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Learner support: The critical link in distance education

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This study evaluates the Oklahoma Televised Instruction System, through an analysis of the student support services to include the resources available to the learner, the communications process characterized by the coordination services provided among the on-campus and distance sites, and the communication process characterized by the mechanical and electronic transfer of information. The study also compares the attitudes and performance of the participating on-campus and distance students.

Introduction

One important means of analyzing the effectiveness of the teaching-learning experience in a distance education system is through the analysis of the learner's support system. ' Support systems contribute to the " process" of a course as do the learning materials' (Hodgson, 1986: 56); and support systems developed in recognition of student needs help the distance learner become competent and self-confident in learning, social interactions and self-evaluation (Rae, 1989).

According to Garrison and Baynton (1987), the learner support system comprises both resources the learner can access in order to carry out the learning process and resources which relate to the mediation of the communication process. The resources of the learning process apply to both distance and on-campus students and include the availability of and access to courses, teachers or facilitators, learning materials, library facilities, media equipment and community experts. Among these resources 'The role of the teacher/facilitator is of primary importance in the issue of support' (p. 7). The need for resources associated with the mediation process results from the geographic distance between the teacher and the learner, and requires some type of mechanical or electronic transfer of information through telecommunications or mail to carry out the two-way communication in the learning process.

This study analyzes the learner support system in a state-wide distance education system from the perspective of the distance learner. As such, the study examines the attitudes of distance students in the Oklahoma Televised Instruction System toward the following: a) the resources available to the learner which are directly related to learning including availability of courses, access to learning materials, and opportunities for interaction among teachers and students; b) the recourses available to the learner which are indirectly related to learning and include counseling, advisement and job placement services; c) the communication process characterized by the co-ordination services provided among the sending an communication process relating to the mechanical and electronic transfer of information. Finally, the study compares the attitudes and performance of the participating on-campus and distance students toward the teaching-learning experience.

The Oklahoma Televised instruction System (TIS) was established by the Oklahoma State Regents of Higher Education in 1970 in response to legislative mandate. This system, which links Oklahoma's public and private colleges and universities, junior colleges, and technical institutions has become an integral part of the State System of Higher Education.

The system currently links ten transmitting institutions with over 120 classrooms at 70 locations in 36 communities throughout the state. All programming is transmitted live from regularly scheduled on-campus classes. The signal that originates in the campus studio classroom is routed through the closed-circuit network to the distant site. The network comprises point-to-point microwave radios, remote controlled switching equipment, and Instructional Television Fixed Service (ITFS) transmitting and receiving systems. The switching equipment is maintained by the Televised instruction System engineering staff of the Oklahoma State Regents for Higher Education. The talkback from the remote sites is transmitted to the on campus studio classroom via microwave radio or leased telephone lines. A daily courier service provides for the exchange of homework, examinations, reference materials, and other educational materials between the transmitting institutions and the remote sites.

Although the system has been operational for eighteen years, the distance students have not previously participated in an evaluation of the system. A State Regents Task Force charged with the responsibility for making recommendations relative to future operation of the enhanced TIS system sought that input, thus providing the impetus for tile study.

Methodology

Because this study is designed to provide a broad base of data supporting future improvements on the system, the mail questionnaire was selected as the primary data collection technique. The design of the questionnaire was based upon the Total Design Method (Dillman, 1978).

During the Spring 1989 semester, surveys were administered to 453 distance students enrolled in courses on the Televised Instruction System. Of these, 193 were returned, a response rate of 43 per cent. Similar surveys were mailed to the participating on-campus students, with 499 surveys returned from the approximately 1220 on-campus- students, a response rate of 42 per cent. Responses were received from each of the 39 receiving, sites and from each of the 9 sending sites, indicating a representative return.

A panel of professionals representing both the transmitting and distance sites and TIS staff participated in the survey design. The surveys were piloted early in the semester using both on-campus and distance students enrolled in TIS classes. The questionnaires included both closed-end items with ordered choices using a five point Likert scale, with five high, and open response items.

In accordance with the purpose of the study, the analysis of the responses was primarily descriptive, using means, standard deviations and frequency distributions. Comparisons of the attitudes between the on-campus and distance students utilized T-tests and Chi Square statistics. Analysis of the open-ended response items employed content analysis techniques (Guba and Lincoln, 1983).

Results

Overall, the distance students gave the Televised Instruction System a high rating, as 88 per cent would recommend TIS courses to a friend (with a mean of 4.2 on the five point Likert scale with 5 high). Likewise, the distance students expressed a very high level of confidence in their course performance (as measured by expected grade), with 65 per cent anticipating an A (excellent) and 30 per cent, a B (above average). Nearly two-thirds of the distance students (63.1 per cent) did not feel that the on-campus students were at an advantage relative to course performance.

A Cronbach's alpha was calculated upon two similar sets of questionnaire items, those items relating to technical support services and those items relating to student support services to determine the questionnaire's internal consistency. The technical support items received an alpha = .86 and the student support items received an alpha = .93, indicating a very high level of internal consistency within the questionnaire.

Forty-eight per cent of the distance students responding to the survey gave the researchers permission to release actual grades. Based upon this input, the mean grade point average of the distance student was a 3.59 on a four point scale (4.0 = excellent), with a standard deviation of .57. The grade point average by course level can be found in Table 1.
Students at the lower division are in the first two years of college; students at the upper division level are in the last two years of college; and students at the graduate level have received a college degree and are pursuing graduate study

Table 1.
Televised instruction system distance student GPA Spring 1989

Level	N	Mean	Std
Lower Division	48	3.47	.67
Upper Division	65	3.52	.59
Graduate	53	3.78	.41

Resources directly related to learning

Resources directly related to learning include access to courses, interaction, learning materials and libraries.

Students do not have access to courses if they do not know that they exist. One student's comment that the system is the state's best kept seems to be quite accurate, as marketing efforts appear to be, at best, random. Nearly one-half (49 per cent) of the participating students learned about TIS through word-of-mouth, compared with 25 per cent who found TIS courses listed in the college class schedule. Only 15 per cent saw a TIS bulletin.

Interactions include student interactions with the teacher and student interactions with other students. The distance students were very positive about the concern and helpfulness of the instructor, giving this item a mean rating of 3.23 on a four point scale. Likewise, the distance students are generally satisfied with the interaction opportunities available on the system. The most important form of interaction for the distance students is the interaction with the instructor during class, as eighty percent cited this as important or very important to the learning process, while 83 percent indicated that they were able to interact with the instructor during class always or most of the time. in contrast, only 47 per cent of the students felt that interacting with the instructor outside of class was important or very
important, and only 25 per cent were able to do so most of the time or always. Twenty per cent never tried to contact the instructor outside of class.

Interactions with other students, whether in class or outside of class, were considerably less important to the distance students, since only one-third rated these interactions as important or very important (36 and 33 per cent respectively). As expected, the distance students were able to interact with other students more during class (38 per cent were able to do so most of the time or always) than outside of class (27 per

cent were able to do so most of the time or always). Again, twenty per cent never tried to contact other students outside class.

Access to library recourses is very important for distance students as many (57,3 per cent) indicated that success in course required the use of the library. The quality of the library services provided seemed to be a significant barrier to distance students as the student ratings of these services were among the lowest mean responses on the survey, giving the receiving campus library services a mean of 3.17, and the transmitting campus library services a mean of 3.22. Mean responses throughout the survey ranged from 3.1 1 to 4.20 on a five point scale. (All are five point scales, with five high unless otherwise indicated.) The distance student responses underlined the importance of local library support, as 66 per cent of the students reported using either the local public library or the library at the receiving site. In contrast, 24 per cent used interlibrary loan, 13 per cent received library materials via the courier service and 12 per cent travelled to the library at the sending site.

The courier service responsible for the delivery of course materials likewise received a relatively low rating, 3.27, and only 31 per cent of the students stated that they always received materials on time. Textbook services received a mean rating of 3.57. One student may have pinpointed the problem by stating that 'perhaps the courier materials pass through too many hands', a process in which materials pass from the instructor to the sending site coordinator, courier, the Televised instruction System headquarters, courier, receive site coordinator and, ultimately, the student.

Resources indirectly related to learning

The resources indirectly related to learning include advisement, counselling, job placement services and student activities. The distance students gave the advisement services provided by the transmitting campus a mean rating of 3.41, compared with a mean rating of 3.1 1 for counselling services, the lowest rating given on the entire survey. The distance students did not feel at a disadvantage due to a lack of job placement services or student affairs, as over fifty per cent indicated that the on-campus students did not have an advantage in these areas. However, with regard to advisement services, two-thirds of the students (66,9 per cent) indicated that the on-campus students have an advantage, indicating that efforts must be made to improve the advisement services for the distance learner.

The communications process

A third component of student support services includes the mediation of the communication process which involves the co-ordination and technical services provided by the participating institutions.

When asked to rate the services provided by the receiving site, the distance students seemed most satisfied with the TIS enrolment process, giving this service a mean rating of 3.95. The mean rating for the overall helpfulness of the receive site coordinator was 3.61, followed by 3.59 for the provision of course information at the receive site. Communications with the sending campus received a mean rating of 3.56, and co-ordination of course materials closely followed with a mean rating of 3.5. Less satisfactory were library and counselling services, with mean ratings of 3.17 and 3.1 1 respectively.

The State Regents' staff have primary responsibility for technical support. Tile technical problems reported by the distance students related more to the quality of the equipment and courier services rattler than to the nature of TIS staff response to problems. The primary barrier seems to lie with the audio signal transmitted to the main campus from the remote sites which received a mean rating of 3.13, followed by the courier service (3.27). In contrast, the TIS responsiveness to technical problems received a mean rating of 3.89, followed by the quality of tile video reception (3.7 3), talkback capability (3.66), and audio from the sending campus (3.6 1).

Comparisons with on-campus students

Comparisons of both tile attitudes and performances of the on campus and distance students provides further insight into the perspectives and problems of the distance student.

Tile data used to assess performance was the final grade which was obtained front the registrars of each of the ten colleges and universities transmitting courses.

Because the Family Educational Rights and Privacy Act of 1974 stipulates that colleges and universities cannot release personal student information without the written consent of the student, the questionnaire requested permission from each student for the release of' the final grade with a signature, which was distributed to each registrar. of the total respondents returning questionnaires, 86 per cent of the distance students and 38 per cent of the on-campus students gave permission to release final grades. The attitudes and education related characteristics of those who refused to release their grades were very similar to those giving permission among the on-campus group. The percentage of the distance students giving permission for release of the final grade was sufficiently large that comparisons with those not releasing their grade was unwarranted.

Comparison of the actual performance of the two groups found a significant difference in favour of the distance students using an Aspin-Welch test (t = 2. 1, p = .04) (see Table 2). However, no attempt was made to control for prior knowledge or level of motivation, meaning that the distance students could have come into the course with more knowledge or could have made a greater effort during the progress of the course. The reader should also note that with an effect size of approximately .25, the difference, though statistically significant, cannot be considered of practical importance due to the large variance in grade point average within each group. (Note: GPA refers to total grade point average, a number which reflects the average grade based upon the following values: A = four points, B = three points, C = two points, D = I point, and F = 0 points).

Table 2.
Comparison of distance and on-campus students
Grade Point Average, Spring, 1989

	N	Mean GPA	Std
Distance students	166	3.59	.57
On-campus students	170	3.43	.76

Because graduate and upper division classes often focus upon the higher levels of learning, such as synthesis, analysis and problem solving which depend upon the more interactive strategies, the researchers were interested in the analysis of actual performance by level of course. Comparisons of the actual performance of the distance and on-campus students revealed no significant differences at the graduate level (t = .32, p = .75) nor at the lower division (Freshman and Sophomore courses) level (t = -.46, p = .64). However, the distance students completing courses at the upper division (Junior and Senior course work)level significantly out-performed their on-campus counterparts (t = 2.28, p = .03) (see Table 3).

Table 3.
Comparison of distance and on-campus students Grade Point Average by level of course

	Distance students			On-campus students		
	N	Mean GPA	Std	N	Mean GPA	Std
Lower Division	48	3.47	0.66	45	3.53	0.68
Upper Division	65	3.52	0.59	89	3.26	0.85
Graduate	53	3.78	0.41	36	3.75	0.44

When comparing the performance of the two groups by area of study, significant differences were found among those students enrolled in business courses, with the distance students out-performing the on-campus students (t = 2.55, p = .02). No differences were found between the two groups of students completing courses in engineering, education, maths and science, and social science. Contrary to the norm of this study, the on-campus students completing humanities courses out-performed the distance students. Although this difference was considerable, it was not significant (t 1.70, p I 1) (see Table 4).

Table 4.
Comparison of on-campus and distance students GPA by subject

	Distance students			On-campus students		
	N	Mean GPA	Std	N	Mean GPA	Std
Business	10	3.65	0.47	12	2.96	0.78
Civil Engineering	28	3.89	0.31	14	3.86	0.36
Education	35	3.64	0.48	37	3.44	0.79
Humanities	9	3.19	0.65	25	3.62	0.66
Maths/Science	13	3.43	0.65	7	3.29	0.75
Social Science	52	3.57	0.55	63	3.37	0.77
Technical	8	2.87	0.83	3	3.5	0.71

The attitudes of the distance and on-campus students toward support systems was also examined. Ratings of student services differed little between the two groups, particularly with regard to advisement, admission, enrolment and textbook services. As expected, significant differences existed between the ratings of library and counselling services, with the on-campus students rating these services higher (t = 5.0 1, p = .00 I and t = 3.69, p = .003 respectively) (see Table 5)

Table 5.
Library and counselling services comparison of student ratings

	Distance students			On-campus students		
	N	Mean GPA	Std	N	Mean GPA	Std
Library Services	100	3.22	1.20	311	3.71	0.93
Counselling Services	107	3.11	1.06	296	3.68	0.86

Although both groups indicated that interaction with the instructor during class was important or very important (80 per cent for the distance students and 82 per cent for the on-campus students), the distance students actually reported more opportunities for such interactions than the on-campus students, as 83 per cent of the distance students were able to interact with the instructor during class most of the time or always, compared to 73 percent of the on-campus students. One factor which may have influenced the on-campus students' perception is the 'expectation' they have of interaction opportunities available in a traditional classroom. Although the distance students reported significantly fewer opportunities for interaction outside class with both the instructor (X = 132.49, p = >.001) and other students (X = 43.78, p = >.001), they also indicated interacting with the instructor outside class was significantly less important (X = 28.365, p = >.001) as was interacting with other students outside class (X = 17.65 1, p = >.OO 1).

Comparison of the two groups' assessment of the instructor also showed small differences. The on-campus students gave this item a mean rating of 3.36 (on a four point scale), compared to a somewhat lower mean rating of 3.23 from the distance students. Analysis of the open ended response items reported later in this study provides additional insight into the distance students' perception of the instructor. When asked about study habits, the responses for both groups were similar, with the majority preferring to study alone (71 per cent of the on-campus students and-73 per cent of the distance students) rather than in groups (20 per cent of the on-campus students and 23 per cent of the distance students) or with an instructor present (eight per cent of the on-campus students and four per cent of the distance Students). The distance students were slightly more confident with their expected performance in the TIS course, although the majority of both groups expected to receive an A (see Table 6).

Table 6.
Expected grade in TIS course

	Distance students		On-campus students	
Grade Expected*	N	Per cent	N	Per cent
A	122	64.9	254	52.2
B	57	30.3	167	34.3
C	9	4.8	64	13.1
D	0	0.0	0	0.0
F	0	0.0	2	0.4
Total	188	100.0	485	100.0

* A(4.0) = Excellent, B(3.0) = Above Average, C(2.0) = Average, D(1.0) = Below Average, F(0.0) = Failure

As expected, the distance students who responded to the survey were more likely to be graduate students, taking the course for job related purposes, and had been out of school for a longer period of time. Finally, the distance students were more likely to have access to a personal computer, modem, communications software and a video cassette recorder than the on-campus students.

Nearly two-thirds of the distance students (63.1 per cent) did not feel that the on-campus students were at an advantage relative to course performance. However, when asked which services provided the on-campus student with an advantage, the distance student placed considerable importance upon access to the instructor and the library, with means of 4.31 and 4.04 respectively. Access to the book store (3.85), advisement services (3.81), laboratories (3.79), study groups (3.76), student activities (3.47) , and finally job placement services (3.40) followed in ranking.

Analysis of open response items

The open response items ought to provide additional insight into the attitudes of the distance students toward the TIS system including their opinions relative to: 1) the services that assisted them most in learning the course content; and 2) the significant factors that hindered their performance in the course. The survey also elicited student suggestions for improving the student support system. Of the 193 students returning surveys, only 19 students (10 per cent) did not respond to the open-ended items, indicating considerable interest in contributing input into system improvements.

Of the 193 surveys returned, 104 (54 percent)described services which supported the learning of course content. These responses were analyzed according to Moore's (I 989) types of interactions in distance education: 1) interaction between the student and instructor, 2) interaction between the student and other students, and 3)interaction between the student and content. The analysis also included references to print-based support, student support services, and technical support.

Within the 'interaction between student and instructor' category, the majority of responses described the importance of the instructor's style or method of instruction. Typical comments included the instructor's 'willingness to explain things more than once', the instructor 'mailing information directly to my home', and 'the personal attention' given by the instructor. The focus of responses centred upon their interpersonal communications-between student and teacher, rather than upon the delivery of course content or instructional strategy. The students commended the instructors who visited the remote sites and appreciated the easy access to instructors by telephone. A majority of the students responding within this category commented that the print-based support provided by the instructor such as reference materials, course syllabi, study guides and supplemental materials assisted them in learning the course content.

Some students discussed the importance of interacting with other remote students during class 'without the standard classroom restrictions'. Others were able to interact at work, both with students currently enrolled and with students who had attended the class in prior semesters. A few students discussed the importance of interaction with course content, citing the importance of motivation assuming responsibility for one's own learning '... it's up to the students, not the system'. Regarding the importance of other support services, the student cited the regular maintenance of the system , the remote site co-ordinator, registration and programme information, and access to library materials.

Of the 193 surveys which were returned, 138 (71 per cent) discussed significant factors that hindered student performance in the course. Results indicate that among the more formidable factors were: a) technical problems associated with the telecommunication system, especially in relation to poor audio from the transmitting and receiving sites; b) instructor style or method of instruction; and c) the lack of library resources. Other factors include poor co-ordination at the remote sites; an inadequate courier service which was not only late in delivering handouts, assignments and exams, but sometimes delivered

them to the wrong site or lost them completely; unruly behaviour or 'idle talking' by some students at the remote sites, which hindered several students from attending to the lectures; and inadequate physical facilities, especially classroom facilities at the remote sites.

A few of the students mentioned the lack of the interaction between students and content, that is, the lack of the study skills and self-motivation. Others cited the lack of interaction among the students, available to the on-campus students, which provided group support for term projects and assignments. Some felt uncomfortable using the phone, while others felt left out because they could not hear the on-campus students. Likewise, a few students suggested that the lack of interaction with the instructor outside class hindered their performance in the course. The lack of such interactions 'led to an impersonal feel in a subject that needs much explanation and discussion'.

It is important to note that, while instructor-related interactions including style and method of instruction were cited by many students as assisting them in their learning, a considerable number of students indicated factor related to instructor style as a hindrance to their performance in the TIS course. Typical comments concerned factors related to the instructor's inability to use the medium of television effectively - a factor which has considerable implications for faculty training relative to the use of the medium. 'The instructor was unintelligible and simply read from the book', and 'give [the instructor] more option ' s besides just sitting at a desk' and 'the instructor should write legibly' were typical comments. Other remarks referred to the instructor's inability to finish the class or achieve closure during the scheduled 'on-air' time 'so that we can't hear the final comments'. Some students indicated that the instructor did not provide tile remote students with the same materials as the on-campus students, and others complained that the instructors failed to offer any feedback on assignments and exams. A few students mentioned that the instructors' negative attitudes toward the distance students was a hindrance to their performance in the course and urged the training of instructors who teach on the system. Representative comments include 'it is obvious that some instructors dislike teaching on the system and it comes across' and 'While most instructors are willing and desire to cooperate and work with us, a few do the bare minimum ... leaving the student to sink or swim on our own'.

Many of 'the incarcerated students voiced unique concerns including pressure from the prison staff, missing classes due to guard counts, prohibitive cost of textbooks, lack of study time, study space, and typewriters. One student stated 'in relation to prison, many people are against convicts getting education beyond a G.E.D. [General Education Degree] or High School diploma'.

Of the 193 students returning surveys, 107 (55 per cent) made suggestions for improving support services. Responses to this item are discussed within the following categories: a) interaction between student and instructor; b) interaction among students; c) library, counselling and textbook services; d) remote site co-ordination; and e) TIS administration.

The most frequent comments within this section related to student interaction. The instructors have difficulty ' relating to the remote students'. The instructors 'should make an effort to understand our problems', specifically in regard to library access and courier delays for assignments and exams. Suggestions for improving this interaction included telephone office hours, study guides and supplemental study materials. Other students expressed a desire for more interaction opportunities with the on-campus students which might be facilitated with a list of telephone numbers of all classmates.

Improved library support was the most frequently cited suggestion relative to support services. Students suggested lend/lease arrangements between the transmitting and receiving institutions' libraries, placing texts and supplementary reading on reserve at the receiving site libraries and requiring to libraries to provide the distance learner the same services provided for the on-campus student.

Other students requested counselling services for advice on degree plans, course selection, careers, financial aid and coping with pre-test anxiety. Some students described problems receiving the textbooks on time and suggested that each transmitting site provide the receiving sites with textbook information before the first class. A few students requested local site tutors.

The most frequently cited concern related to remote site co-ordination was the courier service. The students urged the TIS administration to improve the service or provide an alternative means such as facsimile equipment. Other improvements included providing the distance students with an orientation an prior to the beginning of class to include enrolment procedures, classroom location, library access, and equipment operation. Co-operation between the transmitting and receive sites could be improved by hiring a single person to be responsible for all remote site coordination including the proctoring of exams, coordination of course materials, and other related functions. other suggestions included improved proctoring, notification about cancellation of class, and coordination of holidays among the sites. The most frequent suggestions for improving the classroom environment included more space, better acoustics, improved lighting, more comfortable chairs, eliminating interference from adjacent classes and better ventilation.

Suggestions for improving TIS administration include providing video tapes of classes, improving the courier service, and providing a free watts telephone line for calling instructors and for transmitting information to the on-campus business office.

Discussion

The data provided by this study, supports the conclusion that the Televised Instruction System provides for effective learning experience as measured by the distance students' attitudes toward the system, confidence in course performance and actual performance. The distance students not only equalled the performance of their on-campus counterparts, but often surpassed the on-campus students in terms of Final grades received. However, this evaluation provides information concerning specific areas which should be targeted for improvement.

Library services are a prime concern to the distance students and the telecommunications technologies provide many opportunities to bridge the gap between the campus library and the distance learner. The implementation of on-line searching capabilities, supported by statewide library networking, inter-library loan and facsimile services should be a system priority. The provision of advisement and counselling services should also be explored to include on-line access to college and university academic programmes, degree requirements, and advisors or counsellors. Placement services and student affairs appear to be only of secondary importance to the distance students, although these services may provide an important service to the incarcerated student. Other options which should be explored include increasing the opportunities for interactions among instructors, distance and on-campus students using voice-data systems for telephone conferences, computer conferences and electronic mail.

One important, but often overlooked feature of a support system is simply making the opportunity known to prospective students. Courses are not available through a system when students do not know the system exists. Improved marketing efforts designed to inform prospective students about the opportunities available through this system will increase access to educational programs.

The difficulty of long distance interaction is exacerbated by the audio problems of the Televised Instruction System. This is a problem which is certainly not unique in instructional telecommunications systems, as the audio component often plays second fiddle to the more costly video component in interactive television systems. However, the ability to interact via audio is of upmost importance, since it is through this interaction that the students explore, probe, debate and clarify misunderstandings. Weston and Cranton (1986) suggest that it is the interactive strategies, including class discussion, discussion

groups, group projects and peer teaching which are most effective for supporting analysis, synthesis, and problem solving skills. A system in which interaction is discouraged is a system which forces its participants to rely on teacher-centred strategies such as lectures which focus upon information learning at the expense of higher order learning learning. To adequately serve the learning needs of the information society, interaction must be an opportunity provided by a distance learning system rather than a barrier.

Because the current system provides no incentives for 'receive site' participation in the Televised Instruction System, the effectiveness of' the receive site co-ordination is quite variable. While sonic receive site coordinators appear to be very committed to the distance student, others appear indifferent. Policy should address potential incentives for receive site participation which would encourage more energetic co-ordination and marketing at the distant site.

Although the distance students gave the instructors a high rating overall, analysis of the open-ended items uncovered sonic evidence of' inferior teaching. The transmitting institutions should incorporate distance teaching within existing faculty development programmes or create faculty development programmes designed to address the unique problems of the distance teacher and learner. The faculty development programme must extend beyond mere training, to include integration of distance teaching within the institutional reward system. The distance students emphasized the importance of effective interpersonal communication between student and teacher. Faculty, training should, therefore, focus not only upon the use of the particular medium employed, but should also emphasize the communication process, encouraging the teacher to assume a more active role in communicating with the distance learner.

Although the results of this study show a number of positive Findings relative to learner support services in general and to this system in particular the reader is cautioned not to infer from the findings beyond the limited scope of this study. These findings relate to the utilization of one particular telecommunications system and thus are not necessarily generalizable to other systems. Questionnaires form an important means of gathering data relative t; study of distance education. The issues, related to privacy, intrusion and varying institutional policies are factors which are not unique to this system, but which need to be explored further if questionnaires are to be considered a viable data collection technique. One solution is to replicate this study in similar systems. If replications find similar results, the implication for reliability will be much stronger than that provided by offering demographic comparisons between the nonrespondents and the population.

Conclusions

Contrary to the prevailing opinion of many teachers, administrators and accrediting agencies, distance students are not adversely affected relative to course performance; in fact the evidence provided by this study indicates that the reverse may be true. Whether this difference results from a more motivated or informed distance student is a question which warrants further attention.

However, these 'findings are consistent with the predominance of media comparison studies whose results show 'no significance' when the media is the independent variable, indicating that telecommunications media likewise do not adversely affect student performance. To restate the summation made fifteen years ago by Chu and Schramm (1975), the question to be asked is not whether the media can be used to teach, but rather how best to use the media.

This study provides a portrait of the role of the learner support system in one distance education system, while attempting to link theory with practice. To the extent that this analysis has evolved from the prevailing theoretical work in the field of distance education, this study provides a framework which can be replicated within other systems. An important area for research in distance education lies in

comparative studies, since the identification of differences and similarities among diverse systems supports both improves practice and progressive focuses research.

From this study emerge additional questions. To what extent do corresponding studies of other systems find similar or disparate results? How does the role of interaction between distance student and the distance teaching institution relate to the design of interactive technology, specifically audio and computer systems? What are the cost benefits of' the various media as these relate to the accomplishment of specific learning outcomes? What are the skills required for distance teaching? Are these different from the skills required by the traditional on-campus instructor? What institutional policies support or hinder distance teaching?

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