

PRE-SERVICE STUDENTS' CLASS STANDINGS AND THEIR PERCEPTIONS OF DISTANCE EDUCATION

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ABSTRACT

The efficacy of distance education programs has been in the minds of those who do not view distance learning as being as good as face-to-face (FTF) instruction. Questions abound regarding this type of delivery, however, this method is growing in popularity especially among individuals who are much older and those who would like to leverage technology. School districts and traditional universities are now embracing this method in one form or the other. Although there is increasing popularity, there is still one unexplored area of distance education. One such area is the relationship between students' academic standing and their perception, specifically in the area of teacher education.

The study revealed that pre-service teachers at the beginning stage of their program were significantly more satisfied, overall, with distance courses and programs, than those at the end of their program. Students near the beginning and middle of their program rated grading and timely return of assignments, a sense of accomplishment, and willingness to take additional distance courses, significantly higher than those who were at the end of their program. However, the opportunity to know others in the distance class, although rated low, was higher for students at the end of their program. The study revealed that those in education should plan programs that will address the idiosyncrasies at all levels, thereby resulting in satisfaction on the part of student teachers.

Keywords: distance learning, class-standings, academic standing, pre-service students

INTRODUCTION

There have been numerous debates regarding the place of distance education within the educational arena. The growth of technological sophistication has broadened interest in distance education/learning, and many schools that did not have an initially positive view about distance education are now adopting this as a legitimate delivery method. Whether in its truest form or in hybrid format distance learning does suggest that there is increasing emphasis being placed on this form as a mode of legitimate delivery. Initially, there was much apprehension about the legitimacy of distance learning, but now there seems to be some change in the direction of the debate and some who were opposed to using distance as legitimate delivery method are slowly embracing this method. Amidst the continuous debate about distance learning as a legitimate pedagogical method, there seem to be other discussions that are of relevance.

One issue that dominates distance research is that of significant differences. In terms of significant differences, researchers have concluded that student outcomes do not change when students are being taught when the regular mode of instruction is used, and is compared with distance learning. The question of "No Significant Differences" (Phipps & Merisotis, 1999; Russell, 2002; Conger, 2005) and overall analysis of quality, have dominated the pedagogy agenda.

For the purposes of this article, distance education/learning will be used interchangeably. Distance education revolves around the separation of student and teacher and covers a wide permutation of possibilities that are called by different names, including, "e-learning", "self-directed learning", "online learning", "collaborative learning", "digital learning and mobile learning", just to name a few of the terms used to describe this phenomenon.(Mantlya & Woods, 2001; Moore and Kearsley, 1996; Rosenberg,2001; Sherry, 1996).

PURPOSE OF THE STUDY

The debate continues, and some seem to view Distance learning suspiciously, as if to say it does not have its place in respectable pedagogy. In its present form, distance education has come of age from its primitive form of correspondence schools, to more sophisticated technological forms that embrace a more sophisticated technology. One would expect that this type of education would be more easily embraced, but this is not so! The rhetorical question is asked, "With Students Flocking Online, Will Faculty Follow?" (Inside Higher ED, 2008).

There seems to be a growing sentiment that Distance is not quite a legitimate pedagogical construct, and there is reluctance in some quarters to accept it. Teacher education departments are now faced with the task of embracing distance as a delivery method. Young and Lewis (2008), explored the perception of distance students in teacher education programs, with the focus being primarily on the students' perceptions of distance

Thus, this paper is an extension of the work done by Young, 2004 and Young & Lewis, 2008, in the area of pre-service teachers perception of distance education in general.

The primary purpose of this exploratory study was to examine whether pre-service teachers' progress in their course of study was indeed a factor in determining their perception of distance effectiveness, with regard to efficacy of course structure, adequacy of student/teacher interaction, overall enjoyment, and adequacy of peer-to-peer interaction. The goal was to explore whether students' class standings in their course of study might very well predict *how they perceive* the effectiveness of distance delivery in the teacher education department of selected universities. While the findings may not suggest effectiveness or ineffectiveness on the part of these students, they may be a launching pad for more extensive results in this area. As more research is conducted in the area of distance learning, primarily with regard to students' progress in their course of study, the results will point planners in the direction that optimally satisfies distant clients, thereby improving the mechanism of delivery.

Theoretical Framework-Distance Education

The development of technology has led to even more sophisticated offerings that presents themselves as distance learning, given the potential ability for learning and assessment to occur without facilitators and learners actually being in the same¹³⁹

physical space at one time or place. For the purposes of this paper, Distance education will be interpreted in a broad sense as the form of delivery that embraces the separation of facilitators and students by time and space, via the use of the internet, or other media for the delivery of content. Delivery may embrace synchronous or asynchronous forms. meta-analysis done by Shachar (2003) revealed that two thirds of the students taking distance courses outperformed their Face- to- Face (FTF) counterparts. What is not clear is whether the conditions were the same under all situations. Clearly, there are arguments for and against distance learning, but progress is being made for its acceptance as a legitimate delivery method.

The fact is, school districts and various universities are embracing and using some form of distance learning to augment FTF delivery (Tankersley & Burnham, 2008). There is now definitely a shift in the delivery of courses, especially in higher education, using this pedagogical style. The pendulum is swinging in the other direction, because school districts, states, and many colleges are now embracing this form of delivery (Waits, Lewis, & Greene, 2003). Allen, Seaman, and Garrett (2007) observe that, not only are schools embracing distance education, but they are making large investments in cutting edge technology to appeal to a wide cross- section of students. This is not a direct aim of lessening the subscription to traditional face-to-face delivery, but more so a response to a more technologically sophisticated generation who have a different or changing approach to learning and would rather not sit in class to face, following the traditional delivery methodology. For those in teacher training departments, while not fully endorsed by all, distance or e-learning is an important aspect of the educational programs.

Numerous studies have explored the effectiveness of distance learning as a delivery method. Research on "distance" is quite expansive and is broad- based, and for the most part, the most researched areas seem to be centered around, significant differences, characteristics of distance learners, quality of courses, interaction, gender issues, and success in distance learning in general (Allen, Bourhis, Burrell & Mabry, 2002; Allen & Seaman, 2004; IHEP, 1999; Navarro & Shoemaker, 2000; Neuhauser, 2002; NCES, 1998; Pershing, 2001; Roblyer & Wiencke, 2003; Schulte, 2004, Schwitzer, Ancis, & Brown, 2001, Kumar, 1999).

In a 2006 report on Making The Grade: on-line Education in the United States, 2006, Allen and Seaman cite some still unresolved issues relating to the adoption of online education; only 4.6% of Chief Academic Officers agreed that there are no significant barriers, but there is a need for discipline on the part of on-line students, for faculty acceptance, and for greater time and effort to teach on-line. While studies in distance education are numerous, there are still unexplored areas of importance. One such unexplored area is the distance learners' class standing and its impact on *how they view* this delivery mechanism.

In the light of previous studies, it has been ascertained that older students tended to gravitate toward distance courses (Young & Lewis, 2007; NCES, 2001; Aljarrah, 2000; IHEP, 1999), but it has not been determined whether the farther along students are in the program, the more positive was its impact on their perception.

Research Question

The following research question is the focus of the study and is intended to answer the question: Do pre-service teachers' class-standings affect their perception of distance education as regards:

- course structure;
- adequacy of student/teacher interaction;
- overall enjoyment and satisfaction;
- adequacy of peer-to-peer interaction.

METHOD

Participants

Pre-service teachers in eight teacher education departments in the south-eastern United States of America, pursuing a course of study to become first-time teachers, were the object of the study. The students were actively involved in gaining their certification for becoming teachers. They ranged from freshman to post-baccalaureate levels. In order to establish equivalence of groups for comparison, those who were at the beginning and middle of their programs were considered group 1 and those at the end of their program, group 2. Data were collected from 92 pre-service teachers in teacher education departments of eight universities. At the time of the study, students who were enrolled in teacher training departments, but did not take at least one distance course, were eliminated from the sample; hence, the small response rate. All students who agreed to participate in the study were sent a completed self-mailed or e-mailed survey. Surveys were returned directly to the researcher, either by e-mail, or they were mailed by a researcher designee, in the respective universities that opted to complete the survey in a seminar or class session. No identifying markers were on the surveys; therefore, the researcher did not know the names of the students. The only identifying variable was the school code.

Procedures

Data were collected over two terms. This was necessary because of the paucity of students in distance programs at the undergraduate level, in the first term. The initial mailings yielded less than adequate returns and a further administration was warranted. The surveys were first administered in the Fall of 2003. The second administration was in the early spring of 2004. Surveys were completed and returned in two modes. Research designees returned paper surveys, and the other surveys were returned through e-mail. The data were coded and entered into EXCEL and SPSS. Statistical analyses were conducted using t tests, since a comparison was being made between two groups. In this article statistics were reported using a significance level of .05.

Instrumentation and Data Collection

In this study, a survey originally used by Thomerson (1996), and adapted by Young (2004) for pre-service teachers in the South Eastern United States was employed. The survey contained 21, 7 point Likert types of questions that covered the four groups identified in the research question: course structure, adequacy of student- teacher interactions, overall enjoyment and satisfaction and adequacy of peer-to-peer interactions. The categories were used by other researchers in the area of distance education (Thomerson & Smith, 1996). In the adaptation of the survey, a new factor analysis was run. The rearrangement and use of the Thomerson questions initially presented some problems with the original one of the original clusters; the questions that did not load well with the others in that cluster, could be due to inappropriate response on the part of the respondents or simply that they did not belong to the cluster. Based on the conceptual framework and factor loadings, the four clusters mentioned above were used in the study. The Cronbach's alpha statistics were computed to determine the internal consistency of the four clusters.

This method was the most appropriate to determine internal consistency for the survey presented in a Likert Format. Further, Morgan, Griego, Gloeckner & Leech, 2001, suggested that the Cronbach's alpha is appropriate for the determination of inter-item reliability. In essence, the reliability measures determine consistency and predictability of the instrument. The reliability coefficients for the four major clusters yielded alphas between .80 and .93. (See Table: 1).

Table: 1 Reliability Coefficients by Clusters

| Clusters by Factor Analysis | Number of Cases | Number of Items | Alphas |
|--|-----------------|-----------------|--------|
| Effectiveness of Course Structure | 92 | 6 | .92 |
| Adequacy of Student/Teacher Interactions | 92 | 5 | .80 |
| Adequacy of Peer-to-peer Interactions | 91 | 2 | .86 |

RESULTS OF THE STUDY

The research question asked, "How do perceptions of teacher candidates differ, based on progression in their course of study, with regard to effectiveness of course structure, adequacy of student/teacher interaction, overall enjoyment and satisfaction, and adequacy of peer-to-peer interaction?"

Table: 2

Comparisons between Teacher Candidates who were at the Early and at the End Stages of their Course of Study, on Effectiveness of Course Structure

| Question | Mean | SD | t | p |
|--|--------------------------------------|--------------|-------|------------------|
| Q12. The instructor used the time effectively to meet the objectives of the course. | (Early) 5.51 (End) 5.04 1.77 | 1.22 | -1.50 | .14 |
| Q16. Examples, guidelines, and illustrations were effectively used by the instructor. | (Early) 5.39 (End) 4.98 1.88 | 1.40 | -1.08 | .28 |
| Q18. Examples the instructor gave were appropriate and clear. | (Early) 5.33 1.41 (End) 4.69 | 1.97 | -1.78 | .08 |
| Q19. The amount of material covered in each session was appropriate. | (Early) 5.40 (End) 5.12 | 1.53 1.87 | -.76 | .45 ^a |
| Q23. The course content was presented in an organized manner and reflected the terminal course objectives. | (Early) 5.79 1.15 (End) 5.39 1.59 | | -1.41 | .16 |
| Q29. The Grading of assignments was fair. | (Early) 5.70 (End) 5.59 | 1.06 1.46 | -.40 | .69 |
| Overall Cluster | (Early) 5.51 (End) 5.13 | 1.10 1.50 | -1.38 | .171 |

^a:Degrees of freedom were not reduced because equal variances were assumed. For all others, equal variances were not assumed and *df* was reduced.

Means and standard deviations were computed for both groups; that is, those who were in the starting and middle segments, as Group 1, and those at the end of their program as Group 2. An independent *t* test was run to make the comparison between the two groups and determine the significance of the means for the four clusters: effectiveness of course structure, adequacy of student/teacher interactions, overall enjoyment and satisfaction, and adequacy of peer-to-peer interaction.

Effectiveness of Course Structure

Teacher candidates in Group 1 showed higher mean scores than those in Group 2, with regard to effectiveness of course structure. The information is summarized in Table 2. Students at the beginning and middle of their program had the highest means, namely, 5.79 and 5.70, for questions 23 and 29. These statistics also had lower standard deviations, indicating that there was less variability for the questions in this cluster. The results indicated that those who were at the early stages in their program were somewhat more positive about the presentation of the content, in an organized manner that reflected the terminal course objectives. They were also quite positive about the grading of assignments. The overall cluster’s mean and standard deviation were 5.51 and 1.10 for Group 1, and 5.13 and 1.50 for Group 2. However, none of the *t* tests was statistically significant, indicating that the differences suggesting that teacher candidates in Group 1 had a more positive rating, could well be due to chance.

Adequacy of Student/Teacher Interactions

Teacher candidates’ perception of student-teacher interaction revealed that those who were at the beginning and middle of the program had somewhat higher mean scores on all questions, except for question 9, “ I felt comfortable contacting my instructor.” Group 2 posted the highest mean score (6.02). The overall cluster means showed a somewhat higher mean score in favor of Group 1 (5.53), versus 5.11 for those in Group 2. The standard deviations were 1.03 and 1.33, respectively. Table 3 shows the means, standard deviations, and *t* tests.

Table: 3
T Test for Teacher Candidates by Progression in Course of Study about Student/Teacher Interaction

| <i>Question</i> | | <i>Mean</i> | <i>SD</i> | <i>t</i> | <i>p</i> |
|---|---------|-------------|-----------|----------|------------------|
| Q9. I felt comfortable contacting my instructor. | (Early | 5.77 | 1.23 | .96 | .34 |
| | (End | 6.02 | 1.28 | | |
| Q15. The instructor was responsive to students’ needs. | (Early) | 5.51 | 1.24 | 1.80 | .08 ^a |
| | (End) | 4.90 | 1.99 | | |
| Q20. Assignments were graded and returned in a timely manner. | (Early) | 5.30 | 1.92 | 2.77* | .00 ^a |
| | (End) | 4.08 | 2.30 | | |
| Q24. The instructor encouraged participation. | (Early) | 5.63 | 1.22 | .29 | .77 |
| | (End) | 5.55 | 1.29 | | |
| Q31. My contact with the instructor was adequate. | (Early) | 5.47 | 1.30 | 1.36 | .18 |
| | (End) | 5.02 | 1.76 | | |
| Overall Cluster | (Early) | 5.54 | 1.03 | -1.67 | .10 |
| | (End) | 5.11 | 1.34 | | |

^a: Degree of freedom was reduced because equal variances were not assumed. **p* < .05

With regard to the overall effectiveness of student/teacher interaction, students in Group 1 did not show any significant difference in terms of overall cluster means. However, the results of question 20 ("Assignments were graded and returned in a timely manner") ($t=2.77$, $df=89.80$, $p<.05$) showed a statistically significant difference between those who were in Group 1 and those in Group 2. Those at the end perceived the grading of assignments to be less timely. The "effect size" of the difference was typical or medium for the behavioral sciences.

Table: 4
Comparison between Teacher Candidates who were at the Early and at the End Stages of their Course of Study About Overall Enjoyment and Satisfaction

| <i>Question</i> | | <i>Mean</i> | <i>SD</i> | <i>t</i> | <i>p</i> |
|--|---------|-------------|-----------|----------|------------------|
| Q17. I enjoyed my distance course more than the traditional classes. | (Early) | 4.42 | 1.99 | .61 | .55 |
| | (End) | 4.14 | 2.33 | | |
| Q21. I felt a sense of accomplishment after completing the course. | (Early) | 5.56 | 1.38 | 2.12* | .03 ^a |
| | (End) | 4.78 | 1.96 | | |
| Q28. I would recommend that other teacher candidates take similar course(s) from the department. | (Early) | 5.51 | 1.45 | -1.88 | .06 |
| | (End) | 4.86 | 2.12 | | |
| Q30. I feel I am a self-directed learner and this type of course works best for me. | (Early) | 5.51 | 1.61 | -1.30 | .19 |
| | (End) | 5.00 | 2.09 | | |
| Q33. I would take more online courses if they were available to me. | (Early) | 5.91 | 1.46 | 2.60* | .01 |
| | (End) | 4.80 | 2.44 | | |
| Overall Cluster | (Early) | 5.41 | 1.32 | -1.99 | .05* |
| | (End) | 4.71 | 1.99 | | |

^a: Equal variances not assumed; * $p < .05$.

Overall Enjoyment and Satisfaction

Overall cluster means suggest that students at the beginning and middle of their programs expressed more positive perceptions toward overall enjoyment and satisfaction than did their counterparts at the end of their program (see Table 4). The cluster means for the groups were 5.41 and 4.71, respectively. The standard deviations were 1.32 and 1.99. Student responses in this cluster indicated that respondents in Group 1 were somewhat more satisfied with distance learning courses for *all* questions on the instrument. The mean scores for Group 1 ranged from 4.42 to 5.91; those for Group 2 ranged from 4.14 to 5.00. Standard deviation for Group 1 ranged from 1.38 to 1.99, and for Group 2, 1.96 to 2.44.

Based on the results of questions 21 and 33, "I felt a sense of accomplishment after completing the course." ($t=2.23$, $df=85.63$, $p<.05$) and "I would take more online courses if they were available to me." ($t=2.53$, $df=80.64$, $p<.05$), there was a statistically significant difference between those in Group 1 and those in Group 2.

The results indicate that students at the beginning and middle of the program were *more positive* about distance courses than those at the end of the program. As students got to the end of their course of study, they were likely to be *less satisfied* with distance courses.

Table. 5
Comparison between Teacher Candidates who were at the Early and at the End Stages of their Course of Study about Peer-to-Peer Interaction

| <i>Question</i> | | <i>Mean</i> | <i>SD</i> | <i>t</i> | <i>p</i> |
|---|---------|-------------|-----------|----------|----------|
| Q14. I was able to get to know others in my distance class. | (Early) | 3.21 | 1.91 | 2.24 | .03* |
| | (End) | 4.17 | 2.15 | | |
| Q32. Student contact was adequate, and I was able to learn from my peers. | (Early) | 4.05 | 1.91 | .88 | .38 |
| | (End) | 4.41 | 2.03 | | |
| Overall Cluster | (Early) | 3.63 | 1.75 | 1.72 | .09 |
| | (End) | 4.31 | 2.00 | | |

* $p < .05$.

Adequacy of Peer-to-Peer Interaction

The *t* test was used to determine whether there was a difference between students at the beginning and/or middle of their program and those at the end of their program (see Table 5). Student means from both groups indicated that there was a tendency to be neutral with the statements of perception in this cluster. However, question number 14, namely, "I was able to get to know others in my distance class.", showed a statistically significant difference between those teacher candidates who were at the beginning to middle of their programs and those at the end of their academic programs. The overall means for the cluster was very low (early= 3.21 end=4.17). In contrast to the findings above, students who were early in their program rated their opportunity to get to know their peers as very low, and significantly lower than did the students near the end of their program

Cluster Means

In order to determine if there was any significance among the clusters, *t* tests were run for the four cluster means: effectiveness of course structure, adequacy of student/teacher interaction, overall enjoyment and satisfaction, and adequacy of peer-to-peer interaction. The category termed, "Overall enjoyment and satisfaction," ($t=1.99$, $df=84.17$, $p<.05$) showed a statistically significant difference between students in Group 1 and those in Group 2. The results indicate that students in the early stage of their course were *more positive* about their experience in a distance course than those who were at the end of their program.

SUMMARY OF FINDINGS

Students' progression in their course of study was a factor in determining satisfaction with distance courses. Those students who were at the early stage of their course of study expressed overall satisfaction with distance courses and were more positive

about their experience than were their counterparts, who were at the end of their program. Several statements proved significant. Assignments were graded and returned in a timely manner, sense of accomplishment, willingness to take more distance courses, and ability to get to know others in distance class were all significant statements.

"Overall satisfaction and enjoyment" was the only cluster that tested as significant, suggesting that those students at the beginning of their course of study tended to be *more positive* about their experience as distance learners than did their fellow counterparts at the end of their program. Several reasons could account for this significance difference, on the part of beginning students being more satisfied with this type of pedagogy.

Limitations

Firstly, most teacher education departments did not have dedicated distance or e-learning courses and therefore, they were more inclined to offer teacher education using traditional FTF; hence, the paucity of the sample. Secondly, the inability to survey all schools in the USA was also a limitation.

DISCUSSION

The research question examined in this study was whether teacher candidates' class standings were a factor in how they viewed distance learning as a legitimate pedagogical delivery mechanism. The question addressed the way in which these teacher candidates viewed distance courses/programs, in relation to four clusters in this research. The clusters presented in this study were *effectiveness of course structure, adequacy of student/ teacher interaction, overall course enjoyment and satisfaction and adequacy of peer to peer interactions*.

The findings showed that overall enjoyment and satisfaction were statistically significant, with students at the beginning and middle of their programs, being more apt to enjoy distance courses or programs than did those at the end of the program.

Class standings *do* have an effect on how they view the distance pedagogy, as reflected in the perception of those teacher candidates who were at the middle of their program, when compared with those who were just beginning. Specific statements, that were tested to be statistically significant, indicate that students at the beginning of their program felt *more positively* about certain issues than did those at the end of their program. These statements were: assignments were graded and returned in a timely manner, sense of accomplishment, and willingness to take more distance courses.

However, on the ability to get to know others in the distance class, those at the beginning and middle of their program were *less positive* than were those at the end of their program (Young, 2004).

The literature is replete with information about distance learning. Some researchers have made the cogent point that the focus is not on hard-nosed empirical study, but rather is a meta-analysis of research in the areas of satisfaction, no significant difference, interactivity, only to name a few of the areas (IHEP, 1999; Merisotis, 1999; Phipps, & Merisotis, (1999; Young, 2000). It would seem that very little has been said about the class progression and its impact on the distance learning population. Given the significance of certain items in the cluster of questions asked, the study *does* open the way for more work and discussion on the area of progression, and its impact on

students' perception and, ultimately, how teachers and administrators will plan distance courses for groups of students, based on their idiosyncratic predispositions. As mentioned in the section on limitations, a much more comprehensive study would yield a much richer result, which would then be more generalizable. However the results *do* provide a springboard for more focused attention in the area.

CONCLUSION AND RECOMMENDATIONS FOR FUTURE RESEARCH

Distance education has increased in importance, along with developments in technology, Internet availability, and other trends that do drive the delivery of distance education at all levels (Moore, 2005, Howell, Williams, & Lindsay, 2005). Clearly, the trends in information technology, and other factors, will continue to shape the face of distance learning. Another issue that drives distance learning is the adoption of this delivery method by others who once reviled it. Instructors are now open to ways in which they can use distance learning technologies and approaches, to enhance FTF delivery. This increase in distance learning acceptance has not yet been translated into increased programs in teacher education. Moore (2005) hinted that there are several partnerships between academia and corporations, which are using and considering the use of distance learning models for training purposes. It appears that teaching education departments are not fully sold on the idea of using distance learning exclusively just yet, from this research teacher candidates seem to take courses from other departments that espouse the distance pedagogy. The perceptions of those teacher candidates who took courses, via distance learning mode, in their own departments or in other servicing departments, would be germane to this exploratory study. To this end, it would be imperative to establish whether teacher candidates' academic levels would determine their perception of distance courses/ programs.

The results of this study reveal that teacher candidates' progression *was indeed a factor in determining their satisfaction* with distance courses/programs. Students who were in the early part of their program *did* express overall satisfaction and were *more positive* than others about distance education programs. Teacher educators and administrators might want to pay closer attention to the thought processes of all of their students and plan programs that will be inclusive of all individuals found in teacher education programs.

RECOMMENDATIONS

Since this research was carried out in the United States, some would argue that it is not generalizable. I would agree partially, but we should understand pedagogy involving technology, as well andragogy, for the most part may be universal in its application. Given the fact that one size" does *not* fit all, and there may well be some similarities in the application of certain findings, the following recommendations are made:

- The study should be replicated among a much broader population, of teacher training institutions, sampling a larger teacher candidate pool, and schools that consider the distance pedagogy as an integral part of teacher training.
- Qualitative inquiry should be done, to determine the true attitudes of teacher candidates, given their class standings.
- A comparative study should be carried out among various departments in universities, to explore the impact of academic standing on student satisfaction with distance learning, across *several* disciplines, to see if the findings may be generalizable.

Implications for International Educators

The challenges and opportunities that are presented with the adoption of distance education are not unique. There is a call by students for more on-line learning, (Nagel, 2010); more content is being delivered on-line, and in 2006 it was established that some 80- plus percent of content was being delivered online with *no* FTF interactions. (Allen & Seaman, 2006). The advance in technology drives the delivery of courses on-line to a great extent. Education is changing, and in a sense, can be considered to be borderless, given the technology and the student circumstances (Grayson, 2010). Some of the same student characteristics are to be found in students in *all* countries (Young, 2008).

Not only should facilitators be comfortable with the technology of the day, but they should use the technology to appeal to students with different learning styles, and different situations.

As a result of this American study, the author recommends the following for international readers involved in teacher education programs:

- One should be very cautious in using the findings of this study to dictate what policy-makers should do in the planning of their specific programs.
- Teacher candidates should become familiar with distance education as a pedagogical option, given technological proliferation and the characteristics of the "YouTube" and "Face book" generations and how they learn best.
- All parties should use differentiated strategies, to address the needs of students at various levels on the academic rung.

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