of discriminant validity [Fornell and Larcker, 1981].

Changes in Social Media Addiction and Attachment to Social Media

Next, we examine how students' social media addiction and attachment to social media evolve throughout the semester. Figure 1 shows a histogram of changes in addiction and attachment to social media, along with the average change across all students and the p-value from a two-sided hypothesis test, where the null hypothesis is that the average change is zero, and the alternative hypothesis is that the average change is not zero. Examining the histogram allows us to observe the magnitude of the changes, and we see that there is no statistically significant change in social media addiction over the course of the semester (p-value = 0.54); therefore, H_1 is not supported. There is, however, a statistically significant decrease in attachment across the course of the semester, where the average change is about -0.219 (p-value = 0.024); therefore, H_4 is supported.

Next, we show the regression results, further exploring the relationship between addiction and attachment to social media described in Equations (1) and (2). Table 1 shows the results from testing these models. The first column shows results from Equation (1), and the second column shows results from Equation (2). The table shows coefficients and standard errors, calculated to be robust to heteroskedasticity, in parentheses. In both columns, ASM has a positive relationship with addiction (p-value ≤ 0.05). In the first model, a one-standard-deviation increase in ASM is associated with about one-third of a standard deviation increase in addiction. In the second model, both ASM and lagged ASM are related to increases in social media addiction (p-value ≤ 0.05). Further, we examine whether there are statistically significant differences based on gender in ASM and social media addiction. We find no significant differences in ASM based on gender (p-value = 0.331) or in social media addiction based on gender (p-value = 0.856). Thus, gender is not a significant covariate and will not be discussed further.

Relating Social Media Addiction and Attachment to Social Media to Students' Performance

Finally, we examine the relationship between social media addiction, attachment to social ASM, and performance. Table 2 shows regression results from estimating Equations (3) and (4) over three samples. Social media addiction is not associated with a statistically significant change in performance; therefore, H_2 is not supported. In all the samples, a one-standard-deviation

Figure 1. Changes in social media addiction and attachment to social media.

Panel A: Social Media Addiction
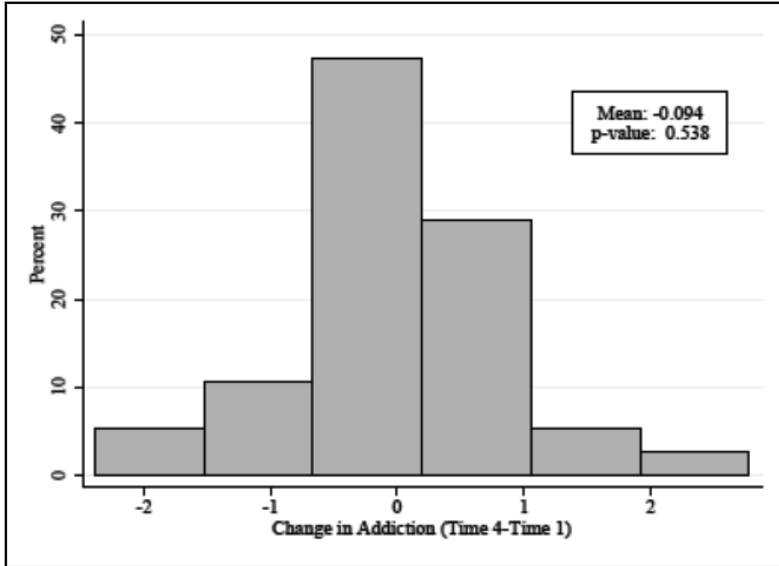
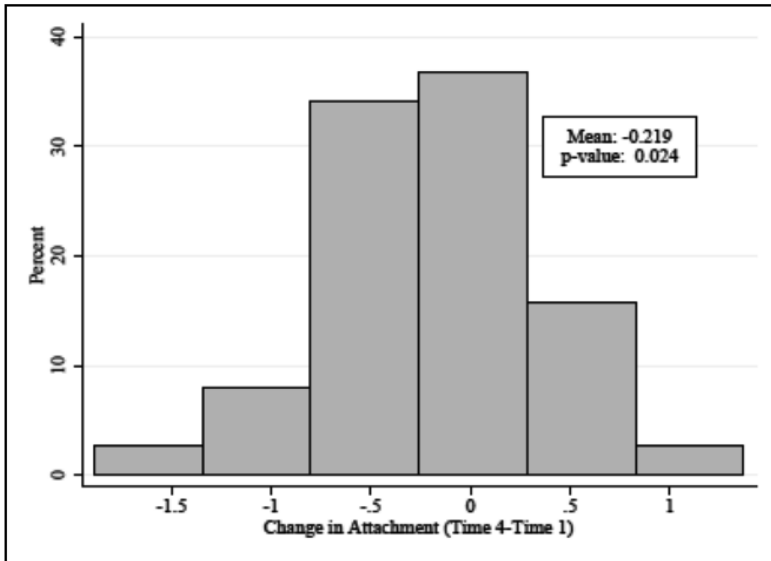Panel B: Attachment to Social Media (ASM)

Table 1. Social Media Addiction Regressed on Attachment and Lagged to Social Media

	Addiction	
Attachment to social media	0.336 (0.11)***	0.201 (0.10)**
Attachment to social media (lagged)		0.207 (0.08)**
R^2	0.164	0.197
Number of observations	152	114

Notes: All variables are standardized into z-scores. Standard errors robust to heteroskedasticity are shown in parentheses; * p-value $< .10$, ** p-value $< .05$, *** p-value $< .01$.

Table 2. Standardized Social Media Addiction and Attachment to Social Media as Predictors of Student Performance

	Sample 1				Sample 2				Combined Samples			
	Model (1)		Model (2)		Model (1)		Model (2)		Model (1)		Model (2)	
Social media addiction	−0.818		−0.893		−0.968		−1.088		−0.902		−0.791	
	(0.82)		(0.75)		(1.44)		(1.34)		(0.86)		(0.80)	
Attachment to social media	3.427	***	2.801	**	3.281	**	3.810	***	3.390	***	3.211	***
	(1.16)		(1.16)		(1.28)		(1.16)		(0.88)		(0.85)	
Age (years)			0.456				−2.674	*			−0.684	
			(0.70)				(1.41)				(0.84)	
First semester									−0.057		0.258	
									(1.55)		(1.46)	
Adjusted R-Squared	0.205		0.263		0.062		0.125		0.143		0.169	
Num Obs.	38		38		39		39		77		77	

Notes: This table shows regression results with controls for age, gender, and the semester of data collection. Standard errors robust to heteroskedasticity are shown in parentheses; * p-value < 0.10, ** p-value < 0.05, *** p-value < 0.01.

increase in ASM is related to between a 20.8- and 30.8-point increase in a student's performance as measured by the final grade in the course, which is nearly an increase from a low B+ to an A- (e.g., from 870.3 percent to 900.1 percent). The size of the effect is stable across the different samples and when including other student characteristics in the models, thereby supporting the

hypothesis that students who have a strong ASM will perform better in a social media marketing course than those with weak ASM (H_3).

DISCUSSION AND IMPLICATIONS

The purpose of this research is to gain a better understanding of the dark and the light of social media. Specifically, we investigate the impact of increased exposure to social media on students' performance in a social media marketing course. The impetus for this work is related to employers' concerns about the excessive use of social media and the recent research demonstrating its potential negative spillover effects on job performance. The crux of our findings is that social media addiction and attachment to social media have different impacts on performance. Throughout a social media course, social media addiction does not change and does not affect performance. Thus, by being immersed in a class, students are not brought into the darkness. However, the light dims (ASM decreases), but this has a positive relationship with performance: The stronger the attachment, the better the performance. These findings provide both theoretical and practical implications for social media use and its impact on behavioral outcomes.

Theoretical Implications

Our research adds clarity to the relationship between addiction and attachment [Felitti et al., 1998] and extends it to the context of social media use. Findings provide initial evidence that there is a dark side (addiction) and a light side (attachment), and they are two empirically discernable constructs. It is interesting to note that findings also show that the two constructs are positively related. Thus, our research broadens the behavioral outcomes from social media use beyond social media addiction to include a distinct construct, attachment to social media.

Our findings also make a significant contribution by extending prior research on the spillover effects of social media use [e.g., Griffiths and Kuss, 2018; Kuss and Griffiths, 2017; Meshi et al., 2019; Olmstead, Lampe, and Ellison, 2016]. Findings reveal two sides of the coin for behaviors resulting from social media use. On one side, increased exposure to and usage of social media in the classroom does not affect social media addiction and does not generate more negative outcomes. On the other side, increased exposure to and use of social media in the classroom leads to a positive state of attachment to social media and more positive outcomes. These findings support past research suggesting positive effects of attachment to social media on behavioral outcomes [VanMeter, Grisaffe, and Chonko, 2015].

Our research further promotes the bright side of social media in the form of attachment to social media as it relates to student performance in a classroom. In this context, social media is not a productivity killer. Although the bond to social media weakens, students overall who are more strongly attached to social media outperform those with no or weaker attachments. An interesting aspect is that the attachment of students who participate in a social media class weakens throughout a social media marketing course. This finding is consistent with previous literature on cognitive evaluation theory [Deci, Koestner, and Ryan, 1999], which would predict that as students are offered extrinsic rewards for using social media to achieve learning goals, their intrinsic motivation declines. Many students enter the course fairly strongly attached to social media, perhaps because of different goals (escape, passing the time, boredom, instant gratification, etc.). However, after completion of the course, their relationship to social media in the form of attachment declines. Perhaps students now see the strategic value of social media marketing and how to use social media more efficiently to attain business goals. Future research may explore the differences in goals for using social media before and after taking the social media marketing course and how this may affect social media addiction and ASM.

Practical Implications

Our research provides insights into social media use as it relates to marketing education. We find that increased exposure to social media to obtain knowledge about strategic marketing goals does not affect social media addiction over the time of the social media marketing course. Further, we find no evidence of social media addiction affecting students' performance in the class; those who do have an unhealthy relationship with social media do not perform differently than their counterparts who do not suffer from the same affliction. Conclusively, students who are addicted to social media remained addicted, and that said, addiction neither positively nor negatively affected their performance.

Given the results of this research, marketing educators should continue to incorporate social media in their marketing courses, as well as the marketing curriculum, with learning goals focused on a strategic perspective on social media to align with industry needs. This recommendation is consistent with AACSB standards that seek to align business programs with industry needs. Although this research specifically investigated the impact of social media on student performance in marketing courses, the use of social media does not have to be restricted to a social media–specific course. Strategically incorporating social media tools in the classroom, where it aligns with course goals, increases integration, interactivity, and informative discourse. Moreover, students perceive educators who use social media in their courses as innovative, more sensitive to students' needs, and in tune with the current marketing landscape [Neier and Zayer, 2015].

As marketing educators, we cannot assume that because students are personally familiar with social media platforms that they are going to understand how to use them as marketing tools to achieve business goals. Social media course content needs to bring a critical understanding of how social media is used for business purposes. "Bridging the digital gap identified requires the digital generation of students to engage in the creation of a skill set that builds on their motivation to learn in the classroom and adds to their portfolio of skills for their marketing practice post-graduation" [Duffy and Ney, 2015, p. 112]. As Harrigan and Hulbert [2011, p. 269] warn, "Academics need to ensure that practice does not get any further ahead or even further away from the marketing discipline than it already is."

LIMITATIONS AND FUTURE RESEARCH

In light of this research, it seems the next step is to evaluate addiction and attachment to social media beyond the lecture halls. Future research should, therefore, aim to understand how practitioners and educators could encourage social media usage in a way that does not cause harm to the individual outside the classroom environment and in an actual job setting—first by assessing whether there are residual effects, either positive or negative, and if so, examining the measure of influence that the effects have in everyday life. Our study demonstrated that students' exposure to social media in the marketing classroom (as a proxy for the workplace) did not negatively affect the performance of either addicted or attached students. This finding points to a need to examine other variables on an individual level that could result from students' prolonged exposure to social media in the classroom.

One important limitation to our study is the external validity of our findings. Students may self-select into a class that is centered on social media and marketing, and thus our results may not be generalizable to a broader population of students. Incorporating fixed effects into our regressions will control for any time-invariant student characteristics (for example, a student's underlying interest in marketing or a predilection for addiction or attachment to social media). Future research could approach this question directly by examining other classroom settings with different populations of students. Additionally, it would be interesting to determine whether students who are addicted to social media are able to function when social media is used as a resource, but their performance deteriorates as social media is eliminated as a resource. Such research would be relevant as we continue to face challenges with the COVID-19 pandemic. With social distancing and changes to work arrangements, social media use may move toward community support. Future research may examine the impact of the pandemic on social media addiction and attachment and consequently on work performance.

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A Classroom Exercise Practicing Moral Intent and Judgment

M. Christian Mastilak
Williams College of Business, Xavier University

This article presents a two-part classroom exercise that asks students to make a moral judgment and establish moral intent [Rest 1986] based on a moral authority. First, students describe their source of moral authority, or how they determine the morality of an action. Second, students are given an ethical scenario and asked to respond, relying on their identified source of authority. Thus, students are given practice in employing moral authority to determine moral intent and respond to the ethical dilemma. Typical student responses and possible extensions are presented.

Keywords: Ethics, Moral Judgment, Moral Intent, Moral Authority
Disciplines of Interest: Accounting, Business, Business Ethics

INTRODUCTION

Accounting and other business educators who choose to engage in active learning techniques may use cases or exercises for ethical instruction. This article describes an instructional exercise for business ethics that requires students to apply moral authority as they make ethical judgments, establish moral intent, and begin to engage in moral behavior [Rest 1986]. The design of the exercise requires students to recognize that moral decisions in specific situations rest on a source of moral authority. The design also requires students to refer to their moral authority throughout the moral decision-making process.

The exercise has been used with accounting students at the graduate and undergraduate levels. Although the specific nature of the ethical dilemma in the exercise as described in this article is related to accounting, the decision can be changed to create a dilemma relevant to other fields, such as marketing or human resources, or to nonbusiness settings in general.

The exercise is based on Rest's [1986] model of ethical decision-making. In this model, individuals' ethical decision-making process follows the following steps:

1. *Recognize the moral issue.* (An individual must first identify that an issue is a moral issue before making a moral judgment or taking any moral behaviors.)
2. *Make a moral judgment.* (Upon recognizing the moral issue at hand, the individual must identify the right action to take.)
3. *Establish moral intent.* (After determining the right action to take, the individual must decide to act in accordance with that determination as opposed to acting contrarily.)
4. *Engage in moral behavior.* (The individual finally takes action in accordance with moral judgment and intent.)

The present exercise focuses on Steps 2 and 3 and the beginning of Step 4. By the instructor's description of the exercise and the design of the requirements, students are made explicitly aware of the existence of a moral issue, and therefore the need to recognize that a moral issue exists is eliminated. Thus, the exercise begins by first preparing students to make a moral judgment and later requires them to make the judgment, establish intent, and begin to engage in behavior by either agreeing or refusing to take an action.

The exercise has been designed to achieve the following learning objectives, with appropriate levels of Bloom's taxonomy [Anderson, Krathwohl, and Bloom, 2001] noted in parentheses.[1]

1. Students will describe their source of moral or ethical authority (remember and understand).
2. Students will analyze an ethical dilemma to identify risks and vulnerabilities (analyze).
3. Students will apply their source of ethical authority to evaluate the appropriateness of a request (apply and evaluate).
4. Students will develop and articulate a response to the ethical request (evaluate).

There are a variety of existing exercises intended to give students practice in ethical decision-making in accounting and other business disciplines. This particular exercise is intended to supplement and provide ethical support for decisions beyond simply recognizing that a particular technical response is correct or incorrect. Rather, the decision to act ethically is grounded in the individual's moral judgment and reasoning. Put another way, the exercise seeks to develop students' reliance on moral support for making moral judgments and establishing moral intent. The author, based on experience and observation, believes it is helpful to encourage students to remember *why* they should act ethically in the face of pressure to act unethically and *how* to determine the right course of action when deciding under uncertainty.

DESIGN OF THE EXERCISE

Part One: Identifying Moral Authority

In the first part of the exercise, students are asked to identify their source of moral teaching and authority. The purpose of this part of the assignment is to prepare students for the likelihood that ethical decisions in business are often difficult, that the right path is often neither easy to discern nor costless to follow, and that professional codes of ethics may be helpful but are not always complete. Thus, preparing them to make thoughtful, well-informed ethical decisions consistent with their moral authority may help them to establish moral intent and engage in moral behavior.

Students are given the overview and instructions for the first part as a take-home assignment with several weeks to complete (see the Appendix for the instructional materials). Note that, as indicated in the instructions, students are given the assignment with a fall or spring break occurring before the due date. Students are encouraged to take the time to take the assignment seriously and talk with others about determining their moral authority.

The instructions do assume the existence of a moral authority outside the student's own intuition.[2] This is roughly consistent with the conventional and postconventional levels of Kohlberg's [1969] moral development theory. All the stages at both these levels include some reference to moral expectations outside the individual moral actor. Thus, although it is not the assignment's purpose to influence students' choice of moral authority, the exercise can be seen as encouraging students to not settle for essentially self-interested (in Kohlberg's terms, preconventional) moral reasoning.

Also note the care the instructor takes to make students feel free to name the authority to which they personally refer. This approach has several purposes. First, the value of the exercise is greatly diminished if students do not think deeply about their own moral behavior but instead merely list the moral authority that they believe the instructor wants them to choose. Second, the students' rights to dignity and respect in the classroom are violated if the instructor is compelling agreement, even nominally, with an ethical authority of the instructor's choosing. This element of the assignment requires substantial trust for the instructor because students can potentially reveal deeply personal information. Instructors need to discern the appropriate means and timing of the assignment for their own contexts. The small class sizes (generally no more than 30 students per section) and high degree of personal interaction at the author's institution help to establish this trust, and the instructor waits until such trust appears to exist before giving the assignment.

The instructor may choose to require or encourage reference to the relevant authoritative professional standards (e.g., the AICPA's Code of Professional Conduct in the United States). This reference to professional standards could

be done alongside the student's general ethical authority. This choice would have the effect of reinforcing the importance of knowing and complying with applicable professional codes of ethics. It also has the effect of reducing the personal nature of the ethical authority discussion. In settings where the necessary trust is unlikely, or when the instructor otherwise prefers to avoid the personal nature of the ethical authority, this approach can be a benefit.

Instructors at various kinds of institutions should expect students' responses to match the typical student body. Thus, for example, students at a private, religiously affiliated university may be more likely to report religious teachings as a source of ethical authority than students at a private secular or government-sponsored university, particularly in regions where religious participation is relatively low.

These responses are collected and graded, generally quite leniently. The lenient grading is designed to reinforce to students that the instructor was not expecting students to agree with the instructor's own source of moral authority. However, students are expected to follow the directions, and credit is reduced when they do not.

Part Two: Moral Judgment, Intent, and Behavior

Out-of-Class Work

In the second part of the exercise, students are asked to respond to a scenario in which they are asked to make a moral judgment, choose an action, and communicate that action to the character in the scenario who requested the action.

Students are given, as take-home reading, a set of background facts regarding a business, its strategy, and a problem it is facing. The facts are adapted from Hughes, Beaudoin, and Boedeker [2013] and simplified. Students are provided this information to take home, so they can read it thoroughly and be familiar with the context. This approach is intended to approximate the familiarity one would have in a real organizational context and also to allow an in-class response to the issue without taking too much time or making students' reading speed a relevant concern.

In-Class Work

After sufficient time has passed for students to read the background (generally a week or so), the in-class response portion of the assignment happens. Students are given 30–45 minutes to read the prompt, decide on a strategy, and type a response to turn in to the instructor.

In this section, students effectively perform Steps 2, 3, and (in part) 4 from the Rest [1986] model noted above. The first question leads them to identify some of the factors that make the question a moral issue for them as actors in the scenario. As noted earlier, the entire exercise is framed as a moral issue,

and therefore students do not need to recognize on their own that a moral issue exists. This question nonetheless asks students to identify why they might have difficulty establishing moral intent and engaging in moral behavior. The scenario presents both the basis for a personal loyalty between the student and the supervisor and the prospect of professional gain (a promotion) from acceding to the supervisor's request. Similarly, the technical accounting issues are described such that one could view them as ethical (properly classifying research and development, or R&D, expenses as R&D rather than cost of goods sold [COGS]) or unethical (intentionally reclassifying expenses to mislead analysts about a strategically important expense).

In question 2, students are asked to make a moral judgment: Is the supervisor's request unethical? They are required to use their ethical authority to justify their judgment. Note that, consistent with the first part of the assignment, the second part is written in such a way to encourage students to honestly do their own assessment and determine the course of action to take. Consistency of application, rather than "correctness" of outcome, is sought. Instructors can expect that most students will deem the supervisor's request to be unethical; students are generally quick to assume that potentially unethical behaviors mentioned in ethical-instruction assignments in accounting courses are unethical. However, some students may view their obligations as employees of the corporation to shareholders as sufficiently compelling that they find the supervisor's request appropriate.

If the instructor chooses to require the use of the relevant professional standards as noted above, question 2 could require the students to specify the particular section of those standards that the supervisor's request might violate. Students should then justify why the request does or doesn't violate the standards.

In question 3, students are asked to establish moral intent (either to accede to her request or deny it) and to begin to take moral action (by agreeing or refusing to comply with the request and explaining why their chosen action is appropriate). This part of the exercise is intended to help students gain practice moving from moral judgment, which is relatively easy to pronounce in a classroom setting, to moral intent and behavior. The question also requires students to begin to take moral action. The action in the exercise is communicating the decision to act ethically (either to the supervisor or to the skeptical coworker). Although students are not given the actual accounting tasks to perform, they are required to go beyond merely deciding what is ethical. Arguably, if the student decides not to comply with the supervisor's request, then communicating that refusal to the supervisor is in fact taking the necessary moral action. (In reality, a conversation with the supervisor would likely follow, and the individual might need to repeatedly refuse the request or live with negative consequences; these could also be considered taking moral action.) Students are also required to justify their action, much as they might if their behavior were questioned by a supervisor, mentor, or even an opposing side in a legal case.

Finally, the exercise asks students to consider their own individual ethical vulnerabilities in the careers the students plan to pursue and to begin formulating plans to address those vulnerabilities. The last question differs from the first question in the exercise by moving out of the facts of the scenario, including a specific personal relationship and the context of corporate accounting, and into the student's individual personal characteristics and intended job role (e.g., internal or external audit, tax, etc.). Students' intentions to address the scenario's given facts may preclude them from doing much personal reflection, so this question changes the point of reference to the student's own envisioned future. The question gives students an opportunity to consider how their own personality characteristics (e.g., people-pleasing, lack of self-confidence, etc.) might threaten their ability to fulfill the accountant's role as protector of the public trust.

The author regularly tells sections of accounting students about ethical dilemmas he faced in his own career, including times in which he was unprepared to resist unethical behavior because he was personally and financially unprepared to lose his job. Thus, this assignment seeks to help students begin thinking through their own preparation for their own careers. This aspect is an allusion to the beginning of the Rest [1986] moral reasoning model, moving from the hypothetical scenario to the students' own particular vulnerabilities to conflict of interest and their own anticipated job roles. The purpose is to help students be ready to recognize moral issues, without which the moral reasoning process cannot function.

Feedback to Students

After collecting the responses, the instructor ought to have a debriefing session in which students' application of their moral authorities are discussed. Instructors can obtain permission from students to (anonymously) describe the various moral authorities, the types of responses to the supervisor's request, and the specific vulnerabilities that students identify, together with students' plans to address them. This feedback also provides an opportunity for the instructor to provide some specific suggestions that students have not mentioned, such as saving a few months' rent and food money, rather than spending the first few paychecks on luxuries or building a network of trusted advisors outside one's employer.

USE OF THE EXERCISE AND RESULTS

This exercise takes little class time but allows for a relatively rich application of ethical judgment and behavior at the university level. It gives students practice in applying a moral authority beyond self-interest to a detailed

decision setting and in moving from moral judgments through moral intent to beginning moral behavior.

The exercise has been used with success, in slightly varying form, in a Master's-level accounting research course and in undergraduate-level intermediate accounting. The author has included the exercise in an "other assignments" category in the overall course grading scheme. This category is general about 15 percent of the overall course grade, with this particular assignment being around a fourth of the total points in that category, or about 3–4 percent of the total course grade.

As noted above, the grading is rather lenient for this assignment. Responses that receive less than full credit are generally those that do not actually meet the requirements of the question. For example, students would receive less than full credit, or even no credit, for a response if they fail to actually identify any moral authority but rather generally discuss moral issues or examples, or if they fail to refer to their moral authority in questions 2 and 3 of the response as required.

Students generally appear to take the assignment seriously. Responses to the first part asking for identification of moral authority generally reflect the nature of the student body of the particular university at which the exercise has been used. More than half of students identify Roman Catholic or broader Christian teaching as their source of moral authority. More than half also refer to strong moral instruction from their families, likely reflecting the socioeconomic status of a private university's student body. Other responses identifying people include mentors and family friends. Some students refer to philosophical teaching such as utilitarianism. Approximately a fifth of the students have identified the "law of the land" as at least a partial source of authority, in that breaking the law is seen as unethical. The most unexpected response was a student's identification of Nausicaä, a character from a graphic novel and movie, as a model of ethical behavior, demonstrating respect for various parties and identifying a balance of competing interests in a conflict.

For the in-class response to the request, students generally give answers to question 1 identifying as vulnerabilities the personal friendship and closeness with the supervisor, the feeling of owing her allegiance due to her past support, the supervisor's expectations of such allegiance, and the fear of missing the promotion or losing the current job. These responses are relatively uniform across students, which suggests that they have grasped the facts and recognized the implied potential conflicts in the situation.

Regarding the request itself (question 2), nearly all students identify the request as unethical, given that it implies dishonest and misleading intent and the supervisor's self-interest. Students frequently mention the supervisor's comment that nobody would need to know about the reclassifications as evidence of the impropriety of the request. About one student per semester

considers the request ethical, in the sense that identifying any misrecorded R&D expenses would be a proper job function. Also, about one student per semester usually offers a "middle-ground" solution, considering the request morally questionable but agreeing to review R&D for any recording errors while explicitly refusing to reclassify any expenses that are properly R&D.

Responses to the third question (the reply to the supervisor or to the co-worker) justifying one's choice of action are usually two to three sentences and relatively straightforward in style. Per the assignment instructions, students generally refer to their source of authority as the reason why they will not comply. (As noted above, failure to explicitly identify the moral authority in this response is the most common cause of point deductions in the assignment.)

A typical answer is, "supervisor, I've been thinking about your request, and I won't be reclassifying the expenses. I understand your reasoning, but it involves lying and reclassifying accounting information, not for the sake of accuracy, but with the intent to deceive, and as a CPA, I cannot knowingly commit fraud regardless of whether no one will find out or how well it might help my career. It goes against the law, and it goes against what I believe as a Catholic." A representative answer referring to one's parents as a source of authority is, "I'm sorry supervisor, but I can't do that because I don't feel comfortable changing R&D expense numbers and keeping it only between the two of us. Had my parents known about me completing such a request, they would not feel proud of the working man that I have become." Students also mention the potential repercussions to the company, their own and the supervisor's careers, or the shame they would feel personally for having been coerced into an unethical act. One student who is active in her church described the embarrassment and disappointment that would result, for both herself personally and the youth group she led in the church, were her actions to become known.

Responses justifying a choice to comply with the supervisor's request usually include a caveat that the compliance will not go beyond what is ethically acceptable. For example, "I see your concern, James, but I don't have any objections to her request because I plan to research and fully understand the facts, and if I need assistance, I will seek it. I am also prepared to inform supervisor if I do not think some of these expenses can be reclassified. I do not want to hide the truth, so if the expenses cannot be reclassified then they will not be. I plan to follow GAAP as closely as possible."

It might appear that some of these responses are artificially crafted to meet the instructor's expectations and meet the assignment criteria. Although this possibility exists, the author believes the exercise of connecting one's response to an act of moral reasoning is useful practice for students preparing for a professional world.

Finally, responses to the fourth question asking students to identify their own future vulnerabilities are often the most revealing and, in the author's opinion, the most helpful for students. Students often mention their own

inexperience both at work and in life in general and thus their need to depend on others for guidance. For instance, one student described herself as having so far lived only a "small life" and therefore not having much experience or judgment. Students also acknowledge that others might have incentives to guide them toward unethical behavior. It is also common, appearing in more than half of students' responses, for students to describe themselves as people-pleasers, regularly deferential to authority, or otherwise susceptible to interpersonal pressure even in the absence of financial or career threats. A few students each term admit their specifically moral development is yet incomplete, or their source of ethical authority may not be useful for gray-area situations. (The student noted above who identified Nausicaä as an ethical ideal was one of those.) Although the exercise is not intended to lead students to excessive self-criticism, this reflection may be a helpful component of their moral development.

This author has found little difference in content between graduate and undergraduate students' responses. Graduate students generally write longer and more professional responses, as might be expected. However, the sources of authority, responses to the request, and personal vulnerabilities are similar. Again, this similarity likely reflects the nature of the author's university as a private Jesuit, Catholic university. Also, students in the Master's of Accountancy program at this university are generally early in their careers, and some of them are continuing their educations with no break between undergraduate and graduate courses. For these reasons, the graduate and undergraduate students are quite similar in many respects, and therefore the similarity of their answers is expected.

To be sure, as with any assignment, some students appear to be simply going through the motions, providing brief answers that treat the suggestions in the assignment (that is, the suggested sources of authority or the suggested vulnerabilities in question 4) as multiple-choice questions rather than as guidance for their own reflection.

CONCLUSION, LIMITATIONS AND EXTENSIONS

A limitation of the exercise as described is the use of written format of presentation and solicitation of responses. A more intensive, and perhaps more realistic, scenario would occur with the use of role playing (e.g., Gabler and Agnihotri [2018]). Another possibility to increase realism would be the use of a video case rather than a written case (see Moy and Pactwa [2018] for an example of a video case).

A second limitation of the case is the explicit identification of the ethical situation. Rest [1986] posits that ethical recognition is the first step of ethical decision-making. The assignment is explicitly described as an ethics assignment,

removing the need for students to recognize the moral content of the request. A variation of the format above could give the facts and the request in such a way as not to draw attention to the ethical issue, ask for a response, and then introduce the ethical questions after students have had the opportunity to address the ethical issue.

As another extension, the specific case background and facts can be rewritten to fit other business disciplines, provided the ethical dilemma is such that students must grapple with the right decision. For example, in a marketing context, the ethical dilemma might include the use of both publicly available and private data to benefit the company in ways that are potentially unethical or in violation of specific contracts, as Amazon has been accused of doing (Mattioli [2020]). In a human resources setting, the use in hiring decisions of legally protected information volunteered by a job candidate might provide an appropriate context. A finance-related problem might involve the manipulation of assumptions of risk built into a valuation model used to make an investment decision. In any of these settings or others, a scenario can be created in which an action is possibly but not definitely unethical or to which an ethical middleground response can be offered.

As a final comment, the exercise also allows instructors and students to know each other better. As noted above, the author reveals to students his own struggles and regrets regarding his professional career. Students have generally responded to these stories with interest and appreciation. Students describe elements of their upbringing and some of their own experiences as they identify their moral authorities. This aspect is particularly helpful in areas of study such as accounting, where the material is technical and impersonal, course content does not naturally lead to situations where professional considerations and personality interact, and the students are often quiet and introverted. The author has found this personal element of the exercise very enjoyable.

ENDNOTES

1. Because of the Jesuit, Catholic identity of the author's university, the exercise is also intended to contribute to the university's mission of educating the student intellectually, morally, and spiritually. This factor means that the learning objectives might be articulated using language consistent with the Jesuit educational tradition, such as developing the capacity for reflection, discernment, care for the whole person, and service rooted in justice and love.

2. Instructors may find students of different backgrounds more or less familiar with the concept of moral authority. As noted above, the author teaches at a Jesuit, Catholic university. All students at this university are familiar with the existence of the Roman Catholic Church as an organization that

provides moral teaching and serves many as a source of authority. Thus, the concept of a moral authority is familiar to them. However, owing to the pluralism of many societies [see, e.g., Rawls 1993], instructors or students may not be familiar with this notion or may disagree that an external moral authority is necessary. In such cases, instructors may choose to eliminate the first part of the exercise and modify the second to eliminate the reference to the moral authority. The exercise would still provide practice moving from moral judgment to the beginnings of moral behavior, though without explicit support for the moral decision other than the student's own judgment.

3. For humorous effect, and to avoid giving an example that implies the instructor's source of moral authority, the example given in the instructions refers to *Marvel's Agents of S.H.I.E.L.D.,* a fictional television show featuring a quasi-governmental agency set in the Marvel Comics Universe superhero mythology.

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APPENDIX: INSTRUCTIONAL MATERIALS

Part One: Identifying Moral Authority[3]

The purpose of this assignment is to help prepare you to identify and respond to ethical problems in your career. You shouldn't work too closely with other students in the course, but you are free (and encouraged) to seek guidance from family, mentors, or others who can help you with this (e.g. pastor or priest, faculty mentors, professional mentors, etc.). You may want to take time at fall break to discuss this with family, etc.

Part 1: What is your source of ethical or moral guidance? In other words, where do you personally turn to determine whether something is morally or ethically right or wrong? As an analogy, we turn to GAAP to determine proper accounting practices. That's our accounting authority. What's your ethical authority? If something doesn't seem right, or if you aren't sure if you ought to do A or B. . .where do you go for help deciding what to do?

Some examples:

- religious teaching
- teachings of your parents or other family members
- philosophical teaching
- traditions of a community
- advice of a trusted mentor
- the law of the land (i.e., if something is legal, then it is ethical; if something is illegal, then it is unethical).

If your answer is something like "gut feel," or if it's something like "I don't know," please think more deeply about it. Because we all turn to something, whether we realize it or not. Even your gut feel came from somewhere. If your answer is "I really don't have one" - then I strongly suggest you consider finding a moral guide or a new profession ASAP.

NOTE: I will NOT grade you on whether you agree with me or use the same ethical authority I have. (This is NOT a course on agreeing with your professor on anything other than GAAP.) You will need to trust me on this, but you can always tell my department chair or dean if you believe I'm being unfair.

I will grade you on (among other things) whether your response appears to be done seriously and with the intent of preparing yourself to use this moral authority for your career — because you will face moral questions at some point if you stay in accounting, or business – or life – very long.

There will be a part 2 to this assignment, in which you refer back to this part 1. So please take it seriously, so that part 2 will make sense. So, for example, if your moral authority is, say, the Code of Conduct of the Agents of S.H.I.E.L.D., be sure you know that code well enough to apply it to a specific example.

Part Two: Moral Judgment, Intent and Behavior, Out-of-Class Work

General Background Information

Assume you are working as a financial analyst for Good Grains, Inc. Over the past six months, your responsibilities have included tracking product promotion expense, analyzed overhead, and compiling information related to inventory costs and research and development (R&D) expenses.

Good Grains' Healthy Cereal Initiative

Given the public's current focus on good value and more healthy foods, Good Grains' management group is convinced that the first major producer to deliver a great-tasting, lower-sugar-content product will control the majority of the cereal market. Good Grains' R&D department is hard at work on the Healthy Cereal Initiative, a project to reformulate many of their cereals. Their stated goal is to reduce the sugar and increase the whole-grain content of the top 25 percent of the product line, while maintaining the same taste and texture that consumers expect. R&D is expected to develop and taste-test production-ready cereal within the next nine months.

The Good Grains' Healthy Cereal Initiative was spearheaded by its president, a savvy market analyst. She convinced the Board of Directors to make significant investments in new product lines. She clearly understands the importance of successfully achieving the R&D outcomes. The past three years' investments in new product lines were expected to improve gross margins and increase the company's profitability. You have heard a few rumors that the company's president is now facing additional pressure from both the Board and Wall Street analysts to increase Good Grains' return on investment (ROI).

The Staff Meeting

One morning, Good Grains' Controller, the supervisor, reminded your department in a weekly finance & accounting staff meeting that Wall Street analysts track line items such as revenue growth, gross profit, and operating income, in addition to ROI and earnings per share. Analysts also analyze specific expense line items, including cost of goods sold, selling, general and administration, and R&D as a percentage of revenue and in comparison, to industry averages. To achieve the financial target ratios communicated to both the Board and the analysts, Good Grains' CFO sets tight internal targets for each expense category. If the company does not meet these targets, analysts may conclude that costs are out of control and profitability is threatened, and thus Good Grains' stock price may suffer.

The Request

A few days after the staff meeting, the supervisor stopped by your cubicle. You were happy to see her; she had always treated you well and protected you from the inter-office politics. You'd always felt as though she was looking out for you and your career success. She had recommended your promotion from staff accountant to financial analyst two months ago and was on the team that evaluated candidates for the senior financial analyst and assistant controller positions that you hope to apply for in a year or so.

"There's something I'd like to talk about with you. Do you have a few minutes?" she asked. The supervisor began the conversation by stating that sales are growing as planned, and upper management believes Good Grains' annual revenue will exceed $200 million for the first time in its history. Its net profit before taxes is projected to be $22 million, a net profit margin ratio slightly higher than the industry average. However, there is concern that difficulties with the R&D effort will likely result in higher than budgeted expenses in this area.

Although everyone agrees that both reduced sugar content and increased whole grains improve the nutritional value of the cereals, R&D discovered many additional personnel hours are going to be needed to make the cereals as crunchy as they are with the old ingredients. The crunchy texture is important to customers, and so it's necessary to maintain high sales levels.

Good Grains had budgeted R&D expenses at 4 percent of revenues, which is already a higher percentage than usually found in the cereal industry. Management now anticipates that R&D expenses could be as high as 5 percent of revenues. Because of the focus on meeting the Board's and Wall Street's expectations, Good Grains' CFO is hesitant to increase its reported R&D to the amount that will likely need to be incurred.

Part Two: Moral Judgment, Intent and Behavior, In-Class Work

Supervisor asked if you could find a way to justify journal entries to reclassify R&D costs into other expense areas related to production that are under the supervisor's budget authority—for example, cost of goods sold (COGS), maintenance, or safety. She specifically mentioned that COGS is coming in significantly under budget for the year and asked you to look for any R&D spending that might be reclassified as COGS. She reminded you that any expense reclassifications would simply re-classify expenses from one line to another within the income statement —that is, they wouldn't increase or decrease net income at all. And since these other areas are under her budget authority, no other managers would have any reason to know about the reclassifications.

As the supervisor walked away, you saw that James Rivera, in the cubicle next to yours, had overheard the conversation between you and the supervisor. He was giving you a look that said, "I know what I just heard and I'm glad she talked to you, not me."

Answer the following questions (you will answer 3a or 3b depending on your answer to question 2, but not both):

1. What conflicts do you face (in the case scenario) in deciding how to respond to supervisor? That is, where are you (in the case scenario) potentially vulnerable to pressure to act unethically?
2. Based on the source of ethical or moral guidance you mentioned in the first part of this ethics reflection, do you believe supervisor's request is ethical? Why or why not? Support your answer with specific application of your

source of ethical or moral guidance from part 1. (Note: this may not be easy for you to answer, and that's on purpose. And I don't necessarily expect you to answer one way or another or to agree with me. I do expect you to apply your source of ethical or moral guidance to the question.)

Your answer should be something like "My source of ethical guidance says we should. . . and in this scenario, supervisor's request would/would not be in keeping with that guidance because. . ."

3. Answer the part below that is appropriate for your answer in question 2.
    a. If you concluded in question 2 that supervisor's request is unethical, formulate a response to her along the lines of, "I'm sorry, supervisor, I can't do that because. . ." and it must refer to your source of ethical or moral guidance as a basis for your refusal.
    b. If you concluded in question 2 that supervisor's request is ethical, assume that James Rivera is accusing you of unethical behavior. Respond to James, defending your behavior. The response should be along the lines of, "I see your concern, James, but I don't have any objection to doing what the supervisor has asked, because. . ." and it must refer to your source of ethical or moral guidance as a basis for your self-defense.
4. In the job you hope to enter, what conflicts and vulnerabilities might you have? That is, where do you need to be on guard? These could be personality characteristics, situational characteristics, knowledge you might be lacking, incompleteness in your ethical guidance. . .think somewhat broadly so you can begin to build your ethical toolkit to practice keeping yourself on the right path.

Put on Your Thinking Hats: An Experiential Exercise to Find Solutions to the Most Common Unethical Behaviors in the Workplace through Design Thinking

Brooke R. Envick* and Eileen Wall Mullen
University of Nebraska at Kearney, St. Mary's University

Unethical behaviors are a significant problem in today's workplace. This article presents an experiential exercise, using a design thinking tool called Six Thinking Hats [de Bono, 1985], that business instructors can use to help students develop problem-solving skills to address these behaviors. This exercise makes students aware of the most common unethical behaviors in the workplace and the problems they cause. Students also reflect on their behaviors as employees and consider their future behaviors as managers. It is ideal for undergraduate business ethics courses. However, it can also be conducted in other management courses, such as courses in leadership and organizational behavior.

Keywords: Business Ethics, Counterproductive Workplace Behaviors, Design Thinking, Business Management, Experiential Learning
Disciplines of Interest: Business Administration, Business Ethics, Management

INTRODUCTION

Unethical behavior is an ever-growing problem in today's workplace. Only 40 percent of employees believe the companies they work for are ethical [Berland, 2016]. The Ethics & Compliance Initiative's Global Business Ethics Survey [Ethics Research Center of the Ethics & Compliance Initiative 2016] revealed that 33 percent of employees observed unethical behavior, and 22 percent were pressured to commit unethical acts. These behaviors negatively affect employees and their organizations. A Deloitte LLP [2010] survey indicated that employees who were considering leaving their jobs cite loss of trust as the main factor.

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*(Contact Author) Brooke R. Envick, 2504 9th Ave, Kearney, NE 68849. Phone: (308) 865-8574. E-mail: envickbr@unk.edu.

Furthermore, Smith [2000] found that employees are six times more likely to stay with a company if they believe the work environment is ethical. We contend that the ability to address and solve the problems associated with unethical behaviors is a critical skill to develop among business students, especially management majors.

Design thinking is a problem-solving method [Rittel and Webber, 1973]. Buchanan [1992] is one of the most-cited authors who presents design thinking as a way to solve problems that are not so easily solved, may have more than one solution, and where creativity is needed to find solutions. Unethical behaviors in the workplace have all three of these attributes. In our teaching experiences, we have found that the application of a design thinking tool called Six Thinking Hats is a valuable method for business students to use to find solutions to unethical behaviors in the workplace.

This article describes how to conduct this exercise, in which students collaboratively generate solutions to the five most common unethical behaviors in the U.S. workplace. In addition, we include an analysis of student learning outcomes we experienced using the technique.

MOST COMMON UNETHICAL BEHAVIORS IN THE WORKPLACE

According to a recent survey conducted by the Washington, D.C.-based Ethics Resource Center [Schwartz, 2016], the five most frequently observed unethical behaviors in the U.S. workplace include:

- *Misusing company time*. This behavior includes altering timesheets, taking care of personal affairs while at work, and using company time to conduct work for another job or their own business.
- *Workplace bullying*. This behavior is considered abusive. It includes the misuse of position and power to mistreat others, intimidation, work interference, and verbal abuse.
- *Employee theft*. This behavior includes stealing merchandise and money; skimming sales; falsifying expense reports; and tampering with checks, currency, sales records, or merchandise.
- *Dishonesty*. Behaviors exhibited by employees or managers who lie or provide only partial information to deceive others or keep them uninformed.
- *Cyber loafing*. This behavior violates company Internet policies. It includes surfing websites unrelated to work, such as social media websites like Facebook, and checking and sending personal emails.

DESIGN THINKING AND SIX THINKING HATS

Design thinking is a solution-based creative process [Brown, 2008; Visser, 2006; Dorst and Cross, 2001]. Glen, Suciu, and Baughn [2014] promote it in

business schools because it provides students with tools to become more effective at generating solutions to problems. Stock, Bucar, and Vokoun [2018] demonstrate that design thinking promotes a deep understanding of problems through empathy, collaboration, and integration of knowledge, leading to more creative ways of solving problems. Curedale [2019] provides several examples of educational institutions that use design thinking tools to help students learn. He lists universities all over the world with design thinking programs, including MIT, Stanford, and Northwestern.

Six Thinking Hats is a design thinking tool developed by de Bono [1985] to promote team discussion in a more detailed, cohesive, and effective manner. Curedale [2019] presents Six Thinking Hats as a thinking tool that encourages critical and full-spectrum thinking. This tool has been used in educational settings to develop critical thinking, complex thinking, and problem-solving skills. For example, it has been used to teach students about sustainable development in geography classes [Kaya, 2013]. It has been used in surgical nursing courses to address breast cancer and spinal cord trauma [Karadağ, Saritas, and Erginer, 2009]. The Six Thinking Hats tool has been used to teach critical thinking and problem-solving skills for a 21st-century digital economy [Kivunja, 2015]. Geissler, Edison, and Wayland [2012] used Six Thinking Hats in several marketing courses. Many corporations, such as Microsoft, Oracle, and Nestle, also use Six Thinking Hats to solve business problems[de Bono, 2018].

The Six Thinking Hats tool identifies six distinct directions that challenge the brain, which can help teams understand the effects of decisions from different viewpoints [Curedale, 2019]. A particular figurative hat color identifies each direction. That direction provides the boundaries and focus of the team's discussion at specific periods throughout the process. The team addresses all six hats at some point during the discussion. However, the order of the thinking hats and time spent on each hat vary, depending on the issue at hand. The focus and criteria of each of the six hats are as follows:

- *Blue Hat* controls the process. When wearing this hat, the team discusses the goal of the exercise and plan of action for achieving it.
- *White Hat* focuses solely on the facts. When wearing this hat, the team lays out all the information available on their topic. Nothing is labeled positive or negative. Factual data are the only things presented and discussed.
- *Black Hat* focuses on the logical but negative side of the issue(s). In other words, during the Black Hat discussion, the problems are identified. This discussion also includes potential difficulties and dangers if problems are not solved.
- *Yellow Hat* focuses on the logical but positive side of the issue(s). During the Yellow Hat discussion, all benefits are identified. This discussion includes the brighter side of the situation and optimistic components.

- *Red Hat* focuses on feelings. Team members share their own emotions about the topic, especially as they relate to their personal experiences. Even if someone does not have personal experiences, they are encouraged to express opinions.
- *Green Hat* focuses on generating solutions. All ideas and possibilities are on the table. Creative thinking is strongly encouraged. Team members generate these solutions based on the consideration of previous white, black, yellow, and red hat discussions.

When teams discuss facts, emotions, logic, and creative ideas all at once, it leads to confusion and complications. The Six Thinking Hats tool allows teams to focus on one aspect at a time, which leads to a more productive discussion where teams can simplify and streamline their collaborative inputs and outputs.

CONDUCTING THE EXERCISE

The entire exercise takes four 50-minute class periods plus one week of research that students conduct outside the classroom. There are five steps, which are discussed in this section, and Appendix A presents a summary of these steps.

Step One: Give the Assignment

This first step takes one 50-minute class period. First, in a lecture, introduce the five most common unethical behaviors to the students. Then, have the students share examples of their personal experiences with each one. Experiences include their actions of engaging in the unethical behavior at work, observing someone else engaging in the behavior, or being a victim of unethical behavior. We find that most students have some level of experience with all of the unethical behaviors (see Appendix B for examples). Personal experiences and observations help to strengthen the experiential learning component of this exercise.

Next, form five teams of students and assign one unethical behavior to each team. Teams of three to five students work best. For classes larger than 25 students, you can assign one or more of the unethical behaviors to multiple teams. The goal is to ensure full coverage of all five of the most common unethical behaviors in the workplace. Ensure that each team understands their assigned behavior and give them instructions for the next step of the exercise. Then, share the five learning objectives of the exercise with the student teams, which are:

1. Recall the five most common unethical behaviors and provide examples of each one.

2. Describe how the unethical behaviors negatively affect employees.
3. Describe how the unethical behaviors negatively impact organizations.
4. In teams, generate valid solutions to the unethical behaviors.
5. Provide statements of reflection, conclusions, and future plans about personal behavior regarding the unethical behaviors.

Step Two: Conduct Primary and Secondary Research

Step two is conducted outside the classroom, and we suggest giving the student teams one full week to complete their research. This step focuses on the first three learning objectives. First, teams should conduct secondary research to discover the impact their unethical behavior has in the workplace. Impact includes things such as decreased productivity and financial loss. For example, workplace bullying has been shown to negatively affect productivity because of increased absenteeism [Kivimaki, Elovainio, and Vahtera, 2000; Namie, 2007] and decreased performance [Baillien et al., 2009; Yildirim, 2009] among bullying targets. Stress the importance of gathering information from legitimate and recent sources, especially statistical data. Each team should generate four to six statements of impact with appropriate citations and references.

After the teams compile secondary research findings, they conduct primary research by interviewing two managers about their experiences with the unethical behavior in their organizations and among their employees. Each interview begins with the team sharing the results of their secondary research with the manager, followed by their questions (see Appendix C). One member of the team should take notes or record the interviews with the consent of the managers. Encourage students who are currently employed to interview managers in their own companies, whether that person is their manager or another manager in the company. The personal connections to the managers and workplaces add value to the experiential component of this exercise because it deepens students' understanding of how their assigned unethical behavior negatively affects their jobs, managers, and workplaces. With five students on each team, it is relatively easy for them to identify two managers who have experience with these unethical behaviors and who are willing to share those experiences and advice with the students.

Step Three: Six Thinking Hats Application

The third step takes one 50-minute class period to complete and occurs after Step Two is due. This step focuses on the fourth learning objective. Each team uses Six Thinking Hats to identify solutions to the unethical behavior and any other problem(s) created in the workplace as a result of the behavior.

Provide teams with the Six Thinking Hats worksheet (see Appendix D) to guide them through this process. This step involves their personal experiences and observations, results of secondary research and manager interviews, and each team member's feelings and opinions. Most important, teams generate solutions to the problems these unethical behaviors cause in the workplace (see Appendix E for examples of solutions).

Step Four: Class Discussion and Instructor Debrief

The fourth step of this exercise takes one 50-minute class period to complete and occurs during the class period following Step Three. Each team summarizes the outcomes of Steps Two and Three. Using the blackboard or whiteboard for this step is very helpful in illustrating the outcomes side by side. This discussion allows students to learn about the impact of and possible solutions to the other teams' unethical behaviors in the workplace. It also allows students to hear about other teams' experiences with the Six Thinking Hats tool.

Following the discussion, the instructor debriefs Steps Two through Four by pointing out the similar negative impacts these unethical behaviors have in the workplace, such as decreased productivity and reduced organizational commitment. Then, the instructor identifies similar solutions generated by the teams for different unethical behaviors and highlights the most creative ones. Finally, the instructor asks students to identify other types of workplace problems in which applying the Six Thinking Hats method would be useful.

Step Five: Evaluations

The final step of this experiential exercise can be completed in one 50-minute class period. It involves a test covering the first three learning objectives of the exercise, which include recalling the five most common unethical behaviors with examples, describing the negative impact of these behaviors on employees, and describing the adverse effects on organizations. Following the test questions on the first three learning objectives, students answer questions that address Kolb's [2014] Experiential Learning Cycle, specifically reflections, conceptualization, and active experimentation. The following questions are suggested:

- What did you learn about yourself by doing the exercise?
- Did this exercise change your thoughts about unethical behavior in the workplace? If so, how? If no, why not?
- Will your behavior as an employee change as a result of what you learned by doing this exercise? If so, how? If no, why not?

- As a future manager, do you think you will be better at solving problems related to unethical behaviors as a result of conducting this exercise? If so, how? If no, why not?

These questions address the fifth learning objective of this exercise, which is to provide statements of reflection, conclusions, and future plans. Appendix F provides examples of answers students provided in their answers to these questions. The fourth learning objective, which is being able to generate valid solutions to the unethical behaviors, is discussed in the "Analysis" section below.

We also have students complete a peer evaluation of team member contributions, which is an optional component of this exercise. Appendix G provides the peer evaluation form we use. It focuses on crucial team member behaviors for success, such as planning, collaborating, submitting quality work, and attending meetings. It is a useful tool for adjusting grades in both directions.

ANALYSIS

The student teams for our analysis were enrolled in an undergraduate organizational behavior course. The teams addressed the first three learning objectives in the second step of the exercise when they conducted secondary research and manager interviews. They were tested on their retention of this knowledge during the fifth step of the exercise. The exam contained three open-ended questions on the most common unethical workplace behaviors, which address each of the first three learning outcomes. The exam also contained questions related to other topics covered in the course during the same course module, which were trust, justice, decision-making, and workplace stress. These other topics were taught through lecture, textbook reading assignments, and short case studies. Twenty-six students took the exam. A prerequisite for this organizational behavior course was junior standing, with 13 juniors and 13 seniors enrolled in the course. There were 16 males and 10 females. Two members were international students. In addition, the students represented 10 different majors within a college of business and technology.

We predicted that students would perform significantly better on the exam questions related to the most common unethical behaviors in the workplace in comparison with exam questions that focused on all other topics. A paired t-test was conducted on the mean scores for the exam questions covering all other topics ($M = 75.17$ percent, $SD = .12$) and the mean scores for the exam questions covering the most common unethical behaviors ($M = 86.75$ percent, $SD = 0.13$), which was 11.58 percent higher. The results indicate that students performed significantly better at p-value < 0.01 on the questions that focused

Table 1. Descriptive Statistics for Paired *t*-Test

	Mean	N	Std. Deviation	Std. Error Mean
Unethical Behaviors	0.8675	26	0.12	0.02
All Other Topics	0.7517	26	0.13	0.03

Table 2. Paired *t*-Test Results

		Paired Differences							
				99% Confidence Interval of the Difference				Sig.
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	*t*	df	(2-Tailed)
Pair UB - All Other	0.12	0.01	0.01	0.03	0.32	8.36	25	0.0001

UB, Unethical Behaviors; df, degrees of freedom.

Table 3. ANOVA Team Assignment Descriptives

					95% Confidence Interval for Mean	
Team Assignment:	N	Mean	Std. Deviation	Std. Error Mean	Lower	Upper
Misusing Time	6	0.9267	0.09	0.04	0.78	1.00
Bullying	5	0.7580	0.16	0.07	0.56	1.00
Theft	5	0.8900	0.11	0.05	0.78	1.00
Dishonesty	5	0.8460	0.18	0.08	0.56	1.00
Cyberloafing	5	0.9120	0.09	0.04	0.78	1.00
Total	26	0.8675	0.12	0.02	0.56	1.00

on the most common unethical behaviors in the workplace, $t(25) = 8.36$, *p*-value $= 0.00001$ (see Tables 1 and 2).

Further analysis was conducted to determine whether there were any significant differences between teams based on which unethical behavior they were assigned. We conducted a one-way analysis of variance (ANOVA) on the mean scores for the exam questions that focused on the most common unethical behaviors in the workplace. The results indicate there were no

Table 4. ANOVA Team Assignment Results

Team Assignment:	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	0.0957	4	0.0239	1.377	0.27
Within Groups	0.3646	21	0.0174		
Total	0.4603	25			

Df, degrees of freedom.

Table 5. ANOVA Exam Comparison Descriptives

Exam:	n	Mean	Std. Deviation	St. Error Mean	95% Confidence Interval for Mean Lower	Upper
Exam 2 - UB Exam	26	0.7658	0.12	0.02	0.51	0.96
Exam 1	26	0.7262	0.09	0.02	0.58	0.88
Exam 3	26	0.7442	0.10	0.02	0.48	0.92
Exam 4	26	0.7481	0.09	0.02	0.62	0.94
Total	104	0.7460	0.10	0.01	0.48	0.96

UB, Unethical Behaviors.

Table 6. ANOVA Exam Comparison Results

Exam:	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	0.0206	3	0.0069	3.267	0.02
Within Groups	1.0331	100	0.0103		
Error	0.1576	75	0.0021		

Df, degrees of freedom.

significant differences between group means (F (5,26) = 1.377, p-value = .27 (see Tables 3 and 4).

The students had four exams in the course. The second exam was the one that contained questions that focused on the most common unethical behaviors in the workplace. As previously discussed, students performed significantly better on the questions regarding the unethical behaviors. As a result, the overall mean score on the second exam (76.58 percent) was higher than the means for the other three exams: exam 1 = 72.62 percent; exam 3 = 74.42 percent; and exam 4 = 74.81 percent. We conducted a one-way repeated

measures ANOVA to determine whether the students performed significantly better on the second exam in comparison with the other three exams. The results indicate there was a significant difference (F (4,104) = 3.267, p-value = .02 (see Tables 5 and 6).

The fourth learning objective was assessed during the third and fourth steps of the exercise, when student teams generated solutions to the most common unethical behaviors in the workplace by applying the Six Thinking Hats thinking tool and presented those solutions during class discussion. Appendix E provides examples of these solutions. Many of the solutions generated by the student teams are backed by solutions found in the scientific literature. For example, the students suggested that employee theft should be addressed proactively by paying employees fairly and monitoring timesheets and cash register receipts. Equity Theory [Adams and Rosenbaum, 1962] supports this solution. They also suggested that managers should reward whistleblowers. Appelbaum, Iaconi, and Applebaum [2007] back this idea by presenting whistleblowing as positive workplace behavior and a solution to deviant workplace behavior.

To address workplace bullying, the students suggested approaches such as job training programs and quick manager involvement to mediate and resolve the situation. The benefits of these suggestions are supported by Schwarz [2002], who offers advice on developing a facilitation training manual related to workplace bullying. Furthermore, the U.S. Department of Justice [2005] discusses the importance of providing workplace bullying awareness training and internal conflict resolution programs.

Misusing company time is another common unethical behavior in the workplace. One solution offered by the students is to provide incentives for productivity, which is classic operant conditioning [Skinner, 1938]. In addition, they mention that managers should be good role models, which is supported by social learning theory [Bandura, 1986]. Another solution the students propose is making sure that employees are challenged in their jobs, so they do not have time to slack off. This idea is supported by Ference, Stoner, and Warren [1977] in their work on how to manage career plateaus.

The final step addresses the fifth learning objective and provides students the opportunity to close the loop on this experiential exercise by having them write statements of reflection and conclusions. This step encourages them to consider how their own behaviors may change based on what they learned [Kolb, 2014]. For example, in their reflection statements, students recognize how common these unethical behaviors are in the workplace and their negative effects on individuals and the entire organization. In drawing conclusions, students recognized that these behaviors tend to overlap each other, and some are easy to violate, such as Cyberloafing; most important was that students considered changing their own behaviors such as no longer engaging in time theft and cutting back on social loafing. Some students even stated that they had already begun to change their behaviors, such as showing up for work on time

and putting their phones away during work. In planning for future behaviors as managers, students recognized the need to lead by example, be honest with their employees, and communicate with them.

DISCUSSION

This experiential exercise uses the Six Thinking Hats tool. Although we recognize that this is not a new tool [de Bono, 1985] to generate solutions to business problems, it is timeless and can be applied in numerous ways. We applied it to generate solutions to the most common unethical behaviors in the workplace, which, to our knowledge, has not been done to date. The application of the Six Thinking Hats tool was highly successful in helping students achieve all five learning objectives of the exercise. In fact, one student stated that she intends to use this tool as a manager to solve other types of problems. This demonstrates the importance of introducing students to design thinking tools in the classroom so that they become better problem-solvers in the workplace.

There are some limitations to the design and outcomes of the study. First, we recognize that the full process of design thinking includes more stages than just ideation and concept generation, which is the stage of the design thinking process that this experiential exercise addressed. However, our study provides evidence that exposing students to any stage of the design thinking process can be very valuable.

Second, students obtained significantly higher test scores on questions related to the most common unethical behaviors in comparison with test questions on other topics. Although it is reasonable to assume this statistical significance is due to the experiences that students had by conducting this exercise, the amount of time must also be considered. For example, we did not collect data on how much time students spent studying the five most common unethical behaviors in the workplace versus the amount of time they spent learning the other topics.

A third limitation of this study is that we do not yet have any data on the changes in students' thoughts or behaviors in the long term. For example, one student said he already changed his behavior at work by putting his phone away to avoid wasting company time. We do not know whether this behavior will continue or whether he and others may slip back into bad habits or forget about the negative impacts unethical behaviors have on employees and organizations.

CONCLUSIONS

Unethical behavior continues to be very problematic in workplaces. The experiential exercise presented in this article provides student teams with the

opportunity to take a deep dive into the most common unethical behaviors and apply the Six Thinking Hats design thinking tool to generate solutions. We found that this exercise was very useful in increasing our students' awareness of unethical behaviors in the workplace, helping them develop problem-solving skills needed by managers, and promoting positive changes in their behaviors as employees and future managers. Design thinking tools are extremely useful to help students practice and develop problem-solving skills, which are becoming increasingly important for them to acquire to meet the demands of today's workplaces.

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Appendix A: Running the Exercise

Step One: Give the Assignment In-class = 50 minutes	The instructor introduces the unethical behaviors, places students on teams, assigns each team a specific unethical behavior, and provides the learning objectives for the exercise.
Step Two: Primary & Secondary Research Outside of class = One week	Students complete secondary research and primary research by interviewing two managers.
Step Three: Six Thinking Hats Application In-class = 50 minutes	The instructor provides teams with the Six Thinking Hats worksheet, and teams complete the application.
Step Four: Class Discussion & Instructor Debrief In-class = 50 minutes	Each team presents the outcomes of the Six Thinking Hats application, and the instructor debriefs the exercise.
Step 5: Evaluations In-class = 50 minutes	Students take an exam, answer questions on personal reflections, conclusions, and future plans, and then complete an optional peer evaluation.

Appendix B: Examples of Student Experiences with the Five Most Unethical Behaviors

Misusing Company Time

- Doing personal errands while on the clock
- Taking more time than necessary to finish a project
- Making himself hard to find, in storeroom or bathroom, to get out of work

Workplace Bullying

- Writing a fake bad customer review about another employee and posting it on Yelp to try to get him fired
- Coworkers talking poorly about each other and being verbally rude to each other
- One employee withholding information from another employee when both up for the same promotion opportunity

Employee Theft

- Altering a timecard to make it look like she worked more hours
- Taking office supplies for school and home
- Entering price tags wrong so he could take money away from the sale

Dishonesty

- Calling in sick to get out of work so she can hang out with friends
- Lying to cover up a mistake to stay out of trouble with the manager
- Filling out several fake customer satisfaction surveys to get a bonus

Cyberloafing

- Sending personal emails
- Spending time on Instagram or Facebook
- Shopping online for personal items

Appendix C: Manager Interview Worksheet

In our _____ class, we are conducting research on the most common unethical behaviors in the U.S. workplace.

The unethical behavior our team was assigned is:_____which includes specific behaviors such as: _____
_____

From our research, we discovered that this behavior has the following negative impacts on employees, managers, and the workplace:

_____
_____
_____

1. As a manager, have you ever experienced or observed this behavior among your employees? If so, what impacts has this behavior had on your organization/company/department?
2. Can you share any specific examples of this behavior occurring in your organization/company/department?
3. Does your organization have any specific policies regarding this unethical behavior? If so, are they effective?
4. Aside from any policies regarding this unethical behavior, how have you dealt with this behavior?
5. What advice would you give a new manager if he or she had to deal with this unethical behavior?

Appendix D: Six Thinking Hats Worksheet

Begin with blue hat thinking to ensure everyone understands the goal and create your action plan. Be sure your action plan includes all thinking hats but allow your team the latitude to revisit any hat or revise your action plan (by going back to the blue hat) at any time. The ultimate goal is to generate creative solutions, so green hat thinking is critical!

Team Notes:

Blue Hat	Control	Your Goal is to find solutions to the problem(s) created by your team's assigned unethical behavior. Discuss your plan of action.	
White Hat	Facts	What facts do you know from the classroom, your secondary research, and from the interviews you conducted with managers?	
Black Hat	Logic: Negative	What are the practical, realistic, and *negative* implications of employees engaging in this unethical behavior?	
Yellow Hat	Logic: Positive	What are the practical, realistic, and *positive* implications if employees stop engaging in this unethical behavior?	
Red Hat	Emotions	How do you feel about your own experiences with this unethical behavior? If you have no experience, what are your opinions about it?	
Green Hat	Creative Thinking	Generate solutions to the problem(s) created by this unethical behavior.	Use the back of this sheet to record your creative solutions for the unethical behavior.

Appendix E: Examples of Student Solutions to the Most Unethical Behaviors Using Six Hat Thinking

Misusing Company Time

- Managers should make sure every employee's job is challenging enough, so no one has time to slack off.
- The company should offer incentives for productivity and attendance.
- Managers should encourage and reward teamwork so that employees are more accountable to each other.
- Managers should be good role models by spending all of their time at work being productive too.
- Managers need to clearly show employees how important their job and responsibilities are to overall company performance and for customers.

Workplace Bullying

- During the job training process, illustrate how bullying can decrease productivity and make the company look bad in the eyes of customers.
- When it happens, managers need to have face-to-face meetings with the employees to mediate the situation.
- Managers need to stop it as soon as possible because these matters get worse very quickly.
- The company should implement bonding exercises or retreats to get people to communicate more and work together in more harmony.
- Managers should follow up with victims and their bullies to make sure it has stopped and has not manifested into another negative situation

Employee Theft

- Companies should pay their employees fairly.
- Companies should offer confidentiality and rewards for whistleblowers.
- Companies should impose harsh sanctions, like firing or even criminal prosecution, to show others how serious you are about it.
- Managers should pay more attention to the details like employee behaviors, timesheets, cash register receipts.
- All companies should report all theft, so the impact is more realistic and better-known.

Dishonesty

- Companies should host ethics training seminars to show how dishonesty creates mistrust in the workplace, and that mistrust leads to lower production and commitment to the company.

- Companies should have a strong three-strike policy, where they automatically fire an employee the third time they are caught lying.
- More managers should have open-door policies so that employees feel like they can comfortably talk to the manager when they have a problem or make a mistake.
- Managers should have employees show documentation of absences such as invoices for doctor visits or car repairs.
- Managers should make employees work extra hours or do extra tasks to make up for dishonesty that led to lost time or lost production.

Cyberloafing

- Companies need to set higher expectations and apply them fairly and consistently.
- Managers should follow up with employees who violated policy.
- More companies should have open floorplans so managers can see what everyone is doing. It would also encourage more face-to-face interaction among employees.
- Companies should have a formal policy on how employees should act with their personal phones and work computers that employees sign.
- Managers should also set a good example by not engaging in Cyberloafing behaviors.

Appendix F: Examples of Student Answers to the Questions for Reflection, Conclusions, and Future Plans

What did you learn about yourself by doing the exercise?

- That dishonesty comes in many different forms and is very costly, even beyond financial damage.
- Bullying in the workplace is more common than I expected. I thought it just happened with kids and in schools.
- One employee misusing company time can negatively affect other people and the whole company.
- Theft does not just include money and merchandise, but company time.
- I am not as ethical as I thought I was.

Did this exercise change your thoughts about unethical behavior in the workplace? If so, how? If no, why not?

- Yes.
  - It changed my thoughts about trying to make myself look better to my boss than I really am. I did not realize that this actually harms my relationship with my boss.

- The five most common unethical behaviors overlap each other. For example, Cyberloafing can be just as dishonest as employee theft.
- It seems like advances in technology have created just as many problems for managers and companies as solutions.
- Cyberloafing is not okay to do even if your entire job involves working on a computer all day.
- The financial costs of employee theft to a company are pretty shocking.

Will your behavior as an employee change as a result of what you learned by doing this exercise? If so, how? If no, why not?

- Yes.
  - I will no longer engage in time theft.
  - It is more important for me to tell the truth than embellish my performance.
  - I have already started showing up on time and working harder.
  - I will cut back on social loafing and work more steadily throughout my shift.
  - As a graphic designer, I should only allow myself so many minutes of in-spiration (looking for ideas online) to make sure it does not turn into wasting company time through Cyberloafing.
  - Since this assignment, I have been putting my phone on silent, and I keep it in my pocket. This has stopped me from looking at it all the time and wasting company time.
- No.
  - I have always held myself to high standards and do not allow myself to fall into any of these behaviors.

As a future manager, do you think you will be better at solving problems related to unethical behaviors as a result of conducting this exercise? If so, how? If no, why not?

- Yes.
  - I plan to lead by example because this is the best way to stop the behavior among those who work for you.
  - I will probably use Six Thinking Hats to solve other problems.
  - Communicating with my employees will help prevent some of these problems, and I will make sure they feel challenged.
  - Dishonesty creates a lack of trust. So, I will make sure that I am always honest with my employees.
  - If I have extra time, I will use it to see if my employees need anything rather than wasting time or Cyberloafing.

Appendix G: Peer Evaluation Form

The purpose of this evaluation is to ensure fairness in the distribution of grades to members of your experiential learning team. Your team will receive a grade for each project. This evaluation provides feedback to your professor for assigning individual grades. Use the following scale to evaluate the work of each person on your team, including yourself, for each component listed:

    5 = Excellent; contributions were crucial

    4 = Very strong; contributions were significant

    3 = Strong; contributions were important

    2 = Sufficient; contributions were adequate

    1 = Insufficient; contributions were minimal

    0 = Detrimental; no contributions made, *or* contributions were counterproductive

Self/Peer Evaluation (name): _____

    _____Planning and coordinating the project

    _____Collaborating with other team members

    _____Leading *or* participating in productive team discussions

    _____Submitting quality materials required for project completion

    _____Attending team meetings and submitting required materials on time

Total: _____

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There are few strict layout requirements for submitting a manuscript for review. Specific style instructions for publication will be provided upon acceptance of manuscript. The following are guidelines are recommended in preparing your manuscript for submission:

1) Manuscripts should be typed, double-spaced and in an easy to read font such as Times Roman (12 point) or Courier (10 point);

2) Cover page should include paper title, authors names and affiliations and phone number and email address of manuscript contact person. Authors names should appear nowhere else in manuscript;

3) First page of manuscript should begin with paper title, followed by an abstract of no more than 100 words, then followed by the first section of the paper that should be called "INTRODUCTION";

4) Sections - There should be no more than three levels of headings in body of paper:

Level One headings should be left justified and all caps;

Level Two headings should begin each word with capital letter and left justified;

Level Three headings same as Level Two, but italicized.

5) End Notes - Use end notes only, not foot notes. Number them consecutively throughout the manuscript with superscripted Arabic numerals (dont use foot note feature of software). Place all end notes together at end of manuscript before the REFERENCES section;

6) Equations - Number all equations consecutively and place number in parentheses at the right margin of equation. If you use equation editor, place equation number outside of equation box;

7) Tables - Except for very small tables, tables should be placed at end of manuscript. Make every effort to avoid "landscape" orientations. Tables should have centered headings as:

Table 1: Title of Table

Note in body of paper approximately where table or figure should be placed, as:

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8) Figures - All figures should be headed as in the tables described above, except use the word "Figure" in place of "Table." Figures and charts must be clear and readable in black and white format;

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Smith, R.J. "Learning by Doing: Teaching Can Be Fun," Journal of Business Education, 22 (Spring, 1994), 77-81.

Jones, R.R., Carol King and Sidney Slack. "Team Teaching Via the Internet," Journal of Educational Design, 7 (No. 2, 1993), 123-144.

In the body of the paper show citations like this [Smith, 1994] or [Jones et al., 1993].

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Contact

Dr. Stuart Michelson
Roland & Sarah George Professor of Finance
Stetson University - School of Business
421 N. Woodland Blvd., Unit 8398, DeLand, FL 32723
(phone) 386-822-7376 (fax) 386-822-7491
smichels@stetson.edu