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Recommended Citation

Harroff, Pamela Ann and Valentine, Thomas (2004). "Theorizing Program Quality in Web-Based Adult Education," *Adult Education Research Conference*. <http://newprairiepress.org/aerc/2004/papers/32>

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Theorizing Program Quality in Web-Based Adult Education

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Abstract: The purpose of the study was to discover dimensions of quality in web-based adult education and to map those dimensions in a wide range of programs. The focus of the study was to develop a typology of the types of programs with respect to the quality dimensions of web-based adult education. Cluster analysis was used to develop a typology of web-based adult education.

Introduction

With the growth of web-based adult education there is a need to understand the quality dimensions of effective program planning and to develop quality benchmarks that can be utilized to develop, implement, and evaluate instructional and administrative objectives (Hensrud, 2001). Effective program planning is a decision making process and requires that quality in web-based education be considered, worked toward, and monitored (Sork & Caffarella, 1989). Quality in this regard is the extent to which web-based programs achieve the identified benchmarks of effective program planning (Hensrud). However, the empirical work that actually models quality program planning in web-based education is somewhat lacking and largely unexamined. Adult educators need a way to gather empirical data and understand what facets of web-based education require consideration and monitoring. The traditional ways of understanding quality program planning in adult education may not necessarily apply in the web-based environment. There is a need for a framework that measures quality in a disciplined and equitable way.

Purpose of Research

With the increased demand for web-based adult education comes the need to better understand the dimensions of program quality required to deliver effective web-based adult education. There is little empirical data and not any quantifiable data that identifies dimensions of program quality in web-based adult education. This study focused on identifying dimensions of program quality and developing a framework for identifying types of programs in web-based adult education through empirical research.

The purpose of this study was to gain a deeper understanding of the dimensions of quality indicators of web-based adult education. In order to accomplish this purpose, the following questions were addressed:

1. How do adult educators rate their web-based programs with respect to specific quality indicators?
2. What are the empirical dimensions of program quality?
3. What types of programs exist with respect to the empirical dimensions of program quality?

Methodology

A researcher-designed instrument was developed for the purpose of gathering perceptions of quality in web-based adult education. The result was a 41 item instrument that utilized a six-point Likert scale bounded by “Strongly Disagree” (1) and “Strongly Agree” (6) and included 13 background items selected for the purpose of collecting background information on the study participants. The background items included personal, organizational, and student population variables.

The population of interest for this study were adult education administrators and educators involved in web-based courses and programs. Respondents ranged in age from 26 to 67, with a mean age of 47.4 years. The respondents were 48.6% female and 51.6% male. A

majority (92.5%) of the respondents were Caucasian. Of the remaining respondents 2.5% were African American, 2.0% were Hispanic, 2.0% were Asian, and 1.0% were Multi-racial.

As reported by respondents, a majority were associated with higher education (89.7%). A majority of the organizations reported that they delivered a both traditional as well as web-based courses (96.4%) leaving only a small minority offering only web-based courses (3.6%). The adult student populations enrolled in courses or programs in which respondents worked were reported as some or most having prior college education (96%). Some or most were older than 24 years of age (99.1%). The majority of the students were female (56.3%).

Data Analysis of the Present Study

The statistical analyses included (a) mean ranking, (b) factor analysis, and (c) cluster analysis. For the purpose of mean ranking, the specific quality indicator items were sorted by mean value from highest to lowest to determine the relative importance of each item as self-reported by adult educators involved in this study. The mean of the 41 items ranged from 2.68 to 4.27 on a 6 point Likert scale with 1 being strongly disagree to 6 being strongly agree. Following the mean ranking, exploratory factor analysis was utilized to identify a six-factor solution that captured 65% of the variance observed in the 41 variables. Cluster analysis was utilized to develop a typology of web-based adult education programs within the context of quality. Ultimately, a five-cluster analysis was selected as offering the most conceptual clarity. The clusters were classified by types of organization according to number of programs represented within each of the clusters, from the highest to lowest.

Results

Mean Ranking

The mean of the 41 quality items ranged from 2.68 to 4.27 on a 1 (strongly disagree) to 6 (strongly agree) point-scale. Twenty-nine of the 41 quality items demonstrated a mean at or above 4.0. Eleven of the 41 quality items demonstrated a mean between 3.99 and 3.0. Only one quality item demonstrated a mean below 3.0.

The ten highest rank ordered quality indicators were self-reported by adult educators as their organizations most effective quality indicators. Of the ten highest rank-ordered quality indicators, 6 of the 10 items focus on the quality of advance information received by potential web-based students as they relate to information received pertaining to financial and academic indicators. The remaining 4 items of the 10 highest rankings focus on the quality of instruction and course materials (3/10) and quality of course evaluation (1/10).

The ten lowest rank ordered quality indicators were self-reported by adult educators as their organizations least effective quality indicators. Of the ten lowest rated quality indicators, 6 of the 10 items focused on the administrative support and faculty recognition. The remaining four items focused on quality of instruction and course materials (2/10) and quality of student advisement (2/10).

Factor Analysis

The patterns of relationship among the 41 quality dependent variables were examined by utilizing exploratory factor analysis that employed both orthogonal and oblique rotation. The goal was to discover a simple pattern by reducing the number of variables to a much smaller number of inferred independent variables called factors (Darlington, 2002). A Varimax rotation was used in nine terminal factor solutions ranging from two to ten factors. An analysis of each of the solutions was examined for conceptual meaningfulness (Perdue, 1999). Ultimately, the six-factor solution was selected. Only three of the 41 quality variables failed to load on any of the

six factors. This solution captured 65% of the variance observed in the 41 quality variables. Table 1 provides the six-factor solution for dimensions of program quality.

Table 1. Six Dimensions of Program Quality in Web-Based Adult Education

<i>Dimension</i>	<i>Description</i>
I. Quality of Instruction	Focuses on the quality of course materials and strategies, quality of feedback, course clarity and learner-centeredness.
II. Quality of Administrative Recognition and Support	Focuses on institutional administrators' recognition of the special demands involved in web-based instruction, as well as the adequacy resources and compensation.
III. Quality of Advisement	Focuses on the quality of information and support <i>enrolled</i> on-line students receive from the organization.
IV. Quality of Technical Support	Focuses on the technical assistance and training available to on-line faculty.
V. Quality of Advance Information to Potential Students	Focuses on the quality and accuracy of information received by <i>potential</i> students during the recruitment and admissions process.
VI. Quality of Course Evaluation Procedures	Focuses on the opportunities provided on-line students to evaluate courses with frankness and safety

Interpretation of Factors

Factor I includes quality indicators that focus on instruction and the interaction that occurs between the facilitator and the learner (Reed & Sork, 1990). Quality of instruction is depended on quality of interaction, quality of materials, and quality of the technology used to facilitate web-based adult education..

Factor II includes quality indicators that focus on the support instructors receive from administration in terms of budgetary resources and recognition of the academic value of web-based adult education. Quality web-based adult education programs develop systematic approaches to administrative recognition and support of web-based adult education.

Factor III includes quality indicators that focus on the information and support web-based students receive from organizations. Information should give students a realistic perspective of the expectations of web-based education. Quality support for advisement, problem resolution, and technical issues should be made available to web-based students.

Factor IV includes quality indicators that focus on the assistance and training received in the development and delivery of web-based so that an instructor can focus on the quality of instruction. Instructors often lack the expertise to design and deliver a web-based course and effectively utilize technology (Muilenburg & Berge, 2001).

Factor V includes quality indicators that focus on the information received by potential students pertaining to admission procedures, hardware and software requirements, and financial aid. Unfortunately, often the efforts to "sell" web-based education have the propensity to highlight the advantages and downplay the disadvantages (Zvacek, 1991).

Factor VI includes quality indicators that focus on the program, course, and facilitator evaluation. Evaluations should be concerned with the qualitative and quantitative methods engaged in to evaluate the effectiveness and quality of a program or course. Organizations

are challenged to find communication processes and methods that offer quality evaluation of programs, courses, and facilitators (Reed and Sork, 1990).

Cluster Analysis

Cluster analysis was utilized to develop a typology of the quality indicators of web-based adult education. The 6-factor solution was employed to organize the 251 observed cases into a meaningful number of clusters using K-means clustering. The K-means cluster is a disjoint cluster analysis in which each observed case of the sample is assigned to one cluster group. Solutions of two through six clusters were calculated and examined for the output that offered the most conceptual clarity. Ultimately, the five-cluster analysis was selected. The five-cluster solution offered conceptual meaningfulness by observing an acceptable number of types of organizations that capture a variety of programs as well as retention of consistent program characteristics. In order to facilitate the interpretation of the findings, labels were assigned to scores at certain designated levels. The labels were assigned as: very low quality (<-1.0), low quality (-.50 to -.99), average (-.499 to +. 499), high (+. 50 to +. 99), and very high (> +1.0). Table 2 presents five distinct types of programs regardless of the order in which the cluster analysis identified them. The types of programs are presented according to number of organizations represented within each of the clusters, from the highest to lowest as indicated by the value of each cluster.

Table 2. Results of Five-Cluster Analysis

Type	n	%	Factor 1 Quality of Instruction	Factor 2 Quality of Administrative Recognition	Factor 3 Quality of Advisement	Factor 4 Quality of Technical Support	Factor 5 Quality of Advance Information	Factor 6 Quality of Student Input
I	90	36%	0.23 Average	0.91 High	0.40 Average	0.25 Average	0.05 Average	0.26 Average
II	62	25%	0.05 Average	-1.08 Very Low	0.35 Average	0.61 High	-0.04 Average	0.08 Average
III	40	16%	0.55 High	-0.48 Average	-0.20 Average	-1.48 Very Low	0.04 Average	0.17 Average
IV	36	14%	-0.16 Average	0.06 Average	-1.38 Very Low	0.37 Average	0.72 High	-0.47 Average
V	23	9%	-1.73 Very Low	0.06 Average	-0.02 Average	-0.62 Low	-1.26 Very Low	-0.78 Low

Interpretation of Clusters

Type I is highest in quality indicators for administrative recognition as related the other program types observed by this study. Type I organizations are the only organizations type that rated higher than average in administrative recognition as related to the other programs identified by this study. Type I organizations are rated overall higher than average in quality with an

overall cluster mean value of 5.00. This cluster is identified as programs with high administrative recognition.

Type II is very low in quality indicators pertaining to administrative recognition and high in the area of technical support. The remaining factors are average in quality indicators: instruction, advisement, advance information, and course evaluation. Type II organizations are the only organizations that rated higher than average in technical support for instructors and lower than average in administrative recognition. This cluster is identified as programs with very low administrative recognition and high technical support.

Type III is average in quality indicators: administrative recognition, advisement, advance information, and course evaluation. Type III organizations are the only organizations that rated higher than average in learner and facilitator interaction and very low in technical support for instructors. This cluster is identified as programs with high instructional quality and very low technical support.

Type IV is average in quality indicators: instruction, administrative recognition, technical support, and course evaluation. Type IV organizations are the only organizations that rated very low in quality of advisement and high in advance information. This cluster is identified as programs with very low student advising and high advance information.

Type V is very low in quality indicators in the area of instruction and advance information. This cluster is low in quality indicators in the area of technical support and course evaluation. The remaining two areas are rated as average in quality indicators: administrative recognition and advisement. This cluster is identified as programs with low overall quality. Table 3 identifies and describes the 5 types of web-based adult education programs.

Table 3. Five Types of Web-Based Adult Education Programs

<i>Program Type</i>	<i>Defining Characteristics</i>
1. Institutionally valued programs	Notable for high levels of administrative recognition and support. (36% of all programs in sample)
2. Technology-powered programs	Notable for very low levels of administrative support, but high technical support. (25% of programs)
3. Teacher-powered programs	Notable for high instructional quality, but very low levels of technical support. (16% of programs)
4. Recruitment-oriented programs	Notable for high quality advance information during recruitment and admissions process but very poor student advisement after that. (14% of programs)
5. Poor quality programs	Notable for very low or low ratings across most of the dimensions of quality (9% of programs)

Implications for Practice

The study results identified six quality dimensions that can be used as a broad framework for evaluating, planning, and identifying issues of quality in new and existing web-based adult programs. New programs can utilize the quality dimensions as a framework for planning and development. Critical areas that have been identified by this study as weak in quality can be addressed in the initial strategic planning stages. Each of the quality dimensions can be used to identify critical areas of focus for existing programs. Within the critical areas, programs can develop initiatives for improving quality.

The study identified five types of higher education programs currently offering web-based adult education. The typology of programs offers adult education administrators and educators an opportunity to review quality strengths and identify the quality challenges of each program classification. The typology offers the opportunity for programs to identify themselves with a type of organization and gain an understanding of their own quality successes and challenges. Programs can utilize this information to implement quality initiatives for current and future web-based adult education programs.

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