

MEASUREMENT OF SATISFACTION WITH THE ONLINE AND CLASSROOM TEACHING METHODOLOGIES OF GRADUATE STUDENTS AND ITS IMPLICATIONS FOR ACADEMIC ACHIEVEMENT

Mylord Reyes Tosta, EdD

Abstract

This research study was performed in 2011. It was an exploratory study with a quantitative approach. This design was used based on the objectives of the study and it included the development of a valid and reliable instrument to obtain baseline data on the satisfaction and academic achievement of the students receiving online courses and classroom courses. A comparison was made between the two types of teaching methodologies. The study was conducted with master level students of the School of Business and Entrepreneurship at a private university in the central region of Puerto Rico. A convenience sample of 74 students was selected. The data collection method was a survey and the instrument developed had a Likert scale. The results about the academic achievement and satisfaction of the students are presented by gender. The results indicated that there was not a statistically significant difference between the two teaching methodologies for both satisfaction and academic achievement. Furthermore, there was not a statistically significant difference by gender within each of the two teaching methodologies.

Keywords: students' satisfaction, students' academic achievement, online methodology, classroom methodology

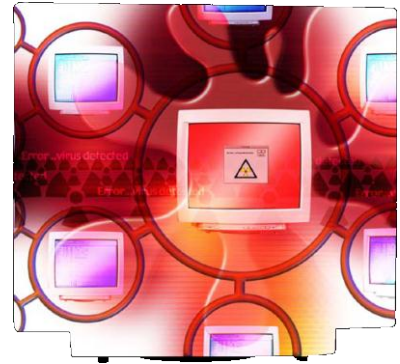
Resumen

Este estudio de investigación se llevó a cabo en el año 2011. Expone un enfoque cuantitativo de tipo exploratorio. Este diseño fue usado basado en los objetivos del estudio e incluyó el desarrollo de un instrumento válido y confiable para obtener datos básicos iniciales sobre la satisfacción y el aprovechamiento académico de los estudiantes que recibieron cursos en línea y cursos presenciales. Se hizo una comparación entre ambas modalidades de enseñanza. El estudio se llevó a cabo con estudiantes en el nivel de maestría de la Escuela de Negocios y Empresarismo de una universidad privada en la región central de Puerto Rico. El tipo de muestreo que se utilizó fue por conveniencia y la muestra fue de 74 estudiantes. El método de recolección de datos fue una encuesta y el instrumento desarrollado tenía una escala tipo Likert. Los resultados sobre el aprovechamiento académico y la satisfacción de los estudiantes se presentan por género. Los resultados indicaron que no existe una diferencia estadísticamente significativa entre las dos modalidades, tanto en satisfacción, como en aprovechamiento académico. Además, no existe diferencia estadísticamente significativa por género dentro de cada una de las dos modalidades de enseñanza.

Palabras claves: satisfacción de estudiantes, aprovechamiento académico de estudiantes, modalidad en línea, modalidad presencial

INTRODUCTION

This manuscript was written with the purpose to inform the entire school community and other interested individuals of the findings from a study comparing the level of satisfaction with online courses and classroom courses. These results on satisfaction and academic achievement may be the starting point for making decisions aimed at improving academic structures and processes of graduate schools. The growth of higher education through online courses in Puerto Rico is remarkable (Núñez, 2009). Therefore, it was necessary to know its status as there are many technological devices involved in the processes and they change very often. This is a recent perspective of the teaching-learning process that has important implications for attitudes and academic performance of students by being a method that uses new technologies and breaks with the uses, paradigms and ideologies that precede it.



Taking this into account, this study scientifically examined what was the degree of satisfaction and academic achievement of students who participated in online courses while they were still immersed in traditional education. In addition, an instrument was developed and validated to collect the information according to the nature of education in Puerto Rico. The validation process provided valuable information to the study. Different theories were strongly influenced by research in the field of business (Pichardo, Garcia, De la Fuente & Justicia, 2007) and this fact should provoke greater interest in knowing the satisfaction of university's students as a variable to consider in improving the quality of the services of higher education institutions.

OBJECTIVES

The following were the objectives of the study:

A) To design and validate a data collection instrument to determine student's satisfaction with the online and classroom courses.

B) To measure student's satisfaction with the online and classroom courses.

C) To identify the difference in student's satisfaction between the online courses and classroom courses.

D) To identify the difference in student's academic achievement between the online courses and classroom courses.

E) To describe the gender differences found in the academic achievement of students within each of the two types of teaching methodologies.

F) To describe the gender differences found in student's satisfaction within each of the two types of teaching methodologies.

DESIGN

This study used an exploratory design (Figure 1). According to Waters (2007), exploratory research provides an understanding of a phenomenon or situation. It is a type of research conducted when a problem has not been clearly defined and it helps determine the best research design, method of data collection and selection of subjects. It allows definitive conclusions, only with extreme caution. DJS Research Ltd. (2010) stated that, unlike descriptive research, the exploratory research is used primarily to obtain a deeper understanding of something. Its design is more flexible and dynamic than descriptive research. In general, it research trends, identifies potential relationships between variables and set the tone for more rigorous subsequent research.

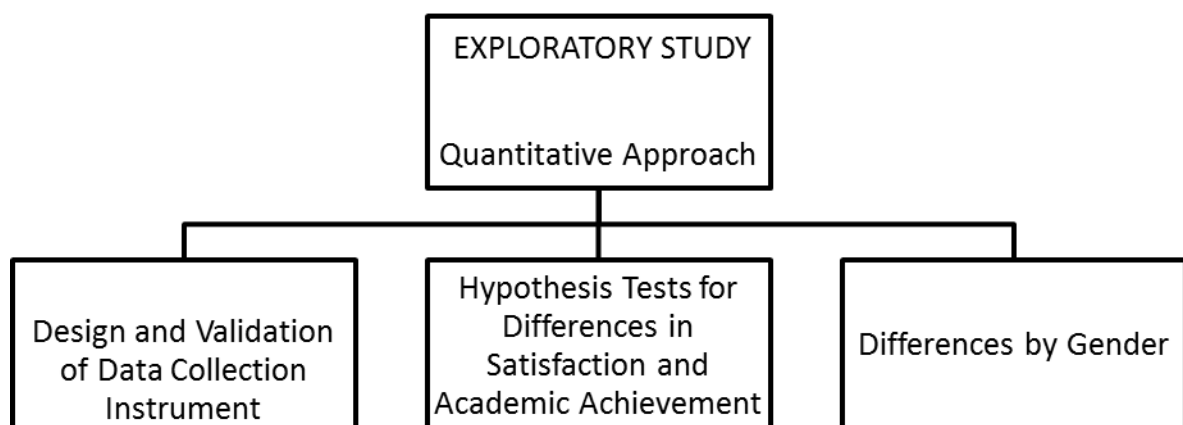


Figure 1. Study Design Diagram

SAMPLE

This study was performed in 2011 and a convenience sample was used to identify the sections for the two teaching methodologies (online courses and classroom courses). The sample for the two teaching methodologies consisted of 74 graduate students at the master level who enrolled in Human Resources Management (HURM 710) and Organizational Behavior (MANA 501) courses (Table 1).

Table 1. Distribution of Study Sample by Course and Gender

Gender	Course									
	HURM 710 Online	%	MANA 501 Online	%	HURM 710 Classroom	%	MANA 501 Classroom	%	Total	%
Male	7	41%	3	21%	6	30%	8	35%	24	32%
Female	10	59%	11	79%	14	70%	15	65%	50	68%
Total	17	100%	14	100%	20	100%	23	100%	74	100%

DATA COLLECTION INSTRUMENT

The data collection instrument designed for the survey was a questionnaire (Table 2) and it consisted of 48 items using a 5-point Likert scale, where 5=Very satisfied (VS), 4=Satisfied (S), 3=Somewhat satisfied (SS), 2=Dissatisfied (D), 1=Very dissatisfied (VD) and Not applicable (N/A). A panel of experts was used for the validation of this instrument and a Cronbach's alpha coefficient was calculated after its administration to measure its reliability (quantitative indicator of content validity). All students' academic achievement measurement was completed based on the final grades obtained by the students in each course. The final grades were offered by the students in the survey. The survey was anonymous and personal and/or sensitive data was not requested.

Table 2. Satisfaction Survey with Teaching Methodology

SATISFACTION SURVEY WITH TEACHING METHODOLOGY

Part I: General information

Instructions: Please enter the date you completed this survey and mark in the blank if you are enrolled in an online course or classroom course and your gender (male or female). Also, write the name of the course and check the grade obtained.

Date: _____ Online course: _____ Classroom course: _____

Gender: _____ Male _____ Female

Course name or code: _____

Course grade: A _____, B _____, C _____, D _____, F _____

Part II: Measurement of satisfaction with teaching methodology

Instructions: Below is a list of independent variables that measure your satisfaction with the teaching methodology. Please read carefully each one and mark (x, √) the option that best describes your opinion using the following scale:

Scale: 5=Very satisfied (VS), 4=Satisfied (S), 3=Somewhat satisfied (SS), 2=Dissatisfied (D), 1=Very dissatisfied (VD) and Not applicable (N/A).

Variables to measure satisfaction	5 (VS)	4 (S)	3 (SS)	2 (D)	1 (VD)	N/A
1. Student and instructor interaction						
2. Faculty feedback to student progress						
3. Time to get the course						
4. Homework delivery time						
5. Course period						
6. Professor response to questions from the students						
7. Student-to-student collaborations						
8. Communication between teacher and student						
9. Teacher assistance to solve student problems						
10. Group work results						

Variables to measure satisfaction	5 (VS)	4 (S)	3 (SS)	2 (D)	1 (VD)	N/A
11. Student's learning styles considered when designing course strategies						
12. Techniques used by the teacher to teach the course						
13. Integration of theory with practice						
14. Activities used to support the practice						
15. Activities used in the course according to the objectives						
16. Teacher content mastery						
17. Updating the content of the course by the teacher						
18. Course management for self-motivation of the students						
19. Availability of the course syllabus provided by the professor						
20. Teacher's support on time outside the classroom						
21. Technology according to the course objectives						
22. Initial instructions on the use of technology						
23. Information technology resources available						
24. Teacher technology mastery						
25. Technology resources updating						
26. Registration services						
27. Payments services						
28. Financial aid services						
29. Programmatic services						
30. Updated library services facilities and physical information resources						
31. Updated library services related to virtual information resources						
32. Library services schedule						
33. Library environment						
34. Library services' customer support quality						
35. The course curriculum provides achievable objectives						

Variables to measure satisfaction	5 (VS)	4 (S)	3 (SS)	2 (D)	1 (VD)	N/A
36. Objectives of the course curriculum are aligned to its content						
37. Fulfillment of course objectives						
38. Upgrading of course curriculum						
39. Effectiveness of student's formative evaluation						
40. Effectiveness of student's summative evaluation						
41. Techniques used in the evaluation according to course content						
42. Equivalence in the qualitative and quantitative student's evaluation						
43. Student's assessment feedback						
44. Physical facilities accessibility						
45. Facilities environment						
46. Facilities food availability						
47. Facilities health services						
48. Facilities maintenance						

DATA ANALYSIS

Descriptive and inferential statistics were used for data analysis. The statistics used to answer all research questions are presented below.

1. Frequency distribution table for both satisfaction survey and the students' grades for each of the courses.
2. Table of descriptive statistics for the satisfaction survey and the grades of the students (mean and standard deviation). These were used to enable the reader to visualize and better understand the results showed by the inferential statistics.
3. Cronbach's alpha coefficient to measure the reliability of the instrument.
4. Nonparametric statistics (Mann Whitney U Test) for independent samples were used at a 0.05 significance level. They were used to establish whether there was a statistically significant difference between the two methodologies related to satisfaction (Jandaghi & Matin, 2009).

5. A hypothesis test for two independent means was performed, using the Mann Whitney U Test, to establish whether there was a statistically significant difference between students' grades for both types of teaching methodologies.

6. A hypothesis test for two independent means was performed, using the Mann Whitney U Test, to determine whether there was a statistically significant difference in students' grades by gender within each of the two types of teaching methodologies.

7. A hypothesis test for two independent means was performed, using the Mann Whitney U Test, to establish whether there was a statistically significant difference in student satisfaction by gender within each of the two types of teaching methodologies.

The Kolmogorov-Smirnov/Shapiro-Wilk Test was used for testing normality of the data and, to establish the differences by group, the nonparametric tests Mann-Whitney and Kruskal Wallis were used because not all data fulfilled the assumption of normality, except one of the variables of satisfaction. In this last case, the t test was used. An alpha of .05 (Type I error) was used in all hypotheses tests of this study. The Statistical Package for Social Science (SPSS) was used for statistical calculations.

ANSWERS TO RESEARCH QUESTIONS

Based on the results obtained from the data analysis of this study, the answers to the five research questions are presented below.

1. What are the psychometric properties of the data collection instrument?

The psychometric properties of the data collection instrument were established by the reliability given by the Cronbach's alpha coefficient, which measured the internal consistency of the scale. That is, the linear correlation between item and total score was established. The Cronbach's alpha coefficient was .984 for both teaching methodologies according to participants' responses. The Cronbach's alpha coefficient contributed to the high degree of reliability of the data collection instrument. The results compare favorably with the statement of Kim & Feldt (2010), when they indicated that a coefficient higher than .70 provides an acceptable reliability of the instrument.

2. Is there a statistically significant difference in student's satisfaction between the methodologies of online courses and classroom courses?

The hypothesis test of Mann Whitney U showed a result of $p = .295$ ($p > .05$). Therefore, the null hypothesis was retained and the alternate hypothesis was rejected. There was not a statistically significant difference in student’s satisfaction between the methodologies of online courses and classroom courses. The nonparametric test of Mann Whitney U was used because the data did not show normality (Table 3).

Table 3. Student’s Satisfaction Normality Test by Methodology

Methodology	Normality Test
Online Courses	.012
Classroom Courses	.003

3. Is there a statistically significant difference in the academic achievement of the students between the methodologies of online courses and classroom courses?

The hypothesis test of Mann Whitney U showed a result of $p = .774$ ($p > .05$). Therefore, the null hypothesis was retained and the alternate hypothesis was rejected. There was not a statistically significant difference in the academic achievement of the students between the methodologies of online courses and classroom courses (Table 4).

Table 4. Average, Standard Deviation, and Hypothesis Test of Academic Achievement by Methodology

Methodology						Hypothesis Test
Online Courses			Classroom Courses			
n	M	SD	n	M	SD	Significance
31	3.74	0.44	43	3.67	0.47	.774

4. Is there a statistically significant difference in academic achievement by gender within each of the two teaching methodologies?

The hypothesis test of Mann Whitney U showed a result of $p = .533$ ($p > .05$) in the comparison of the academic achievement by gender in the online methodology. Therefore, the null hypothesis was retained and the alternate hypothesis was rejected. There was not a statistically significant difference in the academic achievement of the students by gender for the methodology of online courses. Moreover, the hypothesis test of Mann Whitney U showed a result of $p = .699$ ($p > .05$) in the comparison of the academic achievement by gender in the classroom methodology. Therefore, the null hypothesis was retained and the alternate hypothesis was rejected. There was not a statistically significant difference in the academic achievement of the students by gender in the methodology of classroom courses (Table 5).

Table 5. Average, Standard Deviation, and Hypothesis Test of Academic Achievement by Methodology and Gender

Methodology	Gender						Hypothesis Test
	Male			Female			
	n	M	SD	n	M	SD	Significance
Online Courses	10	3.80	0.42	21	3.71	0.46	.533
Classroom Courses	14	3.64	0.50	29	3.69	0.47	.699

5. Is there a statistically significant difference in student's satisfaction by gender within each of the two teaching methodologies?

The hypothesis test of Mann Whitney U showed a result of $p = .118$ ($p > .05$) in the comparison of satisfaction by gender for the online courses. Therefore, the null hypothesis was retained and the alternate hypothesis was rejected. There was not a statistically significant difference in student's satisfaction by gender in the methodology of online courses. Moreover, the hypothesis test of Mann Whitney U showed a result of $p = .136$ ($p > .05$) in the comparison of student's satisfaction by gender in the methodology of classroom courses. Therefore, the null hypothesis was retained and the alternate hypothesis was rejected. There was not a statistically significant difference in student's satisfaction by gender in the methodology of classroom courses (Table 6).

Table 6. Results of Hypothesis Test of Total Satisfaction by Gender and Methodology

Satisfaction by Gender and Methodology	Hypothesis Test
	Significance
Satisfaction by Gender for Online Courses	.118
Satisfaction by Gender for Classroom Courses	.136

DISCUSSION AND EDUCATIONAL IMPLICATIONS

The results of this study coincided with the study of Alonso et al. (2009), which purpose was to determine if the results of distance learning using a particular teaching methodology are comparable with the traditional teaching methodology (face to face). The results indicated that the degrees and levels of satisfaction were similar for the students studying through distance and traditional learning. Moreover, in the study of Markauskaite (2006), who sought gender differences in three satisfaction variables in graduate students candidates to be teachers, no significant differences were found between female and male on experience and literacy related to information and communications technology (ICT). This gender comparison of Markauskaite coincided with the present study, but did not match the other variables where significant differences were found. However, in the study of Dolan (2008), no statistically significant differences were found in any of the 14 variables of satisfaction with the course in the comparison between the online methodology and the classroom methodology. Therefore, the results of the Dolan's study concur with the results of this study.

These results are in accord with those obtained in a study by Liedholm and Brown (2001), where no statistically significant difference was found between men and women from a group of college students taking a graduate level course online. Moreover, in the classroom course, the findings were not consistent because the study of Liedholm and Brown did find a significant difference in men with a higher performance. They stated that this finding was consistent with previous research showing that many women do

better in online courses than in classroom courses. The same trend was found in the results of this study.

Also, the results of this study agree with those of Stewart, Choi & Mallery (2010) who found similar results in the two teaching methodologies of their study, which purpose was to investigate whether the academic achievement of students, measured by the grades, differ between the online course and the traditional course. The results of the study of Choi & Johnson (2005) were similar and did not find a statistically significant difference between the two methodologies, where the mean for the online course was 20.06 and the mean for the traditional course was 19.88. The study of Ellis (2005) also found results suggesting that students in the traditional classroom and virtual classroom executed at a similar level.

Very similar results to this study were those of Gratton & Stanley (2009), who investigated the gender difference between the two teaching methodologies. The results did not show statistically significant differences in both methodologies of teaching and in the gender comparison. However, the raw data reflected a higher average in online learning and for males.

A similar scenario was the study of Barrett & Lally (1999), which explored gender differences in students in online courses at the graduate level in the use of communication through computers in a specific learning context. As for the grades, the performance of females and males was similar, but their social and interactive behavior differed significantly. In the study by Price (2006), in terms of academic achievement in online courses, there were statistically significant differences between females and males, higher for females. As for the academic achievement of traditional courses, there was not a statistically significant difference between females and males.

But beyond this discussion about the results of comparable studies, this study on the comparison of teaching by two courses delivered through online and traditional methodologies to graduate students, using the results on levels of student's satisfaction and grades from both groups in the same course, produced straighten data on the attitude and cognitive aspects. A very important fact about this study is its contribution to strengthen the procedure used toward the search for more comprehensive results, because an instrument to measure student satisfaction was created and validated. This instrument

consisted of a questionnaire using a Likert scale to measure 48 independent variables (causes) which affect satisfaction (the dependent variable or effect). The instrument had a holistic design that included both the online and classroom methodologies. It was validated and its reliability was established, therefore, it can be used by other researchers, teachers and the educational community.

The results obtained in this study showed that there were not statistically significant differences by type of teaching and gender for the satisfaction and academic achievement variables. This new scenario now known, offers more information to make better decisions to maximize the quality of the educational processes. Another contribution evidenced by the results of this study was the possibility to answer any questions that many students and education professionals have about the effectiveness of the information and communications



technology. Also, to have a clearer vision of the implications of the cost of technology on the productivity of higher education, in terms of satisfaction and academic achievement, is a benefit because it allows improving the strategies used in the teaching learning processes. Additionally, it allows creating expectations about the direction that technological advances in the field of education could have. Therefore, more research is needed to know if some of the paradigms that have survived in traditional education are ready for change.

This paradigmatic, structural, procedural and philosophical shift could be mainly due to rapid advances in information and communications technology. These technological advances have improved the quality of processes and outcomes, have saved time and effort because the devices are more efficient and have removed physical spaces because there is no distance, in terms of communication. Thus, with the acceptance of these benefits, there is less resistance to change every day.

CONCLUSIONS

The results of this study suggested that a well-designed online course can be as efficient and effective as a well-designed course in the traditional methodology. Also, it was inferred that the fact that the online methodology using the Blackboard platform was more recent and unknown to many, does not mean students cannot achieve high levels of academic achievement and satisfaction.

Moreover, a valuable contribution of this study was the design of a data collection instrument that was validated by a panel of experts and its reliability was established through the Cronbach's alpha coefficient. A correlation coefficient of .984 contributed to the high degree of reliability of the data collection instrument. The data collection instrument consisted of a survey using a Likert scale to measure 48 independent variables (causes) which affect satisfaction, the dependent variable (effect). The data collection instrument considered the most important components of an institution of higher education and is of great relevance for students. It was evaluated by participants to determine their satisfaction, aspects directly related to teacher effectiveness, student performance, technology, administrative and program services, physical and virtual library services, course curriculum and physical facilities. In addition, the instrument provided the student's performance on the course and it was applied to both, students of online courses and classroom courses.

This study did not find statistically significant differences in the satisfaction and academic achievement of the participants according to the responses obtained through the survey. In the hypothesis tests performed between the online and classroom methodologies, there was not a statistically significant difference in satisfaction and academic achievement. The same results were obtained in the hypothesis tests performed by gender, comparisons within online courses and within classroom courses. That is, it did not find statistically significant differences in overall satisfaction and academic achievement by gender in any of the two types of teaching methodologies.

RECOMMENDATIONS

Based on the findings of this study on measuring satisfaction and academic achievement of students and its comparison between teaching methodologies, including gender, recommendations were made for graduate schools with online and classroom teaching methods. For managers and administrators, it was recommended to include more research courses in the academic programs, expanding the fields of study that include online courses and finding strategies to motivate students to learn this methodology. Also, encourage faculty to engage in research proposals.

For the faculty, it was recommended to encourage students to collaborate on research, highlighting the importance for themselves as students and for the educational community. Also, for the research and evaluation courses, to present, as a topic of discussion, the data collection instrument produced in this study to analyze it in all its parts. In addition, to post in the Internet the results of past and future research completed in the courses.

For other researchers, it is recommended to conduct studies on academic achievement and satisfaction in both teaching methodologies at the undergraduate level, including other public or private universities, and a qualitative approach regarding its advantages and disadvantages. Also, it is recommended to investigate the factors influencing student's academic achievement and satisfaction for online and classroom methodologies. In addition, based on the results of this study, it is recommended to conduct studies using a quantitative design with treatment in the experimental group and with a control group.

It is recommended that educational researchers use the reliable and validated data collection instrument produced in this study. Given the features, design and scope of this instrument, researchers can use it for public and private universities, for undergraduate and graduate levels, and for any course and academic area. It is easily adaptable to suit the needs of each study and applies to both types of teaching. In general, the components of this instrument covers the most important of all academic structure, known until now, allowing the researcher to obtain necessary and sufficient data to draw conclusions.

Given the importance of data collection instruments for achieving the goals of research, it is encouraged to use other methods to measure the reliability of the instruments, and make comparisons between them. Moreover, it is recommended to Puerto Rican researchers, to publish the results of their studies. In the literature review conducted for this study was not possible to find data related to the research problem within the educational environment of Puerto Rico.

ACKNOWLEDGEMENTS

The author is particularly grateful to Dr. Edgardo Quiñones who was the Dissertation Committee Director and the other Dissertation Committee members: Dr. Alicia González and Dr. Zaida Vega. The author is also grateful to Dr. Lizzette Rojas and Dr. Flordeliz Serpa who were readers of this research study and Dr. Marcelino Rivera and Turabo University's administrators for their support throughout the process.

REFERENCES

- Alonso, F., Manrique, D. & Vines, J. M. (2009). A Moderate Constructivist E-Learning Instructional Model Evaluated on Computer Specialists. *Computers & Education*, 53(1), 57-65.
- Barrett, E. & Lally, V. (1999). Gender Differences in an On-Line Learning Environment. *Journal of Computer Assisted Learning*, 15(1), 48-60.
- Choi, H. J. & Johnson, S. D. (2005). The Effect of Context-Based Video Instruction on Learning and Motivation in Online Courses. *The American Journal of Distance Education*, 19(4), 215-227.
- Cohen, L. & Manion, L. (1990). *Métodos de Investigación Educativa*. Editorial La Muralla, España.
- DJS Research, Ltd. (2010). Exploratory Research. Retrieved from Market Research Company UK. Company Registration Number: 5494158.
- Dolan, K. (2008). Comparing modes of instruction: The relative efficacy of on-line and in-person teaching for student learning. *PS: Political Science and Politics*, 41(2), 387-391.
- Ellis, H. (2005). Descriptive Cataloging Proficiencies among Beginning Students: A Comparison among Traditional-Class and Virtual-Class LIS Students. *Journal of Library & Information Services in Distance Learning*, 2(2), 13-43.
- Gratton-Lavoie, C. & Stanley, D. (2009). Teaching and Learning Principles of Microeconomics Online: An Empirical Assessment. *Journal of Economic Education*, 40(1), 3-25.
- Jandaghi, G. & Matin, H. Z. (2009). Achievement and Satisfaction in a Computer-assisted Versus a Traditional Lecturing of an Introductory Statistics Course. *Australian Journal of Basic and Applied Sciences*, 3(3), 1875-1878.

- Kim, S. & Feldt, L. S. (2010). The Estimation of the IRT Reliability Coefficient and Its Lower and Upper Bounds, with Comparisons to CTT Reliability Statistics. *Asia Pacific Education Review*, 11(2), 179-188.
- Markauskaite, L. (2006). Gender Issues in Preservice Teachers' Training: ICT Literacy and Online Learning. *Australasian Journal of Educational Technology*, 22(1), 1-20.
- Núñez, M. (2009). Hacia dónde vamos en la educación virtual. *Presentation Transcript*. Instituto para el desarrollo de la enseñanza y el aprendizaje en línea. Retrieved from www.slideshare.net/.../hacia-donde-vamos-en-la-educacion-virtual
- Pichardo, M. C., García, A. B., De la Fuente, J. y Justicia, F. (2007). El estudio de las expectativas en la universidad: Análisis de trabajos empíricos y futuras líneas de investigación. *Revista Electrónica de Investigación Educativa*, 9(1).
- Price, L. (2006). Gender differences and similarities in online courses: challenging stereotypical views of women. *Journal of Computer Assisted Learning*, 22(5), 349-359.
- Stewart, J. F., Choi, J. & Mallery, C. (2010). A Multilevel Analysis of Distance Learning Achievement: Are College Students with Disabilities Making the Grade? *Journal of Rehabilitation*, 76(2), 27-39.
- Waters, C. K. (2007). The Nature and Context of Exploratory Experimentation: An Introduction to Three Case Studies of Exploratory Research. *History & Philosophy of the Life Science*, 29(3), 275-284.

AUTHOR

Mylord Reyes Tosta, EdD – Doctorate Program, School of Education, Metropolitan University. Cupey, Puerto Rico. Electronic mail: mylord_reyes21@hotmail.com

Copyright 2012 Non-Profit Evaluation & Resource Center, Inc.