Critical Elements in Planning, Designing and Implementing, and Evaluating Distance Education Programs

By

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Abstract

The purpose of this study was to identify critical elements in planning, designing and implementing, and evaluating distance education programs which in turn can be used as a model or a guide for distance educators to plan, design and evaluate the existing or future distance education programs. A modified two rounds of Delphi technique was used to obtain consensus among distance educator experts on elements of planning, design and implementation, and evaluation of distance education programs which were provided in the form of questionnaire. Fifty-seven elements or items had met the criticalness and consensus criteria. Thirty-six critical elements in the planning, thirteen in designing and implementation, and eight in the evaluation and accountability parts. The finding indicated that there was substantial agreement among the panel of experts in identifying elements that are critical in planning, designing and implementing, and evaluating for distance education programs.

Keywords: *Distance education, planning, design and implementation, evaluation, Delphi technique*

Introduction

Distance education has been accepted as part of the education system in many countries and considered as one of the most important forms of education in response to the needs of modern society. As society became more complex and advanced, the individual needed a higher level of education, skills and knowledge in order to be an effective and productive member of society. Nowadays, it is important for individuals to constantly learn new skills and knowledge in order to remain employed and competitive in a knowledge and digital economy (Portugal, 2006). In the last 30 years the establishment of distance teaching universities in the form of open universities and numerous distance education programs in the conventional campus-based universities were phenomenal. More students especially working adults are able to obtain tertiary education through universities or colleges that offer distance education programs.

The growing economic crisis in the world including in the US has caused many traditional colleges and universities to consider new ways to ensure economic competitiveness and continued financial growth without increasing the size and overhead

of their campus by employing various means such as offering distance learning mode which uses online courses for the undergraduates (Finch and Rahim , 2011). With the rapid development of distance education in the last three decades and burgeoning interest in distance education worldwide, there is a critical need to identify critical elements in planning, designing and implementing, and evaluating distance education programs which in turn can be used as a programming model or as a guide for distance educators to plan, design and evaluate the existing or future distance education programs.

The literature and the observations made by scholars of distance education also indicate that there are many disagreements about the way distance education should be viewed and implemented. According to Wallace and Dillon (1994, p.437), "A great deal of distance education policy formation is done in an atmosphere where differences of opinions delay even the most basic proposals." Interestingly enough, even the concept of distance education is still far from consensus among distance educators (Shale and Garisson, 1990; Moore, 1993)

In addition to the above situations, various problems and challenges are faced by distance education programs throughout the world. In less developed countries, many distance education programs were implemented with limited or weak infrastructure, financial and human resources. In Latin America, Anderson (cited in Daniel, 1988, p.25) stated that "some 50 Latin American universities have made serious attempts to offer distance education but that 'like grassfires on the savannah' most of these initiatives have been short lived." Despite the various constraints, problems and disagreements, most distance education programs in many parts of the world are thriving and able to serve their target publics effectively. The Sukhothai Thammathirat Open University in Thailand and the Distance Education Programs at the Universiti Sains Malaysia in Malaysia are among examples of the many successful programs in distance education. Numerous factors may contributed to the success or failure of a distance education program. Some contributing factors are likely universal in nature and may influence the success, regardless of where and how distance education programs were organized.

The variation in distance education programs among institutions can be observed in their sizes and working methods. Some are huge, with hundreds of thousands of students; and some on the other hand have only one or two hundred students (Holmberg, 1989). Institution like the United Kingdom Open University does not require students to have any formal qualifications to be admitted to the program while others impose the same academic entry standard as that of full-time traditional students.

Whatever, the size, scale or approach of distance education programs, a variety of stakeholders have been concerned with them. The most important stakeholders are the distance learners who would gain benefits from the program. They would become individuals with knowledge and skills needed to be able to function more effectively as members of society and the workforce. Secondly are university educators and

administrators involved in delivering education through this innovative approach. They are the bedrock of this program in maintaining the quality and credibility of distance education program. Employers are another significant group of stakeholders. The competency of a graduate will be judged in the workplace by the employer. If graduates from distance education programs are sought after by employers this indicates trust and confidence in the program. Last but not least are the taxpayers at both the federal and local levels who support the program. Their taxes must be translated into something that in one way or another proves useful for the society at large.

Rapid changes in the economy and technology have accentuated the need to help adults with no higher education from all walks of life, regardless of their background to become more knowledgeable, skillful, innovative and creative individuals. To meet this challenge universities and other higher education institutions need to consider initiating or expanding existing distance education programs to reach those millions of adults who for whatever reason still do not have access to a university education.

Consequently, it is critical and beneficial to identify critical elements or criteria evident in a model to be used in evaluating existing distance education programs in higher education institutions and to guide in the development and establishment of future programs. The established standards would allow distance educators to implement effective distance education programs with a palpable degree of confidence.

Methodology

This study used Boone's programming model (1985) as the basis for identifying critical elements in planning, designing and implementing, and evaluating distance education programs. According to Boone (1985), the programming process has three major parts or stages which are interrelated to each other. They are: (1) Planning, (2) Design and Implementation, and (3) Evaluation and Accountability. Each part has several concepts or processes that are interrelated.

Besides Boone's model, literature review and discussions with scholars in distance education, adults learning, programming or curriculum development and education technology were made. Through literature review and discussion some critical elements in planning, designing and implementing, and evaluating distance education programs were identified tentatively. The elements were placed on a five-point Likert-type scale. The five-points are: 1. (None), 2. (Minor), 3. (Moderate), 4. (Important), and 5. (Critical).

The tentative critical elements in the form of questionnaire was presented to a group of selected distance educators, professional, administrators and programmers who were knowledgeable and familiar with distance education programs. The electronic mail and surface mail were used to send questionnaires to these participants. They were

allowed to make suggestions, additions, deletions and corrections, as well as to recommend different or additional elements. This process served as a pilot study towards refining the tentative critical elements which would be presented later to the final panel of experts. The pilot study used a 3.50 mean score as criterion for criticalness.

The data and feedback from the pilot study were analyzed thoroughly to permit confirmation, rejection, or modification of the preliminary model and to refine it to the greatest degree possible before it was submitted to the final panel of experts.The revised and refined critical elements were electronically mailed and faxed to the final panel of experts. The panel was drawn from Asia, Africa, Europe, Latin America and North America. They were professionals, university professors and administrators who were involved in distance education programs.

A modified Delphi technique was used at this stage of the research. The purpose of the Delphi is to reach group consensus among a select panel of experts, thereby converging on specified goals (Judd, 1970). Today, the applications of the Delphi technique have since been broadened and used in a variety of disciplines (Weatherman and Swenson, 1974). Basically, the method provides an anonymous, noninteractive means "for the systematic solicitation and collation of judgments on a particular topic through a set of carefully designed sequential questionnaires interspersed with summarized information and feedback of opinions derived from earlier responses " (Delbecq, et al., 1975, p.10). The advantages associated with Delphi technique are: its ability to reduce the influence of dominant personalities (which is quite common in the face-to-face discussion); its capacity to overcome geographic limitations, and its efficacy in soliciting inputs from those who otherwise might not able to participate (Kooperman, et al., 1985).

The general procedures for Delphi technique are as follows (Uhl, 1983, p.82):
1. The participants were asked to list their opinions on a specific topic such as curriculum revision or planning priorities.
2. The participants are then asked to evaluate the total list by a criterion such as importance, chance of success and so on.
3. The participants receive the list and a summary of responses to the items. If the participants are in the minority, they are asked to revise their opinions or indicate their reasons for remaining in the minority.
4. The participants again receive the list, an updated summary, minority opinions, and another chance to revise their opinions.

As a modified Delphi technique, in this study, the first part was accomplished through the literature review, discussions and insights provided by distance education and programming experts. As with the preliminary panel, the final panel of experts was given the opportunity to change, discard, or add elements to the list of elements.

The final critical elements were achieved over a series of two rounds of mailings. In the first round, the list of critical elements was electronically mailed to the final panel of experts. These experts were instructed to evaluate each item using the five-point scale in terms of their importance as an element in a model for distance education. Space was provided under each item to indicate suggested changes in wording that may be needed to be made. Forty-seven experts returned the questionnaires in the first round.

In the second round, questionnaires were electronically mailed or faxed only to those who responded in the first round. The respondent's previous ratings were highlighted on the survey form, along with the average rating and median of all the other participants. The participants were asked to rate each item again based upon their previous rating and the average rating and median of all the participants. Only forty experts had returned the questionnaires in the second round or in other words they participated in both rounds.

An element or item was chosen if the element had a mean rating of 3.50 or higher on a five-point Likert type scale; and at least 55% of the experts rated the element as 4 or 5. The mean score cut off point and the percentage were chosen by the researcher as this would indicate that most panelists would place priority on that element as a critical element in planning, designing and implementing, and evaluating a distance education program.

Results and Discussion

Results were categorized according to the three parts, (1) Planning; (2) Design and Implementation, and (3) Evaluation and Accountability and are shown in Table 1, 2, and 3 respectively. Only results in the round-two survey were considered. The mean, standard deviation, and frequency (in percentage) are also given for each item.

1. Planning

Planning consists of two major aspects, (1) the organization and its renewal process and (2) linking the organization to its publics. These aspects are critical to the programming model for distance education.

Elements that dealt with the organizational planning and renewal in the planning process are mission, philosophy, objectives, organizational structure and roles; policies and procedures; management and renewal. Elements embodied in linkage include study, analysis, and mapping; identifying and interfacing with leaders; and needs assessment.

Mission: All three items related to mission were rated highly with the mean of 4.5 and more. Item 1 had the highest mean for criticalness and the highest frequency for consensual, followed by item 3 and 5. This indicated strong agreement among the experts that for distance education programs, there must be in the overall mission of four-year higher education institutions a commitment to distance education as an important instructional mode for delivering educational curricula and courses. Findings also indicated that the panel felt that having the mission is not enough. The mission must be clearly communicated to faculty and staff.

Philosophy: More than ninety percent of the experts rated items related to philosophy as critical for an institution. The institution's philosophy provides the value framework within which the faculty and staff operate. The panel agreed that commitment to and acceptance of distance education as an effective instructional mode must be part of the philosophy and that acceptance by staff and faculty was necessary.

Objectives: Ninety five percent of the expert rated items related to objectives as critical. The means for the item were more than 4.5. They considered that objectives must be consistent with the institution's mission and that distance educators must understand and be committed to the objectives of the institution regarding distance education programs.

Organizational Structures and Roles: Ninety-two percent of the experts rated all items related to the organizational structure and roles as important and critical. They agreed that the institution should have an administrative organization that provides leadership for and manages the distance education program and that faculty and staff members must clearly

understand their roles within the distance education program (Item No. 8 and No.10). The roles played by members of the organization are interrelated. It is those roles that specify the responsibilities of individual and job groups in accomplishing organizational objectives.

Policies and procedures: Certain policies and procedures are required to implement a successful distance education program. Policies and procedures may vary greatly from one institution to institution or from one country to another. The policies and procedures are designed to ensure that distance education programs are comparable (if not better) to the on-campus program in terms of quality, faculty, funding, support services, and reward and incentive. All of these items had the mean score above 4.0 except item 21 which had the mean score of 3.85.

The experts overwhelmingly rated item No. 16 as important and critical. Distance education programs should use appropriate instructional technologies and facilities in delivering courses and curricula. The newest and the most sophisticated technologies (usually more expensive) do not necessarily mean the education program is effective and of highest quality. Simple technology and modest facilities can also achieve good results at far less cost.

Item 26 had a mean score of 4.43. It relates to minimizing barriers that can discourage adults' participation in distance education programs. The institutional and situational and dispositional barriers as mentioned by Cross (1981) should be overcome by the institution to allow more adults to participate in the program.

Table 1. Planning - mean scores, standard deviation and frequency (% for rating 4 & 5)

	Round-2	
PLANNING	Mean Standard Deviation Frequency (% for 4 & 5)	
Mission		
1. The mission of the institution includes a commitment to distance education as an important instructional mode for delivering educational curricula and courses.	Mean Standard Deviation Frequency	4.64 0.67 94.9%
2. Administrators, faculty and staff are committed to that part of the institution's mission that relates to distance education.		4.53 0.69 89.5%

3. The mission of the institution is clearly communicated to the faculty and staff.	4.50 0.82 90.0%

Philosophy

4. A general philosophy for the institution has been established that accentuates the values of making education accessible to persons external to the institution's campus.	4.46 0.64 92.3%
5. Distance education is accepted by the institution's faculty as an effective instructional mode for delivering courses and curricula.	4.28 0.78 90.0%

Objectives

6. The institution has clearly defined goals for its distance education program that are consistent with its mission.	4.50 0.68 95.0%
7. Quality curricula and courses are provided through the institution's distance education program.	4.70 0.56 95.0%

Organizational Structure & Roles

8. Administrative, production and other support staff who are involved in the distance education program have a clear understanding of their roles in the program.	4.45 0.64 92.5%
9. The institution has an administrative organization (unit/department/center) that provides leadership for and manages the distance education program.	4.23 0.68 92.3%
10. Faculty members who instruct distance education students have a clear understanding of what their roles are in the distance education program.	4.46 0.72 92.3%

Policies and Procedures

11. The distance education program has equivalent student admission criteria as with the on-campus students.	3.69 1.20 56.4%
12. Faculty members involved in distance education are accorded the same academic rights and privileges of their on-campus faculty colleagues.	4.64 0.58 94.8%
13. All distance education courses are taught by faculty members who have credentials comparable to their campus-based faculty peers.	4.35 0.74 85.0%
14. The distance education program involves distance education experts and other related professionals in the development, production and delivery of courses.	4.44 0.88 92.3%
15. Funding for distance education reflects the institution's commitment to quality distance education.	4.31 0.83 82.1%
16. Appropriate instructional technologies and facilities are provided for delivery of courses and curricula via distance education.	4.59 0.5 100%
17. The distance education program provides a comprehensive student support system to distance education students.	4.38 0.67 90.0%
18. The standard and quality of courses offered via the distance education mode are equivalent to courses offered on the campus.	4.60 0.74 97.5%

19. There is a reward and incentives system for distance education faculty that is equivalent to that provided for on-campus faculty.	4.46 0.85 89.7%
20. Faculty advisement opportunities equivalent to those for on-campus students are provided to distance education students.	4.28 0.88 85.0%
21. Distance education students have the same institutional financial and scholarship opportunities as on-campus students.	3.85 0.88 69.3%
22 The distance education program provides high-quality study materials to distance education students.	4.58 0.75 95.0%
23. Credits earned through the distance education program are transferable between higher education institutions.	4.58 0.75 97.5%
24 The learning experience received by distance education students is equivalent to the on-campus students' learning experience.	4.10 1.10 84.6%
25. Library resources are adequate and accessible to distance education students.	4.30 0.88 82.5%
26. Distance education programs are designed to minimize barriers that discourage adults' participation.	4.43 0.75 90.0%
27. Efficient record system is established for distance education students and faculty. (New item)	4.11 0.85 80.5%
28. Students with special learning needs are identified and catered for.	3.90 1.05 71.8%

Management

29. To assure that the distance education program's goals are achieved, there is a suitable supervision system for the faculty and staff involved in distance education.	3.87 0.89 76.9%

30. An ongoing continuing professional development program for the distance education faculty and staff is provided, based on the needs of the faculty and staff. (Reworded)	4.37 0.68 94.7%

31. An appropriate evaluation system of the distance education program is used to facilitate program revisions.	4.33 0.66 90.0%

32. A system is used to facilitate the institution's responsiveness and renewal to meet the constantly changing needs of distance education students.	4.0 0.82 80.0%

Linkage

33. The institution is continuously involves in identifying agencies, organizations, and groups which have a stake or interest in its distance education program.	3.60 0.78 57.5%
34. The institution consciously seeks inputs from both its distance education students and significant stakeholders about the educational needs of distance education students.	4.18 0.64 92.5%

35. The institution engages in continuous study, analysis, and mapping of its distance education student audience.	4.18 0.84 82.5%

36. There is a collaborative identification, assessment, and analysis of the needs of the distance education students by faculty, content experts, professional organizations, public leaders, distance education students and other stakeholders.	3.77 0.99 66.7%

Management: The management function was also considered to be important within the planning sub-processes. Three items (No 30, 31, and 32) had mean scores of 4.0 and more and one item (No.29) had a mean score of 3.87. The panel concurred that there must be a suitable supervision system for the faculty and staff involved in distance education. Faculty and staff should be given appropriate feedback on areas which they perform well and those that need improvement, and there must be a continual professional development program for them (No.31) to improve their performance and effectiveness. An appropriate evaluation system must be in placed to facilitate program revision (No. 32). A system is also needed to facilitate the institution's responsiveness and renewal to meet the constantly changing needs of distance education (No.33).

Linkage: Linkage is the process that bring together the distance education institution and its target public i.e. students.

All items under linkage were accepted by the experts. Linkage begins by studying, analyzing, and mapping of the the target public i.e. student audience (No.35) and other groups or agencies that have a stake or interest in distance education program. Needs assessment is a critical area in the programming model for distance education. To determine those needs, there must be a collaborative identification, assessment, and analysis by faculty, students and other stakeholders (No.34 and No.36). By involving several stakeholders in the collaboration, most likely the program will obtain the necessary support to succeed. Once the needs are identified, the institution must address the question of how to meet those needs.

Design and Implementation

This stage has three interrelated aspects, namely, the planned program, plans of actions, and implementation. The results of the survey for items related to design and implementation are shown in Table 2.

The Planned Program
The planned program is the framework for change upon which the distance education institution focuses its attention. The needs of the distance education are translated into the objectives of distance education program (No.1). The stated objectives

must be among other things within the capabilities of intended students (No.4).   The distance education instructional design provides for adjustments in the instruction to accommodate the learning needs of the students and distance education instruction is sequenced to allow students to progress toward the stated educational objectives.

Plans of Actions

Plans of actions are the second dimension of the program design and implementation. Again all items in this category had the mean score 4.0 and above and more than 80% of the experts gave important and critical ratings. It was agreed that these plans need to include appropriate learning strategies and activities (No 5), effective and suitable media (No 6), appropriate curriculum guides (No 7), and study materials that use

Table 2. Design and Implementation - mean scores, standard deviation and frequency (% for rating 4 &5)

DESIGN AND IMPLEMENTATION	Round-2
	Mean Standard Deviation Frequency(% for 4 & 5)
The Planned Program	
1. The needs of the distance education students are translated into the objectives of distance education program.	Mean 4.07 Standard Deviation 0.93 Frequency(% for 4 & 5) 84.6%
2. Distance education instruction is sequenced in order to allow the student to progress toward the stated educational objectives.(Reworded)	4.13 0.88 80.0%
3. Distance education instructional design provides for adjustments in the instruction to accommodate the learning needs of the students. (Reworded)	4.33 0.81 92.4%

4. Educational objectives formulated for distance education students are within the capabilities of the intended distance education students.	4.08 0.98 87.1%

Plans of Actions

5. Learning strategies and learning activities for distance education students are identified by distance educators to assure the attainment of the desired educational objectives and experiences.	4.05 0.99 85.0%
6. Media to deliver study materials are selected based on their instructional effectiveness and suitability with the distance education students.	4.38 0.71 87.5%

Design and Implementation

7. Distance education faculty members use appropriate curriculum guides to help distance education students achieve program objectives.	4.1 0.78 87.5%
8. Study materials which are developed for distance education students use simple, direct and meaningful language.	4.13 0.98 84.7%
9. Distance educators and administrators participate in the development and implementation of an evaluation plan to evaluate learning outcomes and experiences of distance education students.	4.05 0.82 80.0%

Implementation

	4.0
10. A plan is used to market the distance education program to potential distance education students and other interested publics.	0.78 85.0%
11. Distance educators continuously monitor and reinforce educational activities of distance education students.	3.9 1.01 72.5%
12. Distance educators are prepared to adapt and reconsider instructional strategies as monitoring, feedback, and their observations indicate the need for such change.	4.15 0.89 85.0%
13 Feedback from distance education students is used to ensure that teaching-learning activities are attaining the desired results.	4.43 0.71 92.5%

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simple, direct and meaningful language (No 8). It was also agreed that distance educators and administrators need to cooperate in evaluating the learning outcomes and experience of distance learners (No 9).

Implementation

        All items under this dimension had the mean score of 4.0 and above except one item (No 11) which had 3.9 mean score. Items in this dimension include a plan to market the distance education program to potential distance education students (No 10), the need for distance educators to monitor and reinforce educational activities of distance education students (No 11), and the necessity for distance educators to change instructional strategies when the need arises (No 12). Item related to feedback from distance education students (No 13) had the highest mean score (4.43) and the highest number of experts who rated important and critical in this dimension (92.5%).

Evaluation and Accountability
        In this part, there were eight items and had the mean score of 4.0 except item No 4 which had 3.92. Item No. 6 had the highest mean score i.e. 4.55, the highest number of experts (95%) who rated the item as important and critical and the lowest standard

deviation (0.68). This indicates that the panel considered it highly important that findings from evaluation be used to revise the distance education program. The lowest rating (mean 3.92) in this category was the item stating that distance education program inputs should be clearly identified and assessed (No 4). However, it was still far above the cut-off point of a 3.5 mean score for criticalness, and it also passed the consensual criteria since it had 74.3% of the panel who considered the item as important and critical. The results are shown in Table 3.

Table 3. Evaluation and Accountability - mean scores, standard deviation and frequency (% for rating 4 & 5)

EVALUATION & ACCOUNTABILITY	Mean Standard Deviation Frequency (% for 4 & 5)	Round-2
1. Distance education program outcomes can be measured.	Mean Standard Deviation Frequency (% for 4 & 5)	4.08 0.76 85.0%
2. Formative and summative evaluation are used in evaluating the distance education program.		4.05 0.99 77.5%
3. Distance education program outcomes are clearly identified.		4.05 0.89 84.6%
4. Distance education program inputs are clearly identified and assessed.		3.92 0.87 74.3%
5. All the policies, procedures, and activities of the distance education program are continuously reviewed.		4.0 0.82 77.5

6. Findings obtained from evaluating distance education program are used to revise the distance education program and its renewal.	4.55 0.68 95.0%
7. A follow up system is devised to evaluate distance education students' performance.	4.23 0.93 82.0%
8. Results of the evaluations of the distance education program are reported to the appropriate parties in a manner that can be easily interpreted.	4.05 0.88 80.0%

Conclusions

Fifty-seven elements or items had met the criticalness and consensus criteria in the second-round of the survey. Thirty-six in the planning, thirteen in designing and implementation, and eight in the evaluation and accountability parts. There was substantial agreement among the selected panel of experts in identifying elements that are critical for distance education programs.

The identified critical elements can be used as a guide or model to establish a new distance education programs or to evaluate existing distance education programs. It can serve as a diagnostic tool of elements necessary for program success. Corrective action can be taken to areas that show deficiencies or weaknesses. Where strength are identified, further improvement efforts should be explored. For example, if an institution offering programs or courses at a distance does not have distance education in its mission, it can be advised to consider including it. The model indicates that having a clear mission is critical to the planning process of a distance education program.

It is critical to point out that the elements which had been identified in this study do not represent an exhaustive listing of possible elements that can be used for planning, designing and implementing, and evaluating distance education programs.

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