FACULTY ACTIONS THAT RESULT IN STUDENT SATISFACTION IN ONLINE COURSES

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ABSTRACT

This study identified faculty actions which positively influenced student satisfaction in the online classroom at the community college level. The escalating demand for Internet-based, distance education courses has been met by an increased inventory of them. However, while online education has been in existence for over a decade, standardized practices in the online classroom have not been fully identified, developed, and implemented. Data was collected from student evaluations of two web-based courses at two Texas community colleges. Descriptive statistics, bivariate correlations and multiple regressions were used to identify faculty behaviors which affected the satisfaction of students enrolled in these courses. The results of the study indicated that faculty actions within online courses appeared to impact student satisfaction. The identification of faculty actions which impact student satisfaction in online courses will greatly assist colleges and universities in strengthening their abilities to provide quality online experiences for their students.

I. INTRODUCTION

Distance education, with its flexible scheduling and broader accessibility, is desirable to 84 percent of community college students who must work full- or part-time while balancing personal obligations [1]. While community colleges accounted for the largest enrollment in undergraduate education courses in 2000-2001, serving 1,435,000 students as compared to 566,000 students in public 4-year institutions and 278,000 in private 4-year institutions, undergraduate online education courses also had the highest dissatisfaction rates among participating students [2]. Thirty percent of students enrolled in undergraduate courses reported that they were less satisfied with their online course experiences than with their traditional classroom experiences [2].

Between fall 2000 and fall 2006, enrollment in Texas higher education institutions increased nearly 21 percent [3]. It is anticipated that enrollments in Texas community colleges will increase an additional 17

percent during the next 15 years [4]. In 2009, seeking to clarify trends in distance education, the Instructional Technology Council (ITC) surveyed the 1,200 members of the American Association of Community Colleges across the United States, with 226 responding. Survey results revealed that online enrollments at community colleges increased by 22 percent from fall 2007 to 2008, while overall enrollments at the same colleges increased an average of less than two percent nationally [5]. In the same period, The Sloan Foundation reported a 17 percent growth in distance learning in higher education with a total of 4.6 million online students [6]. Sixty-seven percent of ITC's survey respondents indicated that student demand for distance learning outpaced their abilities to provide services [5].

Education experts agree that faculty are the key element in creating and maintaining a quality online education program [7, 8, 9]. Faculty actions which initiate and maintain interactivity within the online class directly impact the quality of the online education experience. Yang et al. asserted that to ensure quality in online education, "the qualification of instructors should be a first consideration" [9, p. 11].

While attempts to define and measure student success in online education has been met with limited and debated results, researchers agree that student satisfaction within the Internet-based classroom is directly affected by degree and type of interactions between the assigned faculty member and enrolled online students [10, 11, 12, 13]. Shea, Fredericksen, Pickett, and Pelz [12] and Roblyer and Ekhaml [14] further argued that quantity and quality of interactions in the online classroom directly correlated with student satisfaction and learning.

There is limited published research on what students think of Web-based education and how it meets their needs [13, 14, 15]. After reviewing 76 studies detailing attributes and shortcomings of online education research, Tallent-Runnels, Thomas, Lan, Cooper, Ahern, Shaw, and Liu concluded that few studies actually illuminated the teaching-learning experience in the online environment. They encouraged more research be conducted to ascertain types of faculty-student interactions and the impact of such interactions on students in order to identify "effective learning experiences for various kinds of students" [16, p. 119]

The intent of this study was to identify faculty actions which influenced student satisfaction in distance education courses at the community college level. This article reports the methodology, findings and implications of this quantitative study that utilized descriptive, bivariate correlations, and multiple regression statistics to evaluate student perceptions of faculty actions.

II. RELATED LITERATURE

Schlager [17], Duffy and Kirkley [18], and Maguire [19] defined the purpose of online education as multi-level: 1) to increase the accessibility of learning experiences among students who cannot or choose not to attend traditional classrooms; 2) to assemble and disseminate instructional content more cost-effectively and efficiently; 3) to capture a larger share of the educational market; and 4) to reduce educational, training, and retraining costs. Advancements and adoption of digital technology by society coupled with increasing budgetary constraints set forth by legislatures across the nation have resulted in higher education institutions which must evolve to deliver services via the Web to an increasingly digital target audience while demonstrating fiscal efficiency [20].

A. Distance Education and Community Colleges

The mission of the community college coupled with the diverse population it serves positions the two-year institution to be the best provider of distance education opportunities [20, 21].

> The community college has traditionally been referred to as *the people's college*, and it is committed to providing access, opportunity, and a full scope of educational options to those who attend. Because of these attributes, as well as the unique populations they serve, community colleges have emerged as leaders in providing distance education. [20]

Two-year colleges, which make up the largest sector of higher education in terms of enrollments and numbers of institutions, are "often the first to venture beyond predictable and comfortable borders in higher education" [21, p. 93]. During 2006-2007, 97 percent of the 1,000 two-year Title IV degree-

granting institutions offered distance education courses and reached more students than the private and public four-year universities combined [22]. The role of community colleges in distance education was underscored during the reauthorization of the Higher Education Act in 1998 through the creation of the Learning Anytime, Anywhere Partnership (LAAP) program [23]. The Instructional Technology Council determined that community colleges continued to outpace public and private 4-year institutions with numbers of online course offerings and overall online enrollments [5].

Understandably, since the focus of community college practitioners remains centered on teaching and training, very little research examining distance education within the community college has been forthcoming. Studies dedicated specifically to student satisfaction in distance education programs at two-year colleges are virtually non-existent and, when present, are embraced in larger studies similar to that of the SUNY Learning Network by Shea et al. [12]. Of the 76 studies reviewed by Tallent-Runnels et al. [16], two studies clearly involved community college students as research participants.

B. Faculty Role in the Online Environment

One of the greatest challenges for community college faculty will be the shift from "conveyor of information" to "mentor, coordinator, and facilitator of learning" in the online environment [9, 24, 25]. As the educational environment shifts from teacher-centered to learner-centered, instructors become facilitators and intermediaries between the students and the resources they need to be independent learners [24, 26, 27]. The role of the online professor is defined by the needs of learners, including monitoring interactions between students, guiding discussions, and providing interactive online learning activities [27, 28]. Considerations for delivering course content via the online medium include content organization and format, methods of communication and interaction, student engagement in instruction, and assessment [25].

> The role of an instructor in distance education is likely to be somewhat different than in resident instruction and requires some specialized skills and strategies: 'distance education instructors must plan ahead, be highly organized, and communicate with learners in new ways. They need to be accessible to students, work in teams when appropriate, and play the role of facilitator or mentor in their interactions with learners. Finally, they may have to assume more administrative responsibilities than is true in a residential model'. [29, p. 6]

The majority of contemporary online classes focus on transmitting a knowledge base to the student rather than stimulating the process of learning [30]. Rockwell, Schauer, Fritz, and Marx [7] emphasized the importance of faculty, who must recognize and master diverse technologies and incorporate them into online teaching and learning strategies, as the essential elements in the online learning process [31]. Schlager [17] noted that technological challenges for the online classroom are simply a part of the larger pedagogical challenge: to balance differences in student populations, subject domains, and pedagogical preferences which will result in an effectively designed, technologically advanced learning environment.

The greatest challenge to online education is not the technology, but the identification and implementation of strategies and techniques which match the learner with effective learning opportunities. Tobin [29] argued that the most important variable in the online classroom is the instructor's level of interaction with students and the outside world. Yang et al. [9] encouraged faculty to merge theoretically-based learning principles with instructional strategies to customize their individual online courses, eliminating the one-size-fits-all descriptors for online teaching and learning [32]. Online instructors must seriously consider what they can and should do to provide quality online instruction that is real and meaningful for all enrolled students, blending learning theories, new technology, and solid instructional design [28, 33]. Online instructors must engage students and encourage them to be actively involved in class instruction and discussion [32].

Faculty who are successful in the online learning environment are those who e-mail their students frequently, respond to e-mail messages promptly, hold regular online and traditional office hours, and develop personal touches in the online environment [26, 34]. Stewart and Strudler [15] developed a measurement tool for assessing the effectiveness of online classes, noting there are seven dimensions

which affect course quality: the appearance of Web pages, class procedures and expectations, technical issues, hyperlinks and navigation, online applications, content delivery, and instructor and peer interaction. In coordination with engaging students as active learners in the online course, instructors must be prepared to invest more time in daily maintenance of the online class than they traditionally would invest in the campus-based setting [31].

A study conducted by Shea, Picket and Li [35] identified a connection between overall faculty satisfaction in teaching online courses with the levels of interaction they had with students. In a study conducted by Hiltz, Shea and Eunhee [36] of faculty that teach using asynchronous learning networks at one university, they found the top five motivators for faculty to teach online included flexible scheduling, more personal interactions with students, their professional development growth, a more diverse student population, and better overall course management. Faculty identified that in addition to being able to structure the learning process better, the abilities to interact more often and more personally with students was a motivator for them to teach online. The top demotivator identified in this study was that faculty perceived that teaching online was more work. Though not listed as one of the top six demotivators, one group identified that there was a higher expectation of their availability and attention by students in their online courses [36].

C. Student Satisfaction with the Online Experience

Building upon the work of previous scholars seeking to identify the relationship between instructor behavior and student satisfaction in the traditional classroom, Arbaugh [10] correlated "immediacy behaviors" of professors with student satisfaction in the online environment. Arbaugh's study, which surveyed 25 web-based sections in an MBA program at the University of Wisconsin, Oshkosh, concluded that the instructor's use of immediacy behaviors, including prompt feedback, use of humor or emoticons, referring to the student by name in written communication, discussion prompts, and sharing of personal examples, are better predictors of student satisfaction than an instructor's mastery of technology [37].

Drawing upon the work of Chickering and Gamson [38] and Garrison, Anderson and Archer [39], Shea et al. [12] surveyed 935 students engaged in online education via the SUNY Learning Network to clarify variables which would measure the attainment of student satisfaction and learning in the e-learning environment. The study validated the importance of social discourse and contact between university students and faculty, confirming that the quantity and quality of online interaction directly correlated with student satisfaction and learning [40]. Plentiful and instructive interaction resulted in greater satisfaction and learning among enrolled online participants, while decreasing the level of interaction resulted in isolation and increased levels of dissatisfaction. Valenta, Therriault, Dieter, and Mrtek [13] asserted that to be effective in the online learning environment, the online classroom must give participants a sense of community. Roblyer and Ekhaml [40] differentiated between two types of online interaction: interaction and interactivity. Interaction requires overt behaviors within the online course by both students and faculty, while interactivity refers to the capabilities of the existing technology through which course content is delivered.

In addition, a significant correlation exists between the amount of critical thinking involved in creating discussion board responses and student learning and satisfaction. Shea et al. [12] discovered that the expression of clear expectations and timely feedback also directly impacted student satisfaction. As above, increased clarity of expression and timeliness of feedback resulted in increased online student satisfaction. Additional factors, which the researchers identified as positively affecting satisfaction among online students, were low levels of technical difficulties and high quality feedback on assignments.

Stein and Wanstreet [41] applied Garrison et al.'s [39] Community of Inquiry model in a hybrid study of twenty-five undergraduate and graduate learners participating in inquiry-based classes at a large Midwestern university in an effort to match student satisfaction with teaching presence, social presence, and cognitive presence. The researchers validated Garrison's model, noting that regardless of whether a student engages in learning experiences which are totally online or a combination of both on-campus and online experiences, Garrison et al.'s [39] three overlapping lenses must be present in order for the

environment to be effective. They concluded, that if students are given a choice between delivery format of instruction, they will select the format which best suits their individual needs in terms of teaching, social, and cognitive presence, thus gaining satisfaction from the educational experience [41].

Knox, Lindsay, and Kolb [42] sought to link student satisfaction with undergraduate educational experiences to both experiential factors and grade attainment. Using data from *The National Longitudinal Study of the High School Class of 1972* and archived data from the 1,509 undergraduate institutions which respondents attended, the researchers concluded that grade attainment had a more significant influence on student satisfaction in college than classroom experiences. While the experiences identified by the researchers did not parallel interactive behaviors exhibited in the online college classroom, the researchers did effectively argue that college grade attainment was positively correlated to "the odds of reporting that courses were interesting, that one performed well, that one learned a lot, and that one met interesting people" [42, p. 316]. According to Knox et al. [42], grade attainment affected not only student satisfaction with academic courses but student satisfaction with the college experience.

Similarly, Grayson [43] sought to identify variables which impacted student satisfaction using a cohort group of York University students enrolled in traditional classroom experiences. After following the group through the completion of their four-year programs at the commuter campus, the researcher determined that, secondary to professor activities in the classroom, grade achievement played a minor role in determining student satisfaction with academic programs. He also noted that aspects of the student experience improved over time as curriculum became more specialized and course enrollments decreased in size.

Expanding upon research involving traditional classrooms experiences, Summers, Waigandt, and Whittaker [44] compared student satisfaction with classroom experiences and grade variables in parallel online and traditional statistics classrooms. The researchers discovered that, despite the parallel instruction and evaluation procedures used by the same 20-year, veteran professor in both teaching formats, Web-based students were less satisfied with the course as well as with the evaluation and grading techniques than were their campus-based peers. Menchaca and Bekele [45] further examined student and faculty experiences and in a graduate-level, online learning program in the CSU, Sacramento, system. While the qualitative study did not seek to identify predictor variables according to degrees of influence on student success, the results identified the presence of technologic, pedagogic, human, course, and leadership factors which were imperative components of a successful online educational program, including clarity of course materials, course organization, group dynamics, level of feedback, and technical support. The study concluded that "satisfaction was directly related to achievement;" and, specific to this study, "satisfaction positively influenced the sustainability and scalability of the online program," resulting in future, increased enrollments in online education at CSU [45, p. 248].

Kosak, Manning, Dobson, Rogerson, Cotnam, Colaric et al. [33] recognized that while there are absolute, procedural methods for training on instructional technologies, there are no concrete, best-practices for online pedagogy [45, 46]. Hutchins [47] and Summers et al. [44] recommended online faculty seek to blend immediacy behaviors, as originally identified by Chickering and Gamson through the Seven Principles, to enhance student achievement and satisfaction. Due in large part to continually evolving technology, Crumpacker [28] noted that few successful models of distance education have evolved. Most higher education institutions continue to struggle with simply establishing and maintaining their distance education programs, with the most notable advancement being the establishment of asynchronous learning networks [28]. "Uncoordinated attempts" at fulfilling the needs of students and faculty will continue to be the "norm" until a proven online pedagogy is adequately researched and defined [27, 28].

III. CONCEPTUAL FRAMEWORKS

The conceptual frameworks utilized for this study drew upon the work of Chickering and Gamson [38], Chickering and Ehrman [11], and Garrison et al. [39]. Shea et al. [12] sought to clarify the relationship between student satisfaction and student learning in the online classroom. They concluded that plentiful and instructive interaction between faculty and students in the Internet-based classroom resulted in greater

satisfaction and learning among enrolled online participants, while decreasing the level of interaction results in isolation and increasing levels of dissatisfaction. Specific findings from the study revealed that significant correlations existed between student satisfaction and faculty expressions of clear expectations, timely feedback, low levels of technical difficulty in the course, and high quality feedback on assignments. More specifically, Arbaugh [10] correlated faculty "immediacy behaviors" with student satisfaction in the online environment. Immediacy behaviors are faculty communications within the online classroom, including prompt feedback and use of humor or emoticons, which reduce social and psychological distances.

A. The Study

Two community colleges located in Texas, hereinafter identified as College 1 and College 2, participated in this quantitative research study correlating faculty actions with student satisfaction in the online classroom. These colleges are accredited by the Commission on Colleges of the Southern Association of Colleges and Schools and were classified as Associate's Colleges by the Carnegie Foundation. Both institutions are public, rural-serving institutions that met or exceeded the enrollment criteria required to qualify as Hispanic-serving Institutions during the fall 2006 semester.

B. Data Collection and Tools

Data for the study was obtained from student responses to each institution's existing online course/instructor evaluation instrument from the fall 2006 semester. Statistical analysis, including descriptive statistics, bivariate correlations and multiple regressions, were used to identify faculty behaviors which affected the satisfaction of students enrolled in online courses at each institution.

College 1 reported a 30 percent response rate with 426 individuals responding out of a 1,403 unduplicated online enrollments. Student responses were recorded on a 5-point Likert scale. Variable codes and unique responses to the institutional survey were standardized to a 5-point Likert scale (with 1 being strongly disagree and 5 being strongly agree). With 1,004 individual responses out of a 1,459 unduplicated online enrollment, College 2 recorded a 69 percent response rate for the instrument. Student responses on the original evaluation instrument were recorded on a 6-point Likert scale. Variable codes and unique student responses were standardized to a 5-point Likert scale for analysis purposes in this research study (with 1 being strongly disagree and 5 being strongly agree). The data for both groups was imported into Microsoft Excel spreadsheets for consistent labeling of data columns across institutions. In addition, recoding of data responses was completed in the Excel spreadsheets prior to importation into SPSS 11.0, where it was then analyzed.

IV.   THE RESEARCH

A. Analysis and Findings: College 1

The results of the analysis indicated that three independent variables (see Table 1) received high positive responses, indicating perceived effective faculty actions within the online classroom. The instructors' abilities to clearly communicate expectations received the highest rating as 60.6 percent of respondents "strongly agreed" and 30.5 percent of respondents "agreed" that expectations were clearly stated. Respondents identified the timeliness/accessibility of the instructor as the second most recognized instructor action, with 58.9 percent of respondents strongly agreeing and 30.0 percent of respondents agreeing that instructors were available for consultation. Responses identifying the instructors' abilities to provide clear directions about the coursework closely aligned with the timeliness variable: 58.9 percent of respondents "strongly agreed" and 29.1 percent of respondents "agreed" that instructors provided clear, understandable instructions.

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	-	Likert Scale		+
1	2	3	4	5

Survey Question	Variable Code	Frequency % Response Rate				
The instructor spoke clearly and understandably. If the class was via the Internet, the instructor provided clear instructions about the coursework.	Directions	1.9	4.2	4.7	29.1	58.9
The instructor was accessible for consultation (e.g. questions, calls, e-mails, etc.)	Timeliness	2.1	2.8	4.5	30.0	58.9
Expectations were clearly stated either verbally or in the syllabus.	Expectations	1.2	2.1	4.2	30.5	60.6
The instructor showed enthusiasm for encouraging student learning.	Enthusiasm	2.3	3.8	9.4	29.6	54.0
The instructor created an atmosphere in which I felt comfortable asking questions.	Climate	1.6	2.8	8.0	31.5	54.9
The instructor's lectures and class-room activities helped me to learn the material.	Activities	2.6	4.7	14.6	27.7	48.6
Overall, the course was a valuable learning experience.	Value	2.1	4.0	4.7	34.3	54.2

Table 1. Response Frequencies for College 1

The instructors' actions aimed at creating positive learning environments and showing enthusiasm for student learning were also closely aligned in student "strongly agreed" responses totaling 54.9 percent and 54.0 percent, respectively. The instructors' successes at creating a positive learning atmosphere slightly edged out their successes at showing enthusiasm for student learning as 31.5 percent of respondents "agreed" that climate was beneficial as compared to 29.6 percent of respondents who "agreed" that instructor enthusiasm for encouraging student learning was present in the online class.

The engagement of the instructor within the online class through lectures and classroom activities received the weakest positive feedback as 48.6 percent of respondents "strongly agreed" that the lecture and classroom activities helped the student learn the material. In addition, 27.7 percent "agreed" and 14.6 percent chose to remain "neutral," neither agreeing nor disagreeing, in their assessment of the impact of online lectures and online course activities on their learning experiences. While 76.3 percent of respondents were in agreement that the instructors' actions positively impacted the learning experience, 14.6 percent could not determine the value of the instructors' engagement within the online class. This indicates an area for further refinement and research. Despite the concerns associated with the instructor's

online engagement, a majority of respondents, 54.2 percent "strongly agreed" and 34.3 percent "agreed," that the online courses were valuable learning experiences. A small minority, 6.1 percent, expressed an opposing viewpoint.

Descriptive statistical analysis, conducted using SPSS 11.0 and detailed in Table 2, reaffirmed the previous findings as detailed in the frequency analysis. Student perceptions of faculty actions, rated on a 5-point Likert scale, were most positively recorded as: the instructor's expectations were clearly communicated (X = 4.43), instructor accessibility (X = 4.36), instructor provided clear instructions (X = 4.35), climate (X = 4.32), instructor's enthusiasm (X = 4.09), and instructor's lecture and classroom activities (X = 4.09). On average, as indicated on Table 2, the students enrolled in online courses at College 1 "agreed" that the online course experience for fall 2006 was a worthwhile experience (X = 4.32).

Variable Code	N Valid	Missing	Mean	Median	Std. Dev.	Variance
Directions	421	5	4.35	5.00	1.019	1.039
Timeliness	419	7	4.36	5.00	1.036	1.073
Expectations	420	6	4.43	5.00	.939	.881
Enthusiasm	422	4	4.26	5.00	1.039	1.079
Climate	421	5	4.32	5.00	.990	.979
Activities	418	8	4.09	4.00	1.160	1.346
Value	423	3	4.32	5.00	.974	.949

Table 2. Frequency Analysis College 1

Further analysis on College 1 data sought to identify any existing bivariate correlations between independent variables, including directions, timeliness, expectations, enthusiasm, climate, and activities, and the dependent variable, value. Because the standard deviations for four of the six independent variables were greater than 1, the Spearman correlation coefficient, used for analyzing data which is not randomly distributed, was conducted for comparison purposes. One-tailed tests of significance (significant at the .01 level) were conducted to allow for directional interpretation of the correlation as all were anticipated to be positive in direction. Missing data values were pairwise deleted. Upon analysis, strong relationships were identified between all independent variables and the dependent variable, as identified in Table 3.

Independent Variable	Correlation Coefficient	Sig. (1-tailed)	N
Directions	.696	.000	421
Timeliness	.731	.000	419
Expectations	.765	.000	420
Enthusiasm	.787	.000	422
Climate	.775	.000	421
Activities	.687	.000	418

Table 3. Correlation Analysis Dependent Variable "Value" College 1

Analysis using the Spearman correlation coefficient indicated that there were moderate positive correlations between directions and value (r = 0.696) and activities and value (r = 0.687). High positive

correlations were found between timeliness and value (r = 0.731), expectations and value (r = 0.765), enthusiasm and value (r = 0.787), and climate and value (r = 0.775). Initial correlation analysis indicated that there was less than a 1 percent chance (p < .01) that the relationships occurred by chance.

Based upon the close relationships identified between multiple independent variables and the dependent variable, further study using multiple regression analysis was necessary to identify the amount of variance in the dependent variable, value, which could be attributed to each independent variable. Using the Stepwise Method for multiple regression analysis, all independent variables were entered into the equation and assessed for significance by the program as identified in Tables 4 and 5. All predictors were entered into the equation at a .05 level of significance, and removed from the equation if the significance fell below .10. Missing cases were pairwise deleted.

Predictors: (constant = value), enthusiasm, expectations, timeliness, activities, climate

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
5	.833	.693	.689	.543

Table 4. Multiple Regression Analysis Summary – College 1

Predictor Variable	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
Enthusiasm	.302	.046	.322	6.511	.000
Expectations	.285	.038	.275	7.488	.000
Timeliness	.176	.036	.187	4.876	.000
Activities	8.450E-02	.034	.101	2.469	.014
Climate	9.691E-02	.045	.098	2.133	.034

Table 5. Degrees of Influence of Predictor Variables on Dependent Variable "Value"

The multiple R indicated a high positive correlation between five of the predictor variables and the dependent variable (R = .833). The R Square value for Model 5 (r^2 = .693) revealed that approximately 69 percent of the variance in the dependent variable, value, could be explained by the five independent variables, enthusiasm, expectations, timeliness, activities, and climate.

The degree of influence of each predictor variable was identified by the Beta value. For the College 1 sample, .32 of the defined variance in the perceived value of online courses was attributed to instructor enthusiasm (B = .322) for encouraging student learning. Clearly stated expectations (B = .275) accounted for .27 of the variance in the perceived value of online courses. The accessibility of the instructor for consultation (timeliness, B = .187) explained .18 of the identified variance associated with course value, while the instructors' lectures and activities (B = .101) and the instructors' abilities to create comfortable learning environments (climate, B = .098) had the least influence on the perceived value of online courses, .10 and .09 respectively. The independent variable, directions, was excluded by the SPSS statistical program during the Stepwise Method analysis as being non-significant, accounting for less than a 1 percent of the variance associated with the value of online courses.

All predictor variables selected in Model 5 of the multiple regression analysis correlated well with the criterion variable yet demonstrated no significant correlations with each other as illustrated in Table 6.

Variable Code	Enthusiasm	Expectation	Timeliness	Activities	Climate

Enthusiasm	1.0	-.175	-.125	-.423	-.429
Expectations	-.175	1.0	-.208	-.133	-.145
Timeliness	-.125	-.208	1.0	-.070	-.310
Activities	-.423	-.133	-.070	1.0	-.116
Climate	-.429	-.145	-.310	-.116	1.0

Table 6. Coefficient Correlations College 1

It should be noted, however, that three coefficient correlations revealed low negative correlations, as revealed in Table 6: enthusiasm and activities ($r = -.423$), enthusiasm and climate ($r = -.429$), and timeliness and climate ($r = -.310$). With the exception of enthusiasm, activities, climate, and timeliness were identified as having low levels of influence on the variance of the criterion variable. The presence of low level correlations indicated the need for further refinement of assessment questions as the faculty actions identified on the course/instructor evaluation instruments may not be adequately defined for respondents to effectively differentiate between the actions.

B. Analysis and Findings: College 2

Results of data analysis at College 2 indicated that student responses across the survey instrument were negatively skewed as indicated in Table 7. Both independent variables received high marks as illustrated in Table 8, indicating students perceived surveyed faculty actions were effective in the online class.

		-		Likert Scale		+
		1	2	3	4	5
Survey Question	Variable Code	Frequency %		Response Rate		
Timeliness of instructor response to assignments was?	Timeliness	1.7	2.0	7.6	38.2	47.9
The instructor's contribution to the course was?	Activities	1.3	3.1	.6	50.2	44.2
The online course as a whole was?	Value	1.2	4.1	.7	60.1	34.0

Table 7. Response Frequencies for College 2

While timeliness of the instructors' responses to assignments received the greatest majority of high positive responses as 47.9 percent of students "strongly agreed" that the timeliness of the instructors' responses was excellent, the total number of respondents identifying timeliness as a positive strength, 86.1 percent, was eclipsed by the total number of respondents who identified the instructor's engagement in the course as a positive action, 94.1 percent, as 50.2 percent "agreed" and 44.2 percent "strongly agreed" with the statement.

Further analysis indicated a non-response rate of less than five percent on any single variable as recorded in Table 8. Both independent variables recorded similar mean scores, timeliness ($X = 4.36$) and activities ($X = 4.34$), indicating respondents perceived both faculty actions as very similar, positive traits in the online class. The dependent variable, the value of the course ($X = 4.22$), was also perceived as positive by participating students.

	N					
Variable Code	Valid	Missing	Mean	Median	Std. Dev.	Variance
Timeliness	987	17	4.36	4.00	.947	.897

Activities	998	6	4.34	4.00	.761	.579
Value	1004	0	4.22	4.00	.756	.572

Table 8. Frequency Analysis College 2

Further analysis on College 2 data identified the presence of bivariate correlations between independent variables, timeliness and activities, and the dependent variable, value. Pearson correlations, designed for analyzing data with normal distributions, were conducted for comparison purposes. One-tailed tests of significance (significant at the .01 level) were conducted to allow for directional interpretation of the correlation as all correlations were anticipated to be positive in direction. Missing data values were pairwise deleted during both analyses. Correlation analysis revealed a moderate positive correlation between activities and value ($r = 0.685$) and a low positive relationship between timeliness and value ($r = 0.327$) as recorded in Table 9.

Independent Variables	Correlation Coefficient	Sig. (1-tailed)	N
Timeliness	.327	.000	987
Activities	.685	.000	998

Table 9. Correlation Analysis on Dependent Variable "Value" for College 2

Findings indicated that there was less than a 1 percent chance ($p < .01$) that the relationships occurred by chance.

Based upon the positive correlations identified between multiple independent variables and the dependent variable, further study using multiple regression analysis was necessary to identify the amount of variance in the dependent variables that could be attributed to each independent variable. Using the Stepwise Method for multiple regression analysis, all independent variables were entered into the equation and assessed for significance by the program as identified in Tables 10 and 11. All predictors were entered into the equation at a .05 level of significance, and removed from the equation if the significance fell below .10. Missing cases were pairwise deleted.

Predictors: (constant = value), timeliness, activities

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
2	.688	.474	.473	.549

Table 10. Multiple Regression Analysis Summary – College 2

Predictor Variable	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
Activities	.654	.025	.658	26.168	.000
Timeliness	5.486E-02	.020	.069	2.731	.014

Table 11. Degrees of Influence of Predictor Variables on Dependent Variable "Value"

The multiple R depicted in the Model 2 summary and associated with the value of the course (R = .688) indicated a moderate positive correlation existed between the two predictor variables, activities and timeliness, and the dependent variable, value. The R Square value for Model 2 (r^2= .474) revealed that approximately 47 percent of the variance in the dependent variable, value, could be explained by the two independent variables, activities and timeliness.

The degree of influence of each predictor variable was identified by the Beta value. For the College 2 sample, the impact of the independent variables upon the perceived value of the course was distinctly different: the instructor's perceived contributions to the course (B = .65) had the greatest influence on the students' perceived value of the course followed distantly by instructors' abilities to respond to the assignments in a timely manner (B = .069). All predictor variables of the multiple regression analysis were correlated well with the criterion variable and demonstrated a low positive correlation (r = .392). The correlation between the independent variables, however, was not significant enough to impact the outcome of the regression analysis.

C. Analysis and Findings: Across Institutions

The discovery of correlations at both College 1 and College 2 using independent data sets necessitated further study across the Texas community college population. Because similar independent variables and a dependent variable were present on both instruments and significant correlations were recorded at the institutional level during the analyses of the individual colleges, it was possible to conduct additional analysis between institutional populations to determine if relationships using the similar dependent and independent variables existed across institutions in the community college population. Two independent variables, activities and timeliness, and the dependent variable, value, encompassed similar concepts across institutions. For purposes of this analysis, response scores to survey questions were standardized across institutions during the individual analysis process.

Analysis of data across institutions required the comparison of independent data sets. Responses to the archived course/instructor evaluation instrument at College 1 totaled 426, while responses to the archived course/instructor evaluation instrument at College 2 totaled 1,004. For analysis purposes, the total population of the College 1 data set was used during this step of the analysis process. An equal number of responses from the College 2 data set were extracted by SPSS using random sampling to generate a data set totaling 426. Reliability of the random sample for College 2 was verified by comparing the means and standard deviations of the original sample assessed during individual analysis with the descriptive statistics generated from the frequency analysis of the new data set. As detailed in Table 12, descriptive statistics from the original population set were very similar to descriptive statistics of the random sample set, indicating the creation of a valid representative group from the original College 2 population set for use in this analysis process.

Variable Code	Original Population		Random Sample Population	
	Mean	Std. Deviation	Mean	Std. Deviation
Activities	4.34	.761	4.33	.742
Timeliness	4.36	.947	4.37	.857
Value	4.22	.756	4.24	.723

Table 12. Reliability of Random Sample Population for College 2

In order to compare the data from the two community college population sets which experienced the same variables under study, independent samples t-tests were performed to determine if the distributions from College 1 differed significantly from College 2 on those variables which were found to be correlated in

the individual analyses. Missing data cases (N = 426), which comprised less than 1 percent of any variable as noted in Table 13, were excluded analysis by analysis.

Variable Code	College	N	Mean	Std. Deviation	Std. Error Mean
Timeliness	1	426	4.36	1.036	.050
	2	417	4.37	.857	.042
Activities	1	426	4.09	1.160	.056
	2	421	4.33	.743	.036
Value	1	426	4.32	.974	.047
	2	426	4.24	.723	.035

Table 13. Independent Samples Group Statistics

Independent samples testing results, detailed in Table 14, reflect levels associated with the assumption of equal variances across data sets. For both timeliness (p = .848) and value (p = .163), the t-test for equality of means revealed that the variables did not differ significantly at the .05 level. Initial readings of the activities variable (p = .000), however, indicated that a significant difference between population means was present. Results from Levene's test for equality of variances revealed that the variances between both colleges differed significantly on all assessed variables: timeliness (p = .025), activities (p = .000), and value (p = .000).

	Levene's Test for Equality of Variances		t-test for Equality of Means			95% Confid. Interval of the Difference	
Variable Code	F	Sig	t	df	Sig. (2-tailed)	Lower	Upper
Timeliness	5.025	.025	-.191	841	.848	-.141	.116
Activities	48.339	.000	-3.595	845	.000	-.373	-.109
Value	28.518	.000	1.398	850	.163	-.033	.198

Table 14. Independent Samples T-Tests for College 1 and College 2

Consequently, t values were used to confirm the differences. Critical values for the t distribution indicated that the t value corresponding with the .05 level of significance for this one-tailed test could not exceed 1.645; consequently, the t-test confirmed that the means for timeliness (t = -.191) and value (t = 1.398) were significantly similar across community college populations. The means value for activities (t = -3.595) was not significant across populations.

As a final step in the analysis of variables across community college populations, the one-way analysis of variance, ANOVA, was used to confirm the findings from the initial t-tests. It was found that the variance of the surveyed variables from College 1 and College 2 data sets did differ significantly, as recorded in Tables 15 and 16: timeliness (p = .025), activities (p = .000), and value (p = .000). Results recorded in the ANOVA calculation indicated that there was a marginally significant difference between the means of timeliness (p = .848) as recorded at each institution.

Levene's

Variable Code	Statistic	df1	df2	Significance
Timeliness	5.025	1	841	.025
Activities	48.339	1	845	.000
Value	28.518	1	850	.000

Table 15. Test of Homogeneity of Variances

Source	SS	Df	MS	F	Significance
Between Groups	.033	1	.033	.037	.848
Within Groups	761.435	841	.905		
Total	761.469	842			

Table 16. ANOVA Means of Timeliness College 1 and College 2

Critical values for the F ratio indicated that the F value corresponding with the .05 level of significance for this test could not exceed 3.84; consequently, the F test confirmed that the means for timeliness (F = .037) and value (F = 1.954) were significantly similar across community college populations. The means value for activities (F = 12.927) was not significant across populations.

Bivariate correlation analysis across community college data sets using associated variables further identified the presence of a bivariate correlation between the independent variable, timeliness, and the dependent variable, value. Spearman correlation coefficients were conducted for comparison purposes. Two-tailed tests of significance were conducted to allow for nondirectional interpretation of the correlation. Missing data values were pairwise deleted during the analysis. Correlation analysis using two-tailed tests of significance (significant at the .01 level) revealed a moderate positive correlation between timeliness and value (r = 0.512) as recorded in Table 17.

	Timeliness		
	Correlation Coefficient	Sig. (2-tailed)	N
Value	.512	.000	843

Table 17. Spearman's Correlation Coefficient Timeliness and Value Across College 1 and 2

Findings using two-tailed tests of significance indicated that there was less than a 1 percent chance (p < .01) that the relationships occurred by chance.

V.   DISCUSSION

Results of this study support that student satisfaction with online courses appears to be impacted by instructor actions within the course. Correlations existed between specific faculty actions and student satisfaction at each institution. Data from both colleges revealed strong relationships between the independent variables identifying faculty actions and the dependent variables measuring student satisfaction with the online education experience. All analyses indicated that there was less than a 1 percent chance that the identified relationships occurred by chance.

College 1 registered the strongest relationships between the independent variables measuring faculty actions and the dependent variable measuring student satisfaction. High positive correlations were found to exist between the independent variables of timeliness/accessibility of instructor, clearly stated expectations, instructor enthusiasm, and comfortable climate and the dependent variable measuring course value. Moderate positive correlations were recorded between faculty actions involving clear directions and classroom activities and the students' perceived value of the course. Multiple regression

analysis further revealed that approximately 69 percent of the variance in the dependent variable, value, could be explained by the five independent variables, enthusiasm, expectations, timeliness, activities, and climate. The degree of influence of each predictor variable upon the criterion variable was determined to occur in the following order (from most influential to least): instructor enthusiasm, clearly stated expectations, instructor accessibility, lectures and activities, and climate.

Similarly, College 2 also recorded positive relationships between faculty actions and student satisfaction in online courses. A moderate positive correlation was discovered between the independent variable measuring activities and the dependent variable measuring students' perceived value of online courses. A low positive relationship was recorded between timeliness and value. Multiple regression analysis further revealed that approximately 47 percent of the variance in the dependent variable, value, could be explained by both of the independent variables, activities and timeliness. The degree of influence of each predictor variable upon the criterion variable was determined to occur in the following order (from most influential to least): instructor activities and timeliness.

Further study of correlated variables present in both College 1 and College 2 data sets revealed relationships do exist between faculty actions and student satisfaction across the identified Texas community college populations with respect to timeliness as perceived in online courses and students' assessed value of the course. The probability that instructors' accessibility and timeliness of response in the online course positively affected students' perceptions of the value of online courses is significant across the two institutions, both through the computations of similar means and the bivariate correlation analysis.

Unlike her sister institution, College 1 went beyond the physical actions of faculty within the online class (provided clear instructions, clearly stated expectations, was accessible, provided helpful lectures and classroom activities) to measure the impact of the social actions of faculty. Of unique interest at this institutional level was the students' identification of faculty actions involving expressed instructor enthusiasm and the creation of a comfortable learning environment. While specific techniques for creating an effective social climate were not detailed on the existing survey instrument, student responses to the social aspects of the learning environment support the theory and research behind Garrison et al.'s [39] Community of Inquiry model. Specifically, the social actions of the faculty in the online environment of College 1 would easily synchronize with the teaching presence identified by Garrison et al. within the framework of an effective online experience. As demonstrated through both Garrison et al.'s research and the results generated through the statistical analysis of College 1 data, teaching presence includes the faculty member's ability to facilitate and direct cognitive and social engagements within the online environment in such a manner as to provide meaningful and educationally worthwhile learning experiences and outcomes for the enrolled students. Based upon the conclusions of Garrison et al.'s [39] research and this study, further definition and refinement of teaching strategies which generate effective social behaviors and comfortable learning environments in the online class would benefit all online educators and participating students.

VI.   IMPLICATIONS FOR PRACTICE

A comparison of results from this study and other foundational studies support the premise that faculty actions influence student satisfaction in the online classroom across higher education institutions. Findings from this study are unique in that they not only validate the effect of faculty actions on student satisfaction in the online, community college classroom, but they also identify concrete actions in which faculty may engage in the online classroom to positively influence student satisfaction. The results from this study provide a stepping stone for two-year institutions as they strive to effectively train and allocate faculty resources, improve recruitment and retention of online students, improve the quality of their distance education programs, and maximize funding opportunities.

The dissemination of the results from this research study may be used by two-year institutions, as well as other types of higher education institutions, to stimulate and direct college efforts to educate, train, and support faculty in the successful development and delivery of quality, online educational experiences. Using the results from this study, online course development and faculty training in the delivery of online course content could be programmed to incorporate specific faculty actions designed to enhance student engagement and satisfaction. Faculty training that emphasizes the benefits of concrete faculty actions in the online environment will not only generate an awareness of effective faculty actions but also encourage the development and utilization of original faculty actions in each online classroom which may further enhance student satisfaction.

It is anticipated that the incorporation of faculty actions in the online classroom will not only enhance student satisfaction in the individual course but also will impact student retention in online programs. In agreement with Menchaca and Bekele [45], students who are satisfied with their educational experiences are more likely to seek additional or similar opportunities with the same institution. With legislative mandates and funding increasingly tied to accountability based upon measurable outcomes, including retention and completion rates, community colleges are seeking to identify methods that will effectively retain students through the completion of their certificate and degree programs. Sustained and directed efforts to enhance student satisfaction in distance education courses can only benefit both course and program retention rates thus, impacting overall college enrollment and funding.

This study creates an opportunity for individual institutions to engage in conversations and customized research examining existing distance education programs, levels of student success and satisfaction in distance education, existing course/instructor evaluation methodologies and instrumentation, and faculty development opportunities. Customized research, based upon this study and identified foundational studies, could assist each institution in identifying best practices in online education that maximize the use of faculty resources and technology while effectively meeting the needs of their unique student populations. Revising instructor evaluation instrumentation to accurately measure effective faculty actions in the online classroom and creating faculty development opportunities to educate instructors on the best practices in the online classroom would positively impact student satisfaction within this increasingly requested educational forum. It is anticipated that such steps would have the cumulative benefit of increasing both student enrollments and retention for the entire institution.

VII.   ABOUT THE AUTHORS

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