

Student Perceptions of the Relationship between Indicators of Teaching Presence and Success in Online Courses

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Abstract

The Community of Inquiry Framework posits teaching, social and cognitive presence interact to create the learning experience in online environments (Garrison, Anderson & Archer, 2001). To date, considerable research has been conducted which employs the framework with promising results (Akyol et al., 2009). However, significant work is needed to understand the interactions of the three presences and the impact of specific indicators on learning outcomes. This study uses a mixed methods approach to explore student perceptions of the impact of the indicators of Teaching Presence on their success in online courses. Analysis revealed that level may be a significant factor in determining which of the 13 indicators are considered most critical to success. Suggestions for application of results are included.

Introduction

With almost four million students enrolled in online courses, in the United States alone, and program growth considered a priority at over 80% of major institutions (Allen & Seaman, 2008), understanding what constitutes best practices in online teaching is a priority for insuring quality interactions with learners in this environment. To this end, it is important that faculty understand that online learning differs significantly from its face-to-face counterpart and engage in meaningful examination of models that explain online pedagogical interactions and work to define related best practices (Bennett & Lockyer, 2004; Conrad, 2004).

Developed by Garrison, Anderson, and Archer (2001), the Community of Inquiry (CoI) is a theoretical framework that explains the online learning experience in terms of interactions

between three overlapping presences: Teaching, Social and Cognitive. Since its inception, the CoI has been the most frequently cited model for explaining the online learning experience, with extensive research undertaken on each of the individual presences (Arbaugh, 2007; Garrison & Arbaugh, 2007) and with the framework being operationalized as a multi-institutionally validated survey in 2007 (Arbaugh et al., 2008). Given that work by Stodel, Thompson and MacDonald (2006) which found deficiencies in presence can have a dramatic impact on learners' perceived inadequacy of the online environment, developing an understanding of techniques for optimizing each of the presences is considered essential. For purposes of this study, teaching presence is considered the most important; however, brief synopses of social and cognitive presence are provided to allow for contextualization.

The first of the three presences, social presence, is the basis of collaborative learning and the foundation for meaningful, constructivist learning (Akyol et al., 2009). In the context of online learning, Social presence is described as the ability of learners to project themselves socially and emotionally in order to not only represent themselves but also to be perceived as “real people” in mediated communication (Swan & Shih, 2005). The three main factors that allow for the effective projection and establishment of social presence are effective communication, open communication and group cohesion (Richardson & Swan, 2003; Swan & Shih, 2005).

Cognitive presence is the extent to which learners are able to construct and confirm meaning through reflection and discourse and is defined as a four stage process of inquiry. First is a triggering event, where an issue or problem is identified for further inquiry. Next is exploration, where students explore the issue both individually and as a community through reflection and discourse. The third stage is integration, where learners construct meaning from ideas developed during exploration. Finally, the process culminates in resolution, where learners apply the new knowledge (Garrison, Anderson, & Archer, 2001; Garrison & Arbaugh, 2007).

Teaching presence, the third component of the CoI, is described by Garrison, Anderson and Archer (2001) as a three-part structure. This consists of: instructional design and organization, facilitation of discourse, and direct instruction.

Instructional design and organization, within teaching presence, involves the planning and design of the structure, process, interaction and evaluation aspects of an online course (Garrison, Anderson & Archer, 2001). Some activities within this category might include building curriculum materials, such as creating presentations and lecture notes on the course site, and providing audio/video mini-lectures, offering a mix of individual and group activities along with a clear schedule for their completion, and providing guidelines on how to use the medium effectively, including netiquette (Garrison, Anderson & Archer, 2001; Garrison & Arbaugh, 2007). These activities are most often completed prior to the beginning of the course although adjustments can be made during the course (Garrison & Arbaugh, 2007). It is important for the instructor to be more explicit and transparent in design and organization because the traditional social cues and norms of the face-to-face classroom are unavailable (Coppola, Hiltz, & Rotter, 2002).

Facilitating discourse is described as the means by which students engage in interacting about and building upon the information provided in the instructional materials (Garrison, Anderson & Archer, 2001). In order to facilitate discourse, the instructor may review and comment upon student posts, raise questions and make observations to direct discussions as desired, keep discussions moving efficiently, draw out inactive students and limit the activities of dominant students if detrimental to the group (Coppola, Hiltz, & Rotter, 2002; Shea, et al.,

2005). The role of facilitating discourse is associated with sharing meaning, identifying areas of agreement or disagreement, and seeking to help students reach consensus and understanding (Garrison & Arbaugh, 2007).

Direct instruction is described as providing intellectual and scholarly leadership from a subject matter expert in order to diagnose comments for accurate understanding, inject sources of information, direct useful discussions, and scaffold learner knowledge to a higher level (Swan et al., 2008). Within this role, the instructor uses various means of assessment and feedback; however, explanatory feedback is crucial because a high level of social presence or instructor immediacy is necessary for the instruction to be effective (Richardson & Swan, 2003; Ice, Curtis, Wells & Phillips, 2007).

Although social and content-related interactions (social and cognitive presence respectively) are necessary to facilitate learning in online environments, Garrison, Anderson and Archer (2000) contended that by themselves they are not sufficient to ensure optimal cognitive outcomes. Recent research, utilizing structural equation modeling, (Shea and Bidjerano, 2009) clearly illustrates that while social presence impacts the formation of cognitive presence, teaching presence is the primary catalyst for formation of both of the other presences. Supporting this finding are other works by Pisutova-Gerber and Malovicova (2009) and de Lang, Dolmans, Jobsis, Muijtjens, and van der Vleuten (2009), with the importance of teaching presence in students' achievement of resolution highlighted in work by Akyol and Garrison (2008).

Method

This study utilized an explanatory mixed methods approach to answer the following research questions:

RQ 1: The presence of which components of teaching presence are perceived, by students, as having a positive impact on their success in online courses?

RQ2: The lack of which components of teaching presence are perceived, by students, as having a negative impact on their success in online courses?

RQ 3: Do the perceptions in RQ1 and RQ2 vary by student level?

Participants

The study included two different student populations. Overall, 643 students participated in the study, for a response rate of 41.3%. The first group consisted of 362 students enrolled in a variety of classes related to certificate or AA programs at South Texas College. With respect to demographics, 69.3% of these students were between the ages of 18 and 32 and 91.4% described themselves as ethnically Hispanic. Students enrolled in courses at this college used WebCT Campus Edition as the learning management system.

The second group of students consisted of 281 students enrolled in courses at West Virginia University's College of Human Resources and Education. With respect to level, students were in BA ($n = 21$), MA ($n = 228$) and EdD ($n = 32$) programs. Demographically, 47.3% of students were between the ages of 18 and 32, with 91.6% describing themselves as ethnically Caucasian. Students in this program utilized WebCT Vista for course delivery.

Design

A mixed methods approach utilizing a data transformation model with sequential components was implemented (Cresswell & Plano-Clark, 2006). Specifically, at the end of the

semester, students at both institutions were asked the following questions in their end of course surveys:

1. Please describe one thing the instructor did that helped you to succeed in this course.
2. Please describe one thing the instructor did that hindered your success in this course.
3. What grade do you expect to receive in the course?

Both positive case (question 1) and negative case (question 2) responses were analyzed following suggestions by both Strauss (1987) and Tesch (1990) using an interpretive, iterative approach with emphasis placed on drawing out thematic strands (Patton, 2002). Because of the data richness, both within and cross case analyses were utilized to ensure themes were properly categorized (Denzin & Lincoln, 2003; Marshall & Rossman, 1989). Data were then transformed and quantified by theme, categorizing each response within one of the instructional design and organization, facilitation of discourse or direct instruction indicators of the CoI survey (Appendix A). Two coders worked independently on this data and achieved an initial consensus of 91.6%. An iterative review process of the remaining items was implemented and consensus on all items was achieved. A cross-check of data categorization was conducted using NVivo 7 and no discrepancies were noted.

Descriptive statistics and odds ratios were used to compare overall findings with institutional variations. The use of odds ratios was implemented to help illustrate the magnitude of difference in responses between populations. Representative qualitative replies were used to provide a better understanding of the results and allow for triangulation of data.

Results

Transformed Qualitative Data

Student responses by perception of factors related to success in courses were coded and categorized (Appendix B). Prevalence for students at WVU was clustered most heavily on the following indicators: 1) The instructor was helpful in guiding the class towards understanding course topics in a way that helped me clarify my thinking (23.13%), and 2) The instructor encouraged course participants to explore new concepts in this course (25.98%). For students at STC, prevalence clustered most heavily on one indicator: The instructor provided feedback that helped me understand my strengths and weaknesses (38.96%).

In Table 1, student perceptions of factors related to success are categorized by the three elements of Teaching Presence.\

Table 1

Perception of Factors Related to Success in Courses by Category

	Combined n = 643	STC n = 362	WVU n = 281
Instructional Design and Organization	n = 68 10.59%	n = 20 5.52%	n = 48 14.24%
Facilitation of Discourse	n = 371 44.95%	n = 124 34.25%	n = 165 61.57%
Direct Instruction	n = 204 44.46%	n = 218 60.23%	n = 68 24.19%

Student responses by perception of factors related to lack of success in courses were coded and categorized (Appendix C). Prevalence for students at WVU was clustered most heavily on the following indicators: 1) The instructor clearly communicated course topics (25.98%), and 2) The instructor provided feedback that helped me understand my strengths and weaknesses (23.14%). WVU student responses also clustered moderately on: 1) The instructor provided clear instructions on how to participate in course learning activities (12.02%) , and 2) The instructor was helpful in guiding the class towards understanding course topics in a way that helped me clarify my thinking (12.47%). For students at STC, prevalence clustered most heavily on one indicator: The instructor provided feedback that helped me understand my strengths and weaknesses (29.28%). STC student responses also clustered moderately on: 1) The instructor clearly communicated important course topics (17.13%), 2) The instructor provided clear instructions on how to participate in course learning activities (15.47%), and 3) The instructor was helpful in guiding the class towards understanding course topics in a way that helped me clarify my thinking (13.25%). In Table 2, student perceptions of factors related to lack of success are categorized by the three elements of Teaching Presence.

Table 2

Perception of Factors Related to Lack of Success in Courses

	Combined n = 643	STC n = 362	WVU n = 281
Instructional Design and Organization	n = 288 44.79%	n = 147 40.61%	n = 141 50.12%
Facilitation of Discourse	n = 138 21.46%	n = 77 21.27%	n = 61 21.74%
Direct Instruction	n = 217 33.75%	n = 138 38.12%	n = 79 28.14%

Odds Ratios Analysis

The first odds ratio analysis (Appendix D) represents the findings from odds ratio analysis of student perceptions of factors related to success in courses. NF is used to signify a non-finding; in other words, for one group of students there were no items coded for a specific indicator. In both instances where NFs are present, no student responses for the corresponding indicator were present. Notably, the number of student responses from WVU placed within these indicators was also very low. As such, assignment of NF to these indicators is considered to have a negligible effect on the overall interpretability of the findings.

Table 3 represents the findings from odds ratio analysis of categorical student perceptions from Table 1.

Table 3

Odds Ratio Analysis of Perception of Factors Related to Success in Courses by Category

	STC	WVU
Instructional Design and Organization	1	2.58
Facilitation of Discourse	1	1.80
Direct Instruction	2.49	1

The following table represents the findings from odds ratio analysis of student perceptions by category of factors related to success (Appendix C). NA is used to signify that no student responses, from either STC or WVU, were categorized as being representative of the corresponding indicator.

Table 4

Odds Ratio Analysis of Categorization by Perception of Factors Related to Lack of Success

	STC	WVU
The instructor clearly communicated important course topics.	1	1.52
The instructor clearly communicated important course goals.	1	7.78
The instructor provided clear instructions on how to participate in course learning activities.	1.29	1
The instructor clearly communicated important due dates/time frames for learning activities.	1	1.05

The instructor was helpful in identifying areas of agreement and disagreement on course topics that helped me to learn.	1	1.87
The instructor was helpful in guiding the class towards understanding course topics in a way that helped me clarify my thinking.	1.06	1
The instructor helped to keep course participants engaged and participating in productive dialogue.	2.05	1
The instructor helped keep the course participants on task in a way that helped me to learn.	1.75	1
The instructor encouraged course participants to explore new concepts in this course.	1	4.00
Instructor actions reinforced the development of a sense of community among course participants.	NA	NA
The instructor helped to focus discussion on relevant issues in a way that helped me to learn.	1.41	1
The instructor provided feedback that helped me understand my strengths and weaknesses.	1.27	1
The instructor provided feedback in a timely fashion.	3.06	1

Table 5 represents the findings from odds ratio analysis of categorical student perceptions.

Table 5

Odds Ratio Analysis of Perception of Factors Related to Lack of Success in Courses

	STC	WVU
Instructional Design and Organization	1	1.23
Facilitation of Discourse	1	1.02
Direct Instruction	1.35	1

*Explanatory Qualitative Data**Positive case.*

The largest single perceived instructor action responsible for course success (38.96%), by STC students, was providing feedback that helped them understand their strengths and weaknesses. The replies from STC students were generally very brief but concise. With respect to instructor feedback, the following reply was representative:

Letting me know what I did right and wrong. When I get that I know what to do better on the next work I turn in. There are times when writing can be, you know, ambiguous, but when you hear the tone of voice its clear then, so there is no confusion.

Though not even half as large in terms of response, a large percentage of STC students (17.96%) believed that the instructor's ability to focus discussions on relevant issues was the most important factor related to their success in the course. The following reply was representative of these students:

In the discussions, there are a people saying things in lots of different ways and it gets kind of confusing. When the teacher came in and let us know what the right way to go was that was a major help.

Among WVU students, two factors were perceived by large numbers of students as being responsible for their success in the course. The first indicator, encouraging students to explore new concepts, was deemed most important by 25.98% of students. The following reply was representative of this group:

Being successful means being able to really be engaged in the course and learn in a way that helps you not just in the class but in future situations. To be able to accomplish that, it is important for the professor to help you not only understand the problems addressed in this course but also give you ideas about topics that you can research and think about and use later.

The second indicator perceived as being responsible for success in coursework by 23.13% of students was the ability of the instructor to help students clarify their thinking. The following reply was representative of this group:

When we are in group discussions, it is easy to put a lot of ideas out there and become involved in deep conversations with my classmates. What really is useful to me is when the instructor enters the discussion and engages us in Socratic questioning to help us drill down and get a better understanding of issues we are working on.

Negative case.

The largest single perceived instructor action responsible for lack of course success (29.28%), among STC students, was a lack of feedback that helped them understand their strengths and weaknesses. With respect to lack of instructor feedback, the following reply was representative:

There were lots of assignments where I just got a grade and the instructor never told me why I got the grade or it was just a few words. When I got that, I really didn't know what I had done right or wrong and just had to guess on the next one. I guess I didn't guess right because the grades didn't get any better. I just wish Mr. Smith [alias used] had given me better comments.

Though individually not as prevalent as instructor feedback, inadequate instructor projection of two indicators of instructional design and organization (1. clearly communicating

important course topics, and 2. providing clear instructions on how to participate in course activities) were perceived by a significant number of STC students as being responsible for their lack of success. With respect to clearly communicating course topics, the following statement is representative of the 17.13% of students who believed lack of this indicator was responsible for their lack of success.

The syllabus was really bad. There were just a lot of assignments and I had no idea what they were related to. When I asked the teacher to help clear this up, I didn't get any answers that helped me. If I had understood what the big ideas were and how each of the assignments were related, I think I would have done better.

For the STC students (15.47%) who believed the absence of clear instructions contributed to their lack of success, the following statement is representative:

I was really frustrated in this class [course name omitted]. We had assignments that were really confusing. There were several things we needed to do but there weren't any guides that gave us details. Then if we didn't do them right, we got marked down. This wasn't just me because I talked to other students and the same thing happened. I did bad in this course and it was because of this stuff that should have been better to start.

The largest single perceived instructor action responsible for lack of course success (25.98%), among WVU students, was a failure to clearly communicate course topics. With respect to failure to clearly communicate course topics, the following reply was representative:

The greatest single impediment to my success in this course [course name omitted] was a lack of clearly defined content. Sessions were arranged in such a way that you were unsure what exactly the major themes were. In a course that is supposed to be focused on making connections across content areas, it would have been nice to know what we were supposed to be looking for.

Almost as prevalent as the failure to clearly communicate course topics was the perceived lack of feedback (23.14%). The following reply was representative:

I found it very upsetting that Dr. Jones [alias used] didn't provide us with any meaningful feedback. One worders like good or wrong hardly qualify as adequate feedback, especially in a doctoral program. In virtually every other course I have taken, I have received constant, meaningful feedback. Some of the instructors even use audio for this. Not having that is problematic. Without it, it took me significantly longer to reach out (to Dr. Jones) and get the input I should have had in the first place. Then at the end of the semester when we were supposed to be bringing multiple concepts together, I was behind because of this backlog. Simply unacceptable!

Discussion

With respect to perceptions of instructor actions influencing student success, descriptive statistics and odds ratios illustrate a clear paradigmatic difference between the two populations. In the case of STC students, 38.96% cited the feedback indicator as being most important to course success. With the inclusion of the other two indicators, the total percentage of STC students believing adequate instructor projection of direct instruction was responsible for their success rises to 60.23%.

In contrast, 61.57% of WVU students perceived adequate projection of facilitation of discourse to be the most important instructor oriented factor in course success. Of this percentage, over three quarters consisted of the value students placed on two of the indicators. The role of the instructor in encouraging students to explore new concepts accounted for 25.98%

of all replies and the instructor helping students clarify their thinking accounted for 23.13%. With respect to odds ratios, WVU students perceived elements of facilitation of discourse to be related to their success 1.8 times more frequently than their STC counterparts.

In understanding these orientations, the raw qualitative data is informative. In the STC replies a desire is seen, on the part of students, to be provided with definitive instructor input and concrete steps for moving forward in future coursework. Though clearly seen in students' discussion of what constituted effective feedback, this orientation is also present in students' desire to receive highly directive, objectivist facilitation occur in discussion forums. In contrast, the WVU students believed that they were successful when the instructor intervened in discussions to help them broaden their conceptual horizons and explore new possibilities.

With respect to perceptions of instructor actions influencing students' lack of success, some very interesting findings emerge. In the case of STC students, inadequate elements of direct instruction were cited by 38.12% of students, with inadequate feedback being cited by over three quarters of those students. Though very high, this number is significantly smaller than the 60.23% of STC students who believed that effective projection of direct instruction accounted for their success. In contrast, a portion of STC students who believed that inadequate instructional design and organization elements accounted for their lack of success was 40.61%, a dramatic change as compared to only 5.52% who believed good instructional design and organization elements were related to their success.

Interestingly, the most frequently cited area, cited by WVU students (50.12%), as contributing to their lack of success was also inadequate instructional design and organization, again a dramatic increase over the 14.24% who cited effective instructional design and organization as having a positive impact vis-a-vis their success. Inspection of the other two teaching presence elements reveals that the next largest change occurred within respect to facilitation of discourse, where only 21.74% of WVU students believed inadequate facilitation of discourse was related to their lack of success as opposed to 61.57% who believe adequate facilitation of discourse was related to their success.

Here, the inclusion of qualitative findings is very important in that it illustrates more similarities between the two student groups than were present in analysis of perceptions of factors related to success. Specifically, both WVU and STC students generally cited very concrete, objectivist concerns such as overall lack of feedback, lack of clarity in instructor comments and confusing or misleading instructions, syllabi entries, etc.

From an instructional design perspective, these findings indicate that, regardless of learner level, the need for presentation of clear, concise objectives, instructions and general participation guidelines should be a cornerstone of online course development. Both groups in this study expressed significant frustration when these elements were not present and believed that successful engagement with content and activities was dependent on sound instructional design and organization. Though qualitative data from the students at WVU revealed a tendency to get past this hurdle with less frustration than their STC peers, the prevalence of the belief that inadequate instructional design and organization was responsible for relative lack of success was far greater.

One possible explanation for this may lie with the consistent belief among STC students that direct instruction, and the feedback indicator in particular, was an important factor with respect to both success and lack of success. As such, learners at this level may be more dependent on the instructor and uncertain about the extent to which they can adequately interpret course resources. This hypothesis is reinforced by earlier work by Kupczynski, Ice and Winter

(2008) that demonstrated a heavy reliance, by community college level learners, on highly directive interaction with the instructor, including reiteration of elements of instructional design and organization.

However, this should not be interpreted to mean that the STC students necessarily lack an understanding of what constitutes collaborative learning. Work by Ice, Akyol and Garrison (2009) clearly demonstrates that if courses are designed and delivered in a constructivist manner, the predicted three factor solution for the CoI survey will be produced across all age bands.

The authors propose that these findings may illustrate the emergence of and value placed on higher order thought as students advance in their academic careers. Specifically, in the certificate and AA students at STC, the more objectivist elements of the teaching presence construct (instructional design and organization and direct instruction), with indicators of direct instruction being the most prominent, were perceived as having the greatest impact on their success or lack thereof. In contrast, WVU students viewed the lack of the more objectivist elements as being a factor in the perceived lack of success; however, they believed that adequate facilitation of discourse increased their likelihood of success.

From a cognitive perspective, the difference between the two orientations can be considered as being analogous to development of skills for declarative types of knowledge and higher order learning, such as critical thought or evaluation. This explanation is also generally consistent with traditional concepts of pedagogy in higher education in which learners are exposed to increasingly complex material and cognitive expectations as they advance through their course of study (Green, 1971; McKeachie, 1986) and findings by Ice, Kupczynski, Wiesenmayer and Phillips (2008) in which graduate students, in online courses, tended to prefer more holistic feedback that allowed them to engage in self reflection.

Conclusion

This study reveals that while learners may have a conceptual understanding of the elements of the teaching presence construct, the value given to the various indicators and components may vary by learner level, with associates level students placing a higher value, relative to perceived learning, on the instructional design and organization and direct instruction components as compared to facilitation of discourse. At the undergraduate and graduate levels, students believe that the foundational components necessary for success are adequate instructional design and organization and direct instruction; however, success is perceived as being a function of the ability to develop higher order thought processes through the instructor's active facilitation of discourse.

From an institutional or programmatic perspective, this study has two major implications. First, regardless of learner level, adequate projection of the indicators of instructional design and organization are required. While learners at all levels may perceive the value of instructional design and organization on course success differently, a lack of adequate indicators in this area is perceived by all students as being related to their lack of success. Second, while the CoI is conceptually sound across all learner levels, faculty training programs need to emphasize the importance of quality feedback at all levels. These initiatives should also focus on the need for additional direct feedback at the associate's level, being replaced, in a measured fashion, but meaningful and appropriate facilitation of discourse as learners progress through their programs of study.

Limitations & Directions for Future Research

While the findings of this study are compelling, they should not be considered conclusive. The authors suggest three limitations related to this study and recommend related avenues for future research.

First, the fact that student level was divided between two populations is problematic in that there may be demographic factors influencing student perceptions of instructor actions related to success. Future studies should attempt to survey students at an institution offering programs from the associates to doctoral level to control for this possibility.

Second, the number of bachelor's level students in the study was very low. Future studies need to include a more balanced population. The authors hypothesize that the progression for students desiring more direct instruction to more facilitation of discourse may be more gradual than what the heavily weighted graduate student population in this study indicates. Specifically, there may well be more of a balance between the two at the bachelor's level, especially among sophomores and juniors.

Third, students in this study were only given the ability to describe one instructor action they believed to be most responsible for their success in the course and one action they believed to be most responsible for their lack of success. A potential means for teasing out interactions between factors would be to conduct a survey of students asking them to rate the value that they place on each of the 34 indicators and then complete the CoI survey. The results could then be cross-referenced and a discontinuity analysis conducted.

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Appendix A

Community of Inquiry Survey Instrument (draft v15)

Developed by Ben Arbaugh, Marti Cleveland-Innes, Sebastian Diaz, Randy Garrison,

Phil Ice, Jennifer Richardson, Peter Shea & Karen Swan

Teaching Presence

Design & Organization

1. The instructor clearly communicated important course topics.
2. The instructor clearly communicated important course goals.
3. The instructor provided clear instructions on how to participate in course learning activities.
4. The instructor clearly communicated important due dates/time frames for learning activities.

Facilitation

5. The instructor was helpful in identifying areas of agreement and disagreement on course topics that helped me to learn.
6. The instructor was helpful in guiding the class towards understanding course topics in a way that helped me clarify my thinking.
7. The instructor helped to keep course participants engaged and participating in productive dialogue.
8. The instructor helped keep the course participants on task in a way that helped me to learn.
9. The instructor encouraged course participants to explore new concepts in this course.
10. Instructor actions reinforced the development of a sense of community among course participants.

Direct Instruction

11. The instructor helped to focus discussion on relevant issues in a way that helped me to learn.

12. The instructor provided feedback that helped me understand my strengths and weaknesses.

13. The instructor provided feedback in a timely fashion.

Social Presence

Affective expression

14. Getting to know other course participants gave me a sense of belonging in the course.

15. I was able to form distinct impressions of some course participants.

16. Online or web-based communication is an excellent medium for social interaction.

Open communication

17. I felt comfortable conversing through the online medium.

18. I felt comfortable participating in the course discussions.

19. I felt comfortable interacting with other course participants.

Group cohesion

20. I felt comfortable disagreeing with other course participants while still maintaining a sense of trust.

21. I felt that my point of view was acknowledged by other course participants.

22. Online discussions help me to develop a sense of collaboration.

Cognitive Presence

Triggering event

23. Problems posed increased my interest in course issues.

24. Course activities piqued my curiosity.

25. I felt motivated to explore content related questions.

Exploration

26. I utilized a variety of information sources to explore problems posed in this course.

27. Brainstorming and finding relevant information helped me resolve content related questions.

28. Discussing course content with my classmates was valuable in helping me appreciate different perspectives.

Integration

29. Combining new information helped me answer questions raised in course activities.

30. Learning activities helped me construct explanations/solutions.

31. Reflection on course content and discussions helped me understand fundamental concepts in this class.

Resolution

32. I can describe ways to test and apply the knowledge created in this course.

33. I have developed solutions to course problems that can be applied in practice.

34. I can apply the knowledge created in this course to my work or other non-class related activities.

5 point Likert-type scale

1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree

Appendix B

Perception of Factors Related to Success in Courses

	Combined n = 643	STC n = 362	WVU n = 281
The instructor clearly communicated important course topics.	n = 26 4.04%	n = 3 0.83%	n = 23 8.19%
The instructor clearly communicated important course goals.	n = 2 0.32%	n = 0 0.00%	n = 2 0.71%
The instructor provided clear instructions on how to participate in course learning activities.	n = 31 4.83%	n = 16 4.42%	n = 15 5.34%
The instructor clearly communicated important due dates/time frames for learning activities.	n = 9 1.40%	n = 1 0.27%	n = 8 2.85%
The instructor was helpful in identifying areas of agreement and disagreement on course topics that helped me to learn.	n = 48 7.46%	n = 37 10.22%	n = 11 3.92%
The instructor was helpful in guiding the class towards understanding course topics in a way that helped me clarify my thinking.	n = 82 12.75%	n = 17 4.69%	n = 65 23.13%
The instructor helped to keep course participants engaged and participating in productive dialogue.	n = 11 1.72%	n = 9 2.49%	n = 2 0.71%
The instructor helped keep the course participants on task in a way that helped me to learn.	n = 56 8.71%	n = 48 13.26%	n = 8 2.84%
The instructor encouraged course participants to explore new concepts in this course.	n = 86 13.37%	n = 13 3.59%	n = 73 25.98%
Instructor actions reinforced the development of a sense of community among course participants.	n = 6 0.94%	n = 0 0.00%	n = 6 2.14%
The instructor helped to focus discussion on relevant issues in a way that helped me to learn.	n = 91 14.15%	n = 65 17.96%	n = 26 9.25%
The instructor provided feedback that helped me understand my strengths and weaknesses.	n = 179 27.83%	n = 141 38.96%	n = 38 13.52%

The instructor provided feedback in a timely fashion.	n = 16 2.48%	n = 12 3.31%	n = 4 1.42%
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Appendix C

Categorization by Perception of Factors Related to Lack of Success

	Combined n = 643	STC n = 362	WVU n = 281
The instructor clearly communicated important course topics.	n = 135 20.99%	n = 62 17.13%	n = 73 25.98%
The instructor clearly communicated important course goals.	n = 14 2.18%	n = 2 0.55%	n = 12 4.28%
The instructor provided clear instructions on how to participate in course learning activities.	n = 90 14.00%	n = 56 15.47%	n = 34 12.02%
The instructor clearly communicated important due dates/time frames for learning activities.	n = 49 7.62%	n = 27 7.46%	n = 22 7.84%
The instructor was helpful in identifying areas of agreement and disagreement on course topics that helped me to learn.	n = 27 4.20%	n = 11 3.04%	n = 16 5.69%
The instructor was helpful in guiding the class towards understanding course topics in a way that helped me clarify my thinking.	n = 83 12.91%	n = 48 13.25%	n = 35 12.47%
The instructor helped to keep course participants engaged and participating in productive dialogue.	n = 11 1.71%	n = 8 2.21%	n = 3 1.08%
The instructor helped keep the course participants on task in a way that helped me to learn.	n = 13 2.02%	n = 9 2.49%	n = 4 1.42%
The instructor encouraged course participants to explore new concepts in this course.	n = 4 0.62%	n = 1 0.27%	n = 3 1.08%
Instructor actions reinforced the development of a sense of community among course participants.	n = 0 0.00%	n = 0 0.00%	n = 0 0.00%
The instructor helped to focus discussion on relevant issues in a way that helped me to learn.	n = 31 4.83%	n = 20 5.53%	n = 11 3.92%
The instructor provided feedback that helped me understand my strengths and weaknesses.	n = 171 26.59%	n = 106 29.28%	n = 65 23.14%
The instructor provided feedback in a timely fashion.	n = 15 2.33%	n = 12 3.31%	n = 3 1.08%

Appendix D

Odds Ratio Analysis of Student Perceptions of Factors of Success

	STC	WVU
The instructor clearly communicated important course topics.	1	9.87
The instructor clearly communicated important course goals.	NF	NF
The instructor provided clear instructions on how to participate in course learning activities.	1	1.21
The instructor clearly communicated important due dates/time frames for learning activities.	1	10.56
The instructor was helpful in identifying areas of agreement and disagreement on course topics that helped me to learn.	2.61	1
The instructor was helpful in guiding the class towards understanding course topics in a way that helped me clarify my thinking.	1	4.93
The instructor helped to keep course participants engaged and participating in productive dialogue.	3.51	1
The instructor helped keep the course participants on task in a way that helped me to learn.	4.67	1
The instructor encouraged course participants to explore new concepts in this course.	1	7.24
Instructor actions reinforced the development of a sense of community among course participants.	NF	NF
The instructor helped to focus discussion on relevant issues in a way that helped me to learn.	1.94	1
The instructor provided feedback that helped me understand my strengths and weaknesses.	2.88	1
The instructor provided feedback in a timely fashion.	2.33	1