

# An Empirical Investigation of the Impacts of Web-Based Distance Education: Evidence for Justice Studies

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Received: April 22, 2018    Accepted: August 11, 2018    Published: August 14, 2018

doi:10.5296/jei.v4i2.13049

URL: <https://doi.org/10.5296/jei.v4i2.13049>

## Abstract

During the past decade, web-based distance education has created a profound impact on education and learning. It has increased access and expanded educational opportunities of many students. The National Center for Educational Statistics reported that over 50% of post-secondary institutions now offer a number of web-based courses. Peterson's Guide to Distance Learning programs reported that over 75 programs in criminal justice or criminology. Although increasing number of courses are being offered through the web-based distance modality, it is however important to determine the perceptions of students to its use. The study therefore attempted to determine the perceptions on web-based distance education by students in the justice studies department at a Historically Black University. The Chi Square and correlational analysis revealed that age-group, gender, year in school and study time were statistically significant. A binomial regression with student's major as the outcome was most robust with an *R*-Square of 0.522. Gender, study time and year in university were statistically significant at the .05 level and having done a web-based distance course. There was therefore a statistically significant variation in the perceptions of the students in justice

studies towards web-based distance education.

**Keywords:** Justice and non-justice majors, Web-based distance education, Distance education, Logistic regression modeling

## 1. Introduction

Distance education using the internet and web-based technology has created one of the most profound impacts on the field of education by increasing access and expanding educational opportunities over the past decade. National Center for Educational Statistics stated that over 50% of undergraduate institutions offered at least one distance education course having estimated 2 million students (Kerr, Ryhearsen, & Kerr, 2006). Distance education offers great flexibility with new courses being constantly added. As a result, a wide range of courses and programs are offered through distance education modalities. Some of the subject areas include business education, accounts, religion, information technology, and nursing, management, education as well as criminal justice among others (Holder, 2007).

This has resulted in a significant increase in student enrollment and a diversity of subject areas. Peterson's Guide to Distance Learning Programs noted that over 77 schools in the US that now offer distance education courses in criminal and juvenile justice. It is predicted that the increasing trend in the utilization of technology in educational programs over the past years will continue (Mayer & Dejong, 2003 & Haas & Sengo, 2004). Distance education describes the transmission of course material to students who separately by space and time from the instructors. The instructions can be delivered through print, audio, internet and/or web-based modality. However, because the deployment of online and web-based technology requires the use of the computer and knowledge of information technology, this presents a challenge for some students. The student learning style is another important factor that can also impact on learning through distance education. The degree of knowledge and information technology as well as the attitude to distance education and perceptions can also impact on their level of satisfaction and degree of success.

There are several of factors contributing to the need for web based distance education modalities. First student profile has changed. There are now more students who want to study, more females can now work from home while they maintain a family. Additionally, distance education also facilitates persons who live in remote or distant communities and in other countries accessing training programs from their locations. With the increase in technology, distance education now has greater application to a wider range of subjects. Most teaching devices and resources have been modified to accommodate on-line distance education. As a result, most progressive academic institutions now embrace the technology. Another factor that tends to impact on universities embracing distance education is to increase the diversity of their population. The diversity among students can enrich the learning process and increase tolerance and facilitate improved understanding among people. The adoption of distance education modalities also facilitates an increase in the range of subjects the institution can offer. As a result, universities are able to use less manpower to provide a greater diversity of teaching options.

Distance education utilizing computer-based internet programs requires the provision of appropriate hardware and software. It is also necessary that the personnel including the faculty as well as students be trained to use the technology. Research has shown that even although people are trained to use the technology sometimes they may not be effective because of the negative perceptions and attitudes that exist. As a result this study seeks to describe and compare the perceptions to web-based distance education instruction among justice major and non-justice major students. It will also seek to determine the difference by gender, ethnicity and whether they had experience in a distance education course. Currently there is limited empirical evidence on the status and trends in online-based degree offerings in criminal justice in Texas (Cheurprakobkit, 2000).

Therefore, distance education can contribute significantly to the advancement of the instruction and curriculum process of an individual as well as the expansion of university programs. As a result, it is has become more necessary to develop research to identify the challenges and develop strategies that can enhance the modality for remote learning especially when compared with the previous face to face modality. Research can also be used to identify the needs and attitudes of the client and provide strategies to ensure their satisfaction. They concluded that student fulfillment regarding distance learning in criminal justice graduate needed additional research (Mayzer & Dejong, 2003).

## **2. Research Hypotheses:**

HO<sub>1</sub>: There a significant difference in the perceptions of justice major students regarding web-based distance education instruction and the perceptions of non-justice major students regarding web-based distance education.

HO<sub>2</sub>: There a significant difference in the perceptions of justice major students regarding web-based distance education instruction and the perceptions of non-justice major students regarding web-based distance education by gender.

HO<sub>3</sub>: There a significant difference in the perceptions of justice major students regarding web-based distance education instruction and the perceptions of non-justice major students regarding web-based distance education by ethnicity.

HO<sub>4</sub>: There a significant difference in the perceptions of justice major students regarding web-based distance education instruction and the perceptions of non-justice major students regarding web-based distance education having done web-based distance education course.

Web-based distance education refers to instruction for a course that was provided or received through the use of the internet or other web-based application and the student and presenter are not in the same immediate location.

## **3. Relevant Prior Research**

Web based distance education describes the transmission of course materials to students who are separated by space and time from the instructor. The instruction can be delivered through print, audio internet and web based modality. However, because the use of the online technologies requires the deployment of computer and knowledge of information technology,

this presents a challenge for some students. The number of students enrolling in post-secondary education courses more than tripled from 1995-2001. Online student enrollment is growing at an increasing rate (Mayzer & Dejong, 2003; Young & Norgard, 2006). Sloan Consortium reported that there were 1.6 million persons studying online in Fall 2002 and they predicted an increase of 20% by the Fall of the following year. Web-based Distance education has created one of the most profound impacts on the field of education by increasing access and expanding educational opportunities over the past two decades. National Center for Educational Statistics stated that over fifty percent of undergraduate institutions offered web based distance education courses with an estimated enrollment of over 2 million students (Kerr, Ryhearsen, & Kerr, 2006). Smith and Benscoter investigated student skills and perceptions concerning online courses and found that there additional advantages of an online tutorial very useful. The report highlighted how tutorials had improved student proficiency among criminal justice students (Smith & Benscoter, 2000)

Kerr, Ryhearsen, and Kerr designed an instrument to identify student characteristics and to assess the likelihood of success in online courses. This survey also included the assessment of computer competence, academic skills and the determination of the ability to work independently (Kerr, Ryhearsen, & Kerr, 2006). A study designed to evaluate the impact of introducing new technological software that can be used in distance education into criminal justice classroom revealed that the most sophisticated technology do not necessarily produce improved performance (Osbourne & Clement 1998). Penn and Gabbidon in an evaluation of three decades of criminal justice education in Historically Black Colleges and Universities (HBCU) revealed that there were increasing enrollments and improvement in the development of online instruction. This paper also examined the history and development of criminal justice education and identified several factors that restrict funding and future expansion (Penn & Gabbidon, 2007).

Bisciglia and Monk-Turner identified the significant variation in perceptions between on site and online education through teleconference courses (Bisciglia & Monk-Turner, 2002). The American Journal of Distance education reported that among several socio-demographic variables such as gender were significant in encouraging web-based distance education. The report indicated that distance education would be an especially attractive option for women who are raising families or living in the rural areas. Furthermore, Finegold and Cooke (2006) conducted a survey in the United Kingdom exploring perceptions, familiarities and degree of interaction in online courses among students. The research revealed that improved understanding of online groups highlight significance of online groups and discussion board, lectures presence in online was important. Web-based courses provides students opportunity to act as a team and interchange ideas when the work in teams and generates positive experience, discussion group useful for group work showed challenges interacted identified other options to enhance learning such as diaries, direct observations, case study finding warrant further investigation attitudes of lectures can be helpful.

Morris, Finnegan and Wu tracked student attitude, persistence and accomplishment in online courses and explored students' engagement in web-based courses. The study reported that 31% of the students who are involved in discussion are more probably to be successful.

Miller-Cochran and Rodgigo investigated different types of distance learning designs that could improve the understanding of the web-based instruction using testing writing models used for instruction. Mayzer and Dejong reported that student's perception on online education in a criminal justice graduate program and found that their performance and they were highly satisfactory compared to the traditional in-class modality. For some schools, a blended approach using both online and face-to-face modality was combined. Cheurprakobkit reported that the adoption of online criminological programs in Texas has been slower than in other disciplines.

Web based distance education offers flexibility with new courses being constantly being added. As a result, a wide range of courses and programs are being offered including accounts, religion, information technology, nursing, management education as well as criminal justice among others with new ones being constantly added. Young and Norgard developed an online instrument to assess course design, interaction, course content and technical support for distance education courses. The results indicate that faculty delivering online classes also meets the student's need but suggested that there is the need for improvement and extended support services for students (Young & Norgard, 2006).

Peterson's Guide to Distance Learning Programs stated that there are about seventy-seven schools in the US that offer online education courses in criminal justice/criminology. It predicted an increasing trend in educational programs technology over several years (Mayer & Dejong, 2003; Haas & Sengo, 2004). Hence, several benefits such as time saving and flexibility of schedules enhance students to enroll in more courses. Significantly, students are sometimes confused when comparing web-based learning to face-to-face learning because of its effectiveness although they prefer traditional courses nevertheless they wanted more online courses. Piacaino examined the association between student engagement and sense of presence in a distance course with the use of electronic card, discussion board and chat rooms. He concluded that the interaction affects learning outcomes however there is a complex pedagogical phenomenon in need of further study (Piaccano, 2002).

Bishop-Clark investigated the relationship between personality and distance education using the Myers Briggs Type Indicator. Findings revealed that there was no association with student academic success, but some degree of individual traits had effect on approval level. Another important concern regarding distance/online education programs is the matter of integrity. Although, the modality provides greater flexibility than face-to-face teaching, it can prove challenging for Universities to establish and maintain high academic standards. Lanier addressed the issue of standards and integrity of distance courses. The study examined the incidence of cheating and in his survey he found that most students admitted to cheating. It also shown that few perceptions in variation occur between criminal justice and non-criminal justice majors regarding deceitfulness in exams. In attempting to determine if there was a relationship between cheating and online education, he stated that prior studies of cheating can predict cheating in online courses. The statistically significant variables were gender, class, major, cheating in class and cheating online at .05 level (Lanier, 2006). Distance education also facilitates collaborative projects that are popular in traditional instruction. It can also develop team skills and facilitate cooperative learning. The distance/ online modality

also provide specific advantage to instructors and students with disabilities. They are able to become involved in online activities while remaining within their locale.

#### **4. Method**

##### *4.1 Data Collection*

This is a correlational study design where a comparison is done between students who are pursuing justice studies compared to the students who are not pursuing justice studies. The study population included students enrolled in the Juvenile justice and psychology department at Prairie View A&M University. Data was collected using a pre-tested questionnaire during a class period. A total of 99 students completed the instrument.

##### *4.2 Procedure*

Having obtained permission from the lecturers, the questionnaire was conducted and students were informed about the survey and told that they were invited to participate since was a voluntary exercise. Each questionnaire would be anonymous because no identifying marks were to be made on the questionnaires. Each student who volunteered was given a questionnaire which was collected on completion. The dependent variable was student's major while the independent variables were age group, gender, marital status and ethnic group, year in university, grade point average and completion of web-based distance education course.

##### *4.3 Description and Data Analysis*

The questionnaires were collected and checked for completion, those that were satisfactorily completed were entered into SPSS 15.0 for data analysis. The frequency distribution was determined for all variables. Bivariate analysis was done using Pearson's correlation and Chi square tests with statistical significance been identified at the .05 level. Multivariate analysis was done using logistic regression. As a result the variables were recoded into dichotomous variables namely justice major (1) and non-justice major (0). The variables that were significant in the test were subjected to logistic regression. From the output of the models, significance was determined at the .05 level. Binominal regression method was used and the recode was done to determine the impact that perceptions have on students pursuing a justice major and those who were not. The analysis for the regression was divided into two models to examine the effect of perceptions on web-based distance education. For the first model the student's major was the dependent variable while the second model was based on whether or not a distance course was done. The questionnaires were completed in private and no identifying marks were required from the students. The data that is obtained will be kept in a locked filling cabinet and will be stored for the stipulated time period.

##### *4.4 Findings and Results*

Table 1 displays the description of the sample. A large majority of the respondent were over 30 years (89%) with only 10% being less than 30 years old. There were mainly females (79%) in the sample with only 21% males. As a Historically black university, Prairie View has predominantly black students (87%) with 13% from other races. Juniors and sophomore

consisted of 43% of the sample while the 57% consisted of all others including freshmen, seniors and graduate students. The sample was divided in just about half with 51% having a grade point of less than 3.0 and 49% having a grade point of greater than 3.0. Just about 37% of the respondents had completed a distance education course however just over 50% thought the distance education required additional study time when compared to face-to-face modality.

Table 1. Frequency distribution of variables

Variables	%
<i>Age group</i>	
< 30 years	10
> 30 years	90
<i>Gender</i>	
Male	21
Female	79
<i>Race/Ethnicity</i>	
Black	87
Other	13
<i>Year in University</i>	
J/Sophomore	42
Other	58
<i>GPA</i>	
< 3.0	51
> 3.0	49
<i>Disteduc</i>	
Yes	37
No	63
<i>STime</i>	
Yes	53
No	47

Table 2. Cross Tabulation of perceptions of web based distance education courses

Variables	% Non-justice	% Justice	Chi Square
<i>Age group</i>			4.788(.029)*
< 30 years	1.0	9.0	
> 30 years	41.4	48.5	
<i>Gender</i>			8.640(.003)*
Male	3.0	18.2	
Female	39.4	39.4	
<i>Ethnicity/Race</i>			.085(.770)
Black	6.1	7.1	
Other	42.4	57.6	
<i>Year in Univ</i>			21.168(.000)*
Jr/Sophomore	13.1	44.0	
Other	29.3	13.1	
<i>GPA</i>			.810(.368)
< 3.0	23.2	26.3	
Other	29.3	13.1	
<i>Dcourse</i>			.937(.333)
Yes	18	19	
No	24	38	
<i>STime</i>			8.267(.004)*
Yes	27	20	
No	15	37	

Note. \* $p$ -value < .05

The Chi square tests revealed the following results and statistical significance at the .05 level. Chi Square results are as follows: age group was 4.788; gender = 8.640; year in university = 21.168 and study time = 8.267. The other predictor variables were not statistically significant namely ethnicity, grade point average and having done a distance course.



Table 3. Multivariate Correlation Matrix

	Age Group	Gender	Race	Year in Univ	Distance course	Study time	GPA
Major	-.220*	-.295*	.029	-.462*	.097	.289*	.090
Age group		-.092	.167	.152	-.051	-.117	-.198*
Gender			-.202	.195	.008	-.097	.178
Race/				.092	.009	-.070	-.205*
Year in Univ.					.156	-.043	-.009
Dist/course						-.275*	-.138
Study time							-.051
GPA							

Note. \* $p$ -value < .05.

The correlation matrix revealed a number of the variables are significant at .01 level, however only those with  $r = .05$  and above will be discussed. The highest values revealed that the year in university was moderately negative ( $r = -.462$ ) associated with student's major while age group ( $r = -.220$ ), gender ( $r = -.295$ ) and study time ( $r = -.289$ ) were also negatively weakly associated with the student's major. The variables in the correlation matrix that were statistically significant were put into the logistic regression model after recoding the variable to binary. In model 1 –the dependent variable was the student's major. From this model, the R Square was .439 with three variables statistically significant at the .05 level namely gender, study time and year in university.

Table 4. Regression Model 1 Outcome Justice and Non Justice

	B	SE	Wald	Sig	Exp(B)
Age	-1.699	1.133	2.250	.134	.183
Gender	-1.578	.725	4.734	.030*	.306
Year	-2.005	.525	14.569	.000*	.135
Studytime	1.298	.526	6.103	.013*	3.663
Constant	4.996	1.841	7.364	.007	147.810

Having done a web-based distance education course was then added to the model which was then repeated (Table 5). This model resulted in four variables being statistically significant at the .05 level namely gender, year in university, study time and distance course. The  $R^2$  was increased to .522.

Table 5. Regression Model 2 Outcome Justice and Non justice with distance education

	B	SE	Wald	Sig	Exp(B)
Age	-1.908	1.241	2.365	.124	.148
Gender	-1.730	.780	4.921	.027*	.177
Year	-2.577	.611	17.794	.000*	.076
Studytime	1.987	.615	17.794	.001*	7.296
Distcourse	1.854	.652	8.081	.004*	6.387
Constant	2.467	2.068	1.423	.233	11.791

## 5. Discussion

The majority of the respondents were over 30 years (89%). With this group of students being mature, they may be more motivated and self-directed and may be better able to cope with distance education. The respondents were mainly females (79%) with only 21% males. Traditionally, a fairly high proportion of females have gravitated to distance education because it tends to facilitate them taking care of a family while pursuing their academic ambition at the same time. The findings indicate that web-based distance education programs can also be used to enhance the training of professionals in a number of areas. This is particular significant for persons in jobs that require long and inflexible shifts which would impede access to face-to-face programs. Zucker (2006) investigated forensic science education for criminal justice practitioners and suggested that distance education is a good strategy, however since people have different experiences with technology that mixed media resources should be introduced before introduction to full technological synchronous modality.

Approximately 50% thought that distance education required additional study time when compared to face to face modality. However, just about 37% of the respondents had actually completed a distance education course. The Chi square tests revealed statistical significance in age group (4.788), gender (8.640), and year in university (21.168) and study time (8.267). The correlation matrix revealed a moderately weak negative association between the variables which would suggest that with an increase in a year at university there would be a reduction in student's major. The addition of a new variable to the logistic regression model usually increases the R Square. The addition of the distance education variable to the model increased the R-Square from .439 to .522. This increased the strength of the model and this value will therefore provide an explanation of 52% of the variance.

### 5.1 Policy Recommendations

The following policy recommendations have been underlined: More institutions should adopt web-based educational strategies because this would facilitate the training of more mature professionals including those from correctional or criminal justice professions. Web-based distance education should be adopted as one means to increase diversity within criminal

justice and university programs in general. This will enrich the program and facilitate meaningful exchanges between the students. It may also be used to encourage increased involvement of more male students. In addition, distance education should attempt to use a diversity of delivery methods by merging web-based approach with other conventional methods of teaching in order to facilitate student learning.

## 6. Conclusion

In the study, the following important results were noted: first, a significant variation in the attitude of justice major regarding web-based distance education instruction and non-justice major students regarding web-based distance education. Second, there was a statistically significant variation in the perceptions of justice major students regarding web-based distance education instruction and non-justice major students regarding web-based distance education by gender. Third, there exists a substantial statistically variation in the perceptions of justice major students regarding online education instruction and perceptions of non-justice major students regarding web-based distance education by ethnicity. Finally, there was a statistically significant variation in the perceptions of justice major students regarding web-based distance education instruction and non-justice major students regarding online education having done online course. However, minor limitations of the study is the sample size ( $n = 99$ ) was relatively not large enough and was restricted to only one group at the University. As a result, caution should be exercised in making generalizations.

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