

# **PREDICTING THE LEARNING EFFECTIVENESS IN A BUSINESS ETHICS CLASS BY EXPERIMENTAL MEASURE**

Hamid Khan, Our Lady of the Lake University  
akhan@lake.ollusa.edu

## **ABSTRACT**

Many universities are trying to teach ethics to their graduating business majors by offering a course in business ethics. In this paper, an experiment was designed to test the efficacy of this practice. After about three months of the course, the instructor has the results of exam 1 (an objective test), as well as an essay test on practical applications of ethics, and would like to predict student success. Before the end of the semester the instructor would like to know if he has correctly ranked those students from the combined score of the objective and essay tests (acid tests of ethical knowledge). Before the second and final comprehensive exam, he wants to determine if there is a correlation between the rank-order of performance from test 1 with the final comprehensive exam. He has formed the hypotheses ( $H_0$ ): the rank-order of performance in exam 1 has no relationship to the comprehensive final exam score. This experiment will be tested with alpha of .05.

Keywords: Teaching Effectiveness, Learning Outcomes, Learning Effectiveness

## **INTRODUCTION**

Predicting learning effectiveness in the business ethics course for the juniors and seniors has been a paramount objective of the undergraduate business program at Our Lady of the Lake University and other programs like it. The importance of teaching ethics to our undergraduates cannot be overstated for preparing them successfully for business. But the effective attainment of inculcating ethics is always debatable. Although there are many ways to teach business ethics, the effective learning outcome has always been on the spotlight of this course. How do you determine that a business ethics course has been effective in providing specific learning outcomes in a measurable way? There are about 15 or 16 important areas of ethics in the undergraduate ethics curriculum and every one of them is of interest. We would like to know how to tell if ethical learning has taken place and how it can be measured.

If, for example, a teacher wanted to start a lively conversation in order to encourage active learning, he or she could pose a question: who is the best ethical leader that you consider to have had a significant impact on the whole of the world? The discussion that follows could lead us to a very important outcome for the students to learn: that the leaders they select would be significantly different, and there would be no agreement on the traits or qualities of the most successful ethical leaders in the world. This is the dilemma that faces this author in examining

the outcomes of an effective ethics class and how to measure those outcomes from real student performances. There are many different “right” answers to many questions pertaining to ethics.

Emulation of teacher effectiveness was achieved by following the “acceptance theory of teacher’s authority” developed by Barnard (1998) by looking at the following classroom teacher behavior (the activity is the evidence of behavior):

- At the time of teaching the student understood what is being taught
- At the time of teaching the student understood and believed that it is to her personal interest
- At the time of teaching the student understood and believed that it is to the organizational interest
- At the time of teaching the student understood and believed that she is biologically (mentally, physiologically and physiologically) capable of executing the assigned task. (Barnard, 1998)

This is the teaching effectiveness philosophy of Barnard (1998) that is being subscribed to in teaching ethics, and in keeping with the conviction that is laid down in the above precepts of teaching effectiveness. Teacher behavior that promotes students in learning ethics can be demonstrated in their strong use of ethical decision-making as a way of “perceived change” either in their cognition or in behavior, demonstrated in creative writing using immersive learning from “sensitive” cases in the form of “Reaction, Learning, Behavior, and Results” (Barnard, 1998). That is the offshoot of Barnard’s main elements of “cooperative learning outcomes in the class” defined as students’: “(i) willingness to communicate, (ii) willingness to cooperate, (iii) willingness to contribute to a (iv) common purpose: that is learning” artfully precipitated by the teacher in the classroom (1998).

## **LITERATURE REVIEW: TEACHING EFFECTIVENESS**

Instructional effectiveness research focuses on student satisfaction either by in class (face-to-face) or online surveys to measure success. Such research has emphasized that the beneficiaries of instruction are the students themselves. The consequential and transcendental results of teacher development due to classrooms being increasingly student centered has not been researched as much. In this literature review, we will explore how other fields teach ethics and study the effectiveness of ethics education.

Dow et al. (2015) performed a mixed methods study of library and information science (LIS) graduate students from the Midwest to determine how effective a case-based pedagogy was for teaching ethics. They collected both qualitative and quantitative data for both pre- and post-assessment. The class that was studied moved away from simply having lectures wherein students were then expected to memorize facts for tests, and instead used a more dynamic learning process. They used a model based upon Dervin and Clark (2003) to overcome communication gaps. In this class, students studied cases, real situations related to privacy, studied intellectual property, and intercultural and professional ethics (Dow, 2015). Initial findings suggest that using cases in this way helped students to describe and explain the basics of information ethics, to apply models to ethical cases for decision making, let them practice

flexible communication, improved awareness of tolerance, and improved students' self-reported interest in information ethics (Dow, 2015). Dow et al. believe that this type of case-based instruction for ethics shows a lot of promise and might be a good way to teach ethics outside of the social science disciplines.

Schmidt et al. (2013) argue that businesses and business schools both are concerned with effective ethics teaching and finding ways to foster ethical behavior in graduates. There is not a single approach that has been identified as exemplary. However, Schmidt et al. propose one approach, "deliberate psychological education, [which] offers a means for extending and integrating elements of developmental theory and has proven effective in professional settings, with college students, and recently, with undergraduate business students" (p. 127). The article proposes a way to use this model within the curriculum.

Preston-Shoot et al. (2011, p. 339) write that medical education presents content on the ethical responsibilities of doctors to protect patient health and well-being. Curriculum statements have begun to advise on core content and methods for organizing teaching and assessment. However, they observe that no comprehensive overview of approaches to the delivery of this curriculum has been undertaken (Preston-Shoot et al., 2011). They suggest that we assess the nature and strength of the published evidence base for the teaching, learning and assessment of ethics in medical education. This could be applied to business education as well. Their study provides a thematic content overview from the best available literature on the teaching of ethics to medical students and on the assessment of their ethical knowledge and skills, relying on measures of student satisfaction and on evaluating short-term outcomes rather than assessing whether knowledge is retained and whether learning impacts on patient outcomes. They also suggest that further research is needed into effective methods of teaching, learning and assessing ethical knowledge and skills during and following initial medical education.

By a meta-analytic study, Tomcho et al. (2008) found that teaching researchers can assess learning outcome effectiveness as a function of students' graded performance or by their consequent changes in knowledge, skills and behaviors, or attitudes. The researchers meta-analyzed 197 studies to determine the effectiveness of teaching activities in psychology. They found that most studies saw a mid-sized effect across all types of learning outcomes. They suggested that, given the effectiveness of psychology teaching activities, researchers should address the "(a) potential confounding role of teacher rapport, immediacy, and alliance in evaluating teaching effectiveness; (b) ethics of teaching activity development; and (c) appropriateness of using course grades to assess teaching activity effectiveness" (p. 286).

Grauerholz (2007) argues that we need to first start by looking at the ideology of students and uses this to rethink a strategy for efficient teaching. Finding out what students believe as they enter the class allows them to be more sociable and knowledgeable in the course, and it also gives teachers space to be more critical and reflective of their teaching style. Grauerholz (2007) also notes that teachers must be willing to change their outlooks at the same time as they ask their students to, as their teaching relies about contextual factors. The study also touches upon active learning practices that can help to improve students' ethical and moral imaginations.

Vynckier et al. (2015) studied nursing students in Flanders, Belgium using the Students' Perceived Effectiveness of Ethics Education Scale. In this study, students were asked to critically reflect "on their own values as the only ethical competence promoted by ethics courses, failure of ethics courses to meet some basic ethics education objectives, and need for further SPEEES improvement and larger scale research" (Vynckier et al, 2015, p. 287).

Trelstad (2008) studied the ways that we might engage "conservative" students in new ways in order to change their world view and lives. Is doing so ethical? Trelstad (2008) argues that we need to take their position and concerns seriously and should not consider them ignorant if we are to be "trustworthy" educators (p. 191). Trelstad argues that conservative students make the same types of critiques as their more liberal contemporaries, and should be taken seriously in pedagogy. Current postmodern, postcolonial, and feminist pedagogies aim to tear down and analyze bias and power in the classroom—but Trelstad (2008) says that we must be careful in choosing these pedagogies because things like "method, thinking skills, and subjects are themselves bias-laden" (p. 191). We should focus, then, on becoming better educators for students who come from all political and religious backgrounds.

Eun-Kyung et al. (2009) argue after their study of medical education and ethics that teaching medical ethics presents many challenges—especially that students do not always see the value in learning it. There also aren't many effective teaching methods used by faculty for this course. In their study, Eun-Kyung et al. (2009) introduced team-based learning (TBL) to the ethics course and evaluated how it affected student engagement and satisfaction as well as educational achievements. The course consisted of four two-hour sessions for first-year medical students. Student engagement was judged by scored on the IRAT, GRAT, application exercises, and final examination, as well as the students' own perception. Most students found the TBL activities to be more engaging than a conventional ethics course, with GRAT scores being much higher than IRAT scores (Eun-Kyung et al., 2009). Student performance was overall improved and the TBL method should be considered for application in other courses in medical education as well.

In an engineering paper, Alfred et al. (2012) describe a second generation Simulator for Engineering Ethics Education. Similar to the first generation, students are placed in a first person perspective as they face scenarios involving various types of ethical situations. Students must then gather data, make assessments, and come to decisions. Like the first generation, students develop a response to ethical engineering situations as a result. However, the first generation used a "dogmatic model based on National Society of Professional Engineers' Code of Ethics" (p. 689), the second generation approach incorporates the actual experiences of engineers that have been involved in real ethical situations. The students are also given feedback about the effectiveness of their decision and how it might affect their future professional career. In their study, they saw a 59 percent increase in knowledge and a 19 percent improvement in teaching effectiveness over an internet based approach (Alfred et al., 2012).

Cannaerts et al. (2014) discuss a study they performed on nursing students/educators' perception of what the contribution of ethics education is to the later ethical competence of nursing students. It addresses questions including how they look at the general contribution of ethics education, the contribution of ethics education to ethical competence, and the features of ethics education needed to promote ethical competence. It suggests that ethics education adds to the ethical

awareness and ethical reasoning competencies of nursing students, as it should to business students.

Numminen et al. (2011) analyzed how nurses' codes of ethics are taught in Finland. They had a total of 183 teachers and 214 student respondents to their questionnaire, which was analyzed by SPSS. Classes consisted of learning about many different nurses' codes of ethics, and the nurse-patient relationship was also highlighted. By the end of the courses, students' ability to apply the codes of ethics was still somewhat mediocre, but both students and teachers thought that the teachers' understanding of and knowledge about the codes of ethics was adequate. The teachers taught the codes extensively, but they were not learned as extensively. Numminen et al. (2011) believe that future research should focus more on ethics education's organization and effectiveness as well as upon educators' competence.

As early as 1949, Tyler showed that a prescriptive syllabus and teaching could be made very effective in the classroom—the students benefited from the expertise of the teacher in the classroom if they conformed to the teacher-centered way of teaching. Learning happened. Students just learned material without question. The teacher was prescriptive at the same time as being effective.

The following is a depiction of student-centered classroom evaluation which will speak to student learning efficacy under a completely cooperative setting. The pictures are courtesy of the IDEA center for innovative evaluation of student centered learning effectiveness.

## **PREDICTORS OF SUCCESS**

In our course syllabus we measure success by:

1. Homework assignments of four written case analyses (tests of application, analysis, synthesis)
2. e-Quizzes from chapters taken in the Blackboard LMS (tests of knowledge and understanding)
3. e-Midterm exam—computerized and proctored—is taken at the Assessment center (test of comprehension)
4. e-Final exam computerized and proctored—is taken at the Assessment Center (test of comprehension)
5. e-Midterm + Final exam averages computerized and proctored—(summary test of comprehension)
6. Summary of all as the course grade

According to Boatright's (2009) text, we examined teaching and learning ethical cases (with homework and presentations with student involvement) on glaring ethical subjects such as:

- Ethics in the world of business
- Welfare, rights and justice
- Equality, liberty, virtue
- Whistleblowing

- Trade secrets and conflict of interest
- The ethics of privacy
- Federal affirmative action
- Women's and family issues
- Unjust dismissal
- Marketing, advertising and product safety
- Ethics in finance
- Ethics and corporations
- International business ethics

We used two cases per class for discussion so we did approximately 30 cases in the course of one semester. Each chapter above starts with a glaring case scenario in which something drastically wrong has happened ethically. From five stakeholder points of view the student is supposed to analyze what is the ethical problem, who is the worst offender, who has suffered the most, what would be the best course of ethical action, and how ethics and justice should prevail. Evidently there is no straightforward answer to each problem but there is a peyorative for the students to learn to be devil's advocates. With such a scene given, the question is: how do you make the course predictably effective so that you prepare a student to become an ethical leader?

The following are the course outcomes for the course. After successful completion, the student will:

1. Demonstrate an understanding of how the social, economic, political, technological and ecological dimensions of internal and external environments create a moral and social context for business decision making.
2. Demonstrate an ability to apply personal values and ethical principles as a basis for identifying, analyzing and managing ethical issues in contemporary business settings.
3. Demonstrate the ability to analyze the influence of critical stakeholders on business operations, and to apply principles of stakeholder management to contemporary issues in business practice.
4. Demonstrate an understanding of the complex interdependencies that exist between business and government, and of their strategic importance to corporate decision making.
5. Demonstrate an understanding of the legal, ethical, and social responsibilities of business toward their members, their customer, and the natural environment.
6. Demonstrate the ability to recognize and solve contemporary ethical and social issues in the business, economics or public administration decision-making process.

Teaching an ethics course is not like teaching any other course because its learning outcomes (listed above) are very difficult to measure. What has been tested here is to determine the learning effectiveness of this course of 15-week duration. The course met once a week in the evening for three hours. The most preferred method of teaching was via lecture. Students were asked to prepare a relevant chapter of the book a week in advance for presentation. Two people were assigned to a chapter. This student team was also assigned a case to discuss and present. Individual written cases were also submitted. Every week there were review and retention quizzes from the assigned chapters. The following is the summary of grade distributions and the

predictably effective outcome for the course. Statistical analysis and procedures were followed with reference to *Statistical Tests* by Weiers (2013).

**TABLE 1: ASSESSMENT and GRADING**

<b>Instrument of assessment</b>	<b>Outcome assessed</b>	<b>Percent of grade</b>
1. Homework consisting of four assigned written Case Analyses (test of application, analysis, synthesis)	1,2,3,4,5,6	<b>20%</b> <b>PREDICTOR OF SUCCESS 1</b>
2. e-Quizzes from chapters in the Blackboard LMS (test of knowledge and understanding)	1,2,3,4,5,6	<u><b>20%</b></u> <b>PREDICTOR OF SUCCESS 2</b>
3. e-Midterm exam—computerized and proctored—taken at the Assessment center (test of comprehension)	1,2,3,4,5,6	<u><b>30%</b></u> <b>PREDICTOR OF SUCCESS 3</b>
4. e-Final exam computerized and proctored—taken at the Assessment Center (test of comprehension)	1,2,3,4,5,6	<u><b>30%</b></u> <b>PREDICTOR OF SUCCESS 4</b>
5. Required presentation of the assigned case to the class for discussion. Students learn from their preparedness in applying theories of ethics and in persuasive ethical arguments (test of application)	1,2,3,4,5,6	This is a required activity. Please see the assignment by BB-email. Excellent PowerPoints made from the e-notes (provided to the student) will be given a grade as extra credit. So do excellent power point slides of your presentation.
ALL	1,2,3,4,5,6	100%

### **LEARNING FROM CASES IN ‘RLBRS’ FORMAT**

The learning from studying a renowned case (like Merck and AIDS) is an important part of the assignment and the course (students did three cases for 15% of the course grade). As such they were instructed to use four levels of learning in the following format:

Comprehensively write in each area of reaction, learning, behavioral impact, and the result of that impact, and a succinct summary statement that is at the highest level of “affect.”

## **EXAMPLE OF AN ETHICS CASE ANALYSIS WITH RLBRS FORMAT**

### **Case: Merck and AIDS in South Africa**

#### **Your Reaction from Reading**

My first reaction was shock at the number of HIV positive people and AIDS patients in South Africa. It is alarming that such a large amount of people are affected by such a horrendous and deadly disease. It is unfortunate that many cannot afford the necessary medications to ease their suffering.

#### **Your Learning from Reaction**

I learned that there would be many implications to lowering the prices of medicines in South Africa and allowing generic medicines to be sold at a discount. One of the major implications that I had not realized was the impact that this would have on research. Medicines are sold at a certain price in order to recover the money spent on research to find the medicine necessary for certain ailments. If researchers are no longer compensated and companies are not promised a return, research is likely to greatly suffer.

#### **Your Behavior from Learning**

It is unfortunate that so many South Africans must live with the plight of HIV and AIDS. Even if medicines were reduced in price, many South Africans would still not be able to afford the necessary medications. Allowing generic medicines to be distributed would have negative implications globally because these generic medicines could be diverted and sold for cheap in countries that are not in such a dire need as South Africa.

#### **Your Results from Behavior [that may accrue as a resultant change]**

As a corporation, it is important to be mindful of the general public. HIV and AIDS is a major issue in South Africa, due to the fact that such a large amount of the population lives with this disease. Corporate responsibility should override profit but this would affect research and other markets in the long run.

#### **Succinct Summary [of a significant learning outcome that occurred]**

A significant learning outcome is of the tremendous impact that generic medications would have globally. It is easy to say that South Africans should be provided with cheap, generic medication that will serve the purpose of aiding those who are in need. However, this would affect other nations, demand for medication, and even research which prevents other severe ailments.

Question and Answer:

1. *Is the South African law morally justified? Although patent protection is important, does the AIDS crisis in that country outweigh the benefits from patent protection (even for South Africa)? Were the multinational pharmaceutical firms justified in contesting the law?*

The South African law should coincide with what is best for its people. Because HIV and AIDS is a crisis in South Africa, these people should have some way of receiving the proper care and medication necessary to live. It is understandable that the multinational pharmaceutical firms would contest the law due to the implications that this would have on everything from other countries to research itself.

2. *Why is patent protection important? Are developing countries justified in arguing that health and well-being take priority? (Note: One might also ask whether the U.S. position is consistent given that the U.S. government forced Bayer, a German company, to slash the price of Cipro to less than \$1 a tablet during the Anthrax scare after September 11, 2001.)*

Patent protection is important because it can help to ensure that researchers are fairly compensated. If they are not compensated for the time and energy spent in researching a cure or treatment for a certain ailment then this type of research is not likely to continue. Without research, cures would never be found.

3. *What motivated Merck to reduce the price of its AIDS drugs by 90 percent? Was Merck being forced by adverse publicity to make an unwarranted decision, or was this a sound decision under the circumstances? (Note: The drugs that Merck sold in South Africa would not have been purchased otherwise, and so Merck suffers no loss as long as the drugs are produced at cost.)*

Merck was motivated by the crisis of South Africa and that so many infected people were in need of medication. This was a sound decision because, after all, the purpose of research and this medication is to help those who are most in need. I believe, though, that it was also in the best interest of Merck to provide cheaper prices as a way to prevent negative publicity.

4. *What is your opinion of AIDS epidemic in the world where people do not get the medicine which is too expensive for the patients? What is your suggestion as a world citizen (not just an American)?*

My opinion of the AIDS epidemic and people not being able to access affordable medication is that this is a major issue that needs to be solved. There must be some way that researchers and companies will still be fairly compensated for providing citizens with medication in order to treat their ailments. If I were a researcher, I would not expect to live in the lap of luxury; I would be more concerned with making discoveries to help others and to be fairly and not exponentially compensated. As a world citizen I am quite concerned with this epidemic. It is terrible that those in need cannot afford medications.

**TABLE 2: CONSOLIDATED GRADEBOOK FOR EXPERIMENT**

<b>Midterm100 POS 3</b>	<b>Final100 POS 4</b>	<b>ExamsAVE POS 5</b>	<b>Course 100 POS 6</b>	<b>Quiz100 POS2</b>	<b>Cases100 POS1</b>
75	77.1	76.05	77.5	62.3	97
73	98.8	85.9	71.7	83.6	17
85	83.1	84.05	80.9	96.6	56
83	75.9	79.45	71.5	89.0	30
62	62.7	62.35	65.8	84.9	57
88	97.6	92.8	81.3	75.3	53
87	94	90.5	87.1	95.9	68
86	98.8	92.4	92.2	87.0	97
78	79.5	78.75	79.3	64.4	96
91	91.6	91.3	76.5	88.4	20
84	98.8	91.4	92.5	92.5	96
84	69.9	76.95	81.2	99.3	76
89	95.2	92.1	93.4	93.8	97
92	100	96	89.6	84.9	75
93	92.8	92.9	92.9	96.6	89
91	98.8	94.9	95.5	97.9	95
89	98.8	93.9	94.5	93.8	97
32	60.2	46.1	52.4	83.6	40

**POS 1, 2 3, 4, 5 AND 6 ARE THE PREDICTOR OF SUCCESS VARIABLES**

**ANALYSIS OF THE RESULTS WITH VARYING PREDICTOR OF SUCCESSES (POS)**

XLSTAT (2013): 2013.6.03 - Comparison of two distributions on 1/4/2014  
 Sample 1: Workbook = MGMT 4395 DATA.xlsx / Sheet = Sheet4 / Range = Sheet4!\$C\$1:\$C\$19  
 / 18 rows and 1 column  
 Sample 2: Workbook = MGMT 4395 DATA.xlsx / Sheet = Sheet4 / Range = Sheet4!\$D\$1:\$D\$19  
 / 18 rows and 1 column  
 Hypothesized difference (D): 0  
 Significance level (%): 5  
 p-value: Asymptotic p-value

**FIGURE 1: RESULT OF HYPOTHESIS TESTING FOR PREDICTOR OF SUCCESS 4 AND 6**

**1. USING HYPOTHESIS TESTING FOR PREDICTOR OF SUCCESS 5 AND 6**

<b>examsave</b>	18	0	18	46.100	96.000	84.322	12.998
<b>course</b>							
<b>100</b>	18	0	18	52.372	95.529	81.992	11.645

**FIGURE 2**

Two-sample Kolmogorov-Smirnov test / Two-tailed test:

D	0.222
p-value	0.709
alpha	0.05

An approximation has been used to compute the p-value.

Test interpretation:

H0: The two samples follow the same distribution.

Ha: The distributions of the two samples are different.

**As the computed p-value is greater than the significance level alpha=0.05, one cannot reject the null hypothesis H0.**

The risk to reject the null hypothesis H0 while it is true is 70.88%.

## 2. RESULT OF HYPOTHESIS TESTING FOR PREDICTOR OF SUCCESS 2 AND 6

XLSTAT (2013): 2013.6.03 - Comparison of two distributions on 1/4/2014  
 Sample 1: Workbook = MGMT 4395 DATA.xlsx / Sheet = Sheet4 / Range = Sheet4!\$E\$1:\$E\$19 /  
 18 rows and 1 column  
 Sample 2: Workbook = MGMT 4395 DATA.xlsx / Sheet = Sheet4 / Range = Sheet4!\$F\$1:\$F\$19 /  
 18 rows and 1 column  
 Hypothesized difference (D): 0  
 Significance level (%): 5  
 p-value: Asymptotic p-value

FIGURE 3

## 3. USING HYPOTHESIS TESTING FOR PREDICTOR OF SUCCESS 2 AND 6

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
quiz100 course	18	0	18	62.329	99.315	87.215	10.712
100	18	0	18	52.372	95.529	81.992	11.645

FIGURE 4

Two-sample Kolmogorov-Smirnov test / Two-tailed test:

D	0.389
p-value	0.098
alpha	0.05

An approximation has been used to compute the p-value.

FIGURE 5

Test interpretation:

H<sub>0</sub>: The two samples follow the same distribution.

H<sub>a</sub>: The distributions of the two samples are different.

**As the computed p-value is greater than the significance level alpha=0.05, one cannot reject the null hypothesis H<sub>0</sub>.**

The risk to reject the null hypothesis H<sub>0</sub> while it is true is 9.82%.

XLSTAT (2013): 2013.6.03 - Comparison of two distributions (Kolmogorov-Smirnov, ...)

Sample 1: Workbook = MGMT 4395 DATA.xlsx / Sheet = Sheet4 / 18 rows and 1 column

Sample 2: Workbook = MGMT 4395 DATA.xlsx / Sheet = Sheet4 18 rows and 1 column

Hypothesized difference (D): 0

Significance level (%): 5

p-value: Asymptotic p-value

#### FIGURE 6: RESULT OF HYPOTHESIS TESTING FOR PREDICTOR OF SUCCESS 3 AND 4

#### 4. USING HYPOTHESIS TESTING FOR PREDICTOR OF SUCCESS 3 AND 4

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Midterm100	18	0	18	32.000	93.000	81.222	14.575
Final100	18	0	18	60.200	100.000	87.422	13.371

FIGURE 7

Two-sample Kolmogorov-Smirnov test / Two-tailed test:

D	0.500
p-value	0.014
alpha	0.05

An approximation has been used to compute the p-value.

Test interpretation:

H<sub>0</sub>: The two samples follow the same distribution.

H<sub>a</sub>: The distributions of the two samples are different.

**As the computed p-value is lower than the significance level alpha=0.05, one should reject the null hypothesis H<sub>0</sub>, and accept the alternative hypothesis H<sub>a</sub>.**

The risk to reject the null hypothesis H<sub>0</sub> while it is true is lower than 1.37%.

XLSTAT (2013): 2013.6.03 - Distribution fitting - on 1/4/2014 at 4:19:52 PM  
 Data: Workbook = Book2 / Sheet = Sheet1 / Range = Sheet1!\$G\$1:\$H\$19 / 18 rows and 2 columns  
 Significance level (%): 5  
 Distribution: Normal  
 Estimation method: Moments

**FIGURE 8: RESULT OF HYPOTHESIS TESTING FOR PREDICTOR OF SUCCESS 1 AND 4**

**5. USING HYPOTHESIS TESTING FOR PREDICTOR OF SUCCESS 1 AND 4**

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
<b>cases 100</b>	18	0	18	17.000	97.000	69.778	28.472
<b>course 100</b>	18	0	18	52.372	95.529	81.992	11.645

**Distribution fitting (cases 100):**

Estimated parameters (cases 100):

Parameter	Value
$\mu$	69.778
sigma	28.472

Statistics estimated on the input data and computed using the estimated parameters of the Normal distribution (cases 100):

Statistic	Data	Parameters
Mean	69.778	69.778
Variance	810.654	810.654
<u>Skewnes</u>		
(Pearson)	-0.551	0.000
Kurtosis		
(Pearson)	-1.223	0.000

Kolmogorov-Smirnov test (cases 100):

D	0.201
p-value	0.418
alpha	0.05

Test interpretation:

H0: The sample follows a Normal distribution

Ha: The sample does not follow a Normal distribution

**As the computed p-value is greater than the significance level alpha=0.05, one cannot reject the null hypothesis H0.**

The risk to reject the null hypothesis H0 while it is true is 41.76%.

## DISCUSSION

The idea that ethics learning outcomes must be examined from different interventions led us to incorporate different interventions in the syllabus such as Review/Retention, Exam 1 (the midterm), Exam 2 (the final), the average of the two exams, Cases, and the course grade. These variables have been taken as predictors of success and they are named as POS1, POS2, POS3, POS4, POS5, and POS6. Effect of each variable has been isolated to have an impact on the final grade.

Let's take the effect of Cases first. When we compare the POS1 (Cases) as an independent variable having impact on the POS6 (course grade), we can see that both are independent distributions that can be tested with the null hypothesis that  $H_0$ : the sample follows a normal distribution or  $H_a$ : the sample does not follow a normal distribution. The statistical test was done with an alpha of .05 and the result was that as the computed p-value is greater than the significance level  $\alpha=0.05$ , one cannot reject the null hypothesis  $H_0$  and that the risk to reject the null hypothesis  $H_0$  while it is true is 47.76%.

Let's take the effect of POS 2 (Review/Retention) next. When we compare the POS2 (Review/Retention) as an independent variable having impact on the POS6 (course grade), we can see that both are independent distributions that can be tested with the null hypothesis that  $H_0$ : the sample follows a normal distribution, or  $H_a$ : the sample does not follow a normal distribution. The statistical test was done with an alpha of .05 and the result was that as the computed p-value is greater than the significance level  $\alpha=0.05$ , one cannot reject the null hypothesis  $H_0$  and that the risk to reject the null hypothesis  $H_0$  while it is true is 9.82%.

Let's take the effect of POS 3 (Midterm) next. So when we compare the POS3 (Midterm) as an independent variable having impact on the POS4 (Final exam), we can see that both are independent distributions that can be tested with the null hypothesis that  $H_0$ : the sample follows a normal distribution, or  $H_a$ : the sample does not follow a normal distribution. The statistical test was done with an alpha of .05 and the result was that as the computed p-value is lower than the significance level  $\alpha=0.05$ , one should reject the null hypothesis  $H_0$ , and accept the alternative hypothesis  $H_a$ . The risk to reject the null hypothesis  $H_0$  while it is true is lower than 1.37%.

Again, let's take the effect of POS 5 (exams average) next. So when we compare the POS5 (exams average) as an independent variable having impact on the POS6 (Course grade), we can see that both are independent distributions that can be tested with null hypothesis that  $H_0$ : the sample follows a normal distribution, or  $H_a$ : the sample does not follow a normal distribution. The statistical test was done with an alpha of .05 and the result was that as the computed p-value is greater than the significance level  $\alpha=0.05$ , one cannot reject the null hypothesis  $H_0$  and accept the alternative hypothesis  $H_a$ . The risk to reject the null hypothesis  $H_0$  while it is true is 70.88%.

## CONCLUSION

With this analytical method it has been shown that a teacher can intervene in six different ways to enable learning in students enrolled in an ethics course and that learning can be measured and moderated in a variety of ways as well. The only result that is significant in this exercise is that the teacher could control the student behavior from the midterm exam to final exam, as the results showed that students got alarmed with their first exam performance and did significantly better in the final exam. The author expected that the performance in the case would also yield a similar result with the course grade, but the case performance and the final course grade were not significantly different, because in this case as the computed p-value is greater than the significance level  $\alpha=0.05$ , one cannot reject the null hypothesis  $H_0$  and that the risk to reject the null hypothesis  $H_0$  while it is true is 47.76%. This means that the student did not significantly perform better, probably because they did not invest as much time to gain from cases to improve their course grade as they did by studying for the final exam. This replicates the student behavior as such in general, due to the weight associated with the final exam, psychologically as well as philosophically.

In this class, we are teaching "emotion" in ethics as the cases indicate, so we are developing "emotional intelligence" and "feelings" in these students. The teacher's job, if he is effective, will be to use all the behaviors of "emotional intelligence" to demonstrate how to deal with the case studies-- as the case of "Merck HIV/AIDS" shows. I believe teaching effectiveness either in the ethics classroom, or in the general classroom, deals with the same set of behaviors of the teacher to evoke "emotion" in the classroom (both are termed as emotional intelligence).

## LIMITATIONS OF THE STUDY

There are various limitations to this study in that student behavior and attention was difficult to control in class. Some students did not like to do case studies as diligently as they demanded. Some students spent more time preparing for the exam and the commensurate reward was little.

## REFERENCES

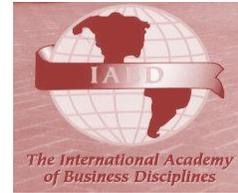
- Alfred, M., & Chung, C., (2012). Design, development, and evaluation of a second generation interactive simulator for engineering ethics education (SEEE2) *Science & Engineering Ethics* (18)4. pp. 689-697.
- Ashforth, B.E., & Humphrey, R.H. (1993). Emotional labor in service roles: the influence of identity. *Academy of Management Review*, 18(4). pp. 88-115.
- Bandura A. (1997). *Self-efficacy: The exercise of control*. New York: New York /Times Books/ Henry Holt & Co.
- Barnard, C. I. (1998). *Functions of the executive*. Boston: Harvard University Press.

- Boatright, J. R. (2009). *Ethics and the conduct of business*. New Jersey: Prentice Hall
- Cannaerts, N., Gastmans, C., Casterlé, B. (2014). Contribution of ethics education to the ethical competence of nursing students: Educators' and students' perceptions. *Nursing Ethics* (21)8. pp. 861-878.
- Dervin, B. (2003). Sense-making's journey from metatheory to methodology to method: An example using information seeking and use as research focus (Original work published 1999). In B. Dervin and L. Foreman-Wernet with E. Lauterbach (Eds.) *Sense-making methodology reader: Selected writings of Brenda Dervin*. Cresskill, NJ: Hampton Press. pp. 133-163.
- Dow, M.; Boettcher, C.; Diego, J.; Karch, M.; Todd-Diaz, A; Woods, K. (2015). Case-based learning as pedagogy for teaching information ethics based on the Dervin sense-making methodology. *Journal of Education for Library & Information Science* (56)2. pp. 141-157.
- Elliott, K. M. (2003). Key determinants of student satisfaction. *Journal of College Student Retention: Research, Theory and Practice*. 4(3). pp. 271-279.
- Eun-Kyung C., Jung-Ae R., Young-Hong B., & Oh-Sun A. (2009). The effect of team-based learning in medical ethics education. *Medical Teacher* (31)11. pp. 1013-1017.
- Grauerholz, L. (2007). Getting past the ideology of effective teaching. *Sociological Viewpoints*. 23, pp. 15-28.
- Kelly, S. W. (1992). Developing customer orientation among service employees. *Journal of the Academy of Marketing Science*. 20. pp. 27-36.
- Luthans, F., Norman, S., Avolio, B. & Avey, J. (2008). The mediating role of psychological capital in the supportive organizational climate. *Journal of Organizational Behavior*. 29(2). pp. 219-238.
- Magno C. and Sembrano J. (2009) Integrating learner centeredness and teacher performance in a framework. *International Journal of Teaching and Learning in Higher Education*. 21(2). pp. 158-170. Retrieved from <http://www.isetl.org/ijtlhe/>.
- Magno C. & Sembrano J. (1995, 1999). The Role of teacher efficacy and characteristics on teaching effectiveness, performance, and use of learner-centered practices. *The Asia Pacific Education Researcher*. 16(1).
- Marzano R. J. (2003). Marzano Research Laboratory. Retrieved from [www.Marzanoresearch.com](http://www.Marzanoresearch.com).
- Monteverde, S. (2014). Undergraduate healthcare ethics education, moral resilience, and the role of ethical theories. *Nursing Ethics* (21)4. pp. 385-401.
- Numminen, O.; Leino-Kilpi, H.; van der Arend, A.; Katajisto, J. (2011). Comparison of nurse educators' and nursing students' descriptions of teaching codes of ethics. *Nursing Ethics* (18)5. 18(5). pp. 710-724.
- Preston-Shoot, M, & McKimm, J. (2011). Towards effective outcomes in teaching, learnings and assessment of law in medical education. *Medical Education*. Apr2011, Vol. 45 Issue 4, p339-346.
- Rafaeli, A., & Sutton, R. I. (1987). Expression of emotion as part of the work role. *Academy of Management Review*. 12. pp. 23-37.
- Schmidt, C.; Davidson, K. & Adkins, C. (2013). Applying what works: A case for deliberate psychological education in undergraduate business ethics. *Journal of Education for Business* (88)3. pp. 127-135

- Schneider, B., & Reichers, A. E. (1983). On the etiology of climates. *Personnel Psychology*. 36. pp. 19-39.
- Schneider, B., Wheeler, J. K., & Cox, J. F. (1992). A passion for service: using content analysis to explicate service climate themes. *Journal of Applied Psychology*. 77. pp. 705-716.
- Schneider, B., White, S. S., & Paul, M. C. (1998). Linking service climate and customer perceptions of service quality: test of a causal model. *Journal of Applied Psychology*. 78. pp. 150-163.
- Stufflebeam D. L. (1983). CIPP model checklist, NYLC Resource Center at [www.nylc.org](http://www.nylc.org).
- Sutton, R. I., & Rafaeli, A. (1988). Untangling the relationship between displayed emotions and organizational sales. *Academy of Management Journal*. 31. pp. 461-487.
- Tomcho, T. & Foels, R. (2008). Assessing effective teaching of psychology: A Meta-Analytic integration of learning outcomes. *Teaching of Psychology*. 35(4). pp. 286-296.
- Trelstad, M. (2008). The Ethics of effective teaching: Challenges from the religious right and critical pedagogy. *Teaching Theology & Religion*. 11(4). pp. 191-202.
- Tsai, W. (2001). Determinants and consequences of employee displayed positive emotions. *Journal of Management*. 27. pp. 497-512.
- Tyler R. L (1949). Model of Curriculum Development. Retrieved from <http://www.sauabologna.com/coursematerials.php>.
- Vynckier, T., Gastmans, C., Cannaearts, N., & de Casterlé, B (2015). Effectiveness of ethics education as perceived by nursing students: Development and testing of a novel assessment instrument. *Nursing Ethics*. 22(3), pp. 287-306
- Wegner, S. B., Holloway, K. C., & Garton, E. M. et al., (1999) The Effects of Internet-based instruction on student learning. *JALN*. 3(2).
- XLSTAT. (2013). Web based analysis package. Retrieved from <http://www.xlstat.com/en/>.
- Zimmerman, B. J. (2000). Self-Efficacy: An Essential motive to learn. *Contemporary Educational Psychology*. 25. pp. 82–91. Retrieved from <http://www.idealibrary.com>.

## **Acknowledgment**

The author wishes to express his sincere appreciation to the reviewers and editors for their constructive and thoughtful comments and critiques, which eventually improved the contents and quality of this paper.



# INTERNATIONAL JOURNAL OF INTERDISCIPLINARY RESEARCH

VOLUME 4, NUMBER 1, August 2015

ISSN 2165-3240



**A PUBLICATION OF FROSTBURG STATE UNIVERSITY AND THE  
INTERNATIONAL ACADEMY OF BUSINESS DISCIPLINES**

**[WWW.IJIR.NET](http://WWW.IJIR.NET)**