QUALITY INDICATORS FOR EVALUATING DISTANCE EDUCATION PROGRAMS AT COMMUNITY COLLEGES

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by
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APPROVAL PAGE

The undersigned, appointed by the dean of the Graduate School, have examined the dissertation entitled

QUALITY INDICATORS FOR EVALUATING DISTANCE
EDUCATION PROGRAMS AT COMMUNITY COLLEGES

presented by Leo J. Hirner,

a candidate for the degree of doctor of philosophy,
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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

QUALITY INDICATORS FOR

EVALUATING DISTANCE EDUCATION PROGRAMS

AT COMMUNITY COLLEGES

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ABSTRACT

The continued rapid growth of online courses and programs in higher education has brought concerns regarding support services, learning resources, and effectiveness of instruction, as well as how institutions monitor the quality of online programs. These concerns have prompted questions about the effectiveness of instruction and how participants perceive online learning. Such questions led Phipps and Meritosis (1999) to question the methodology of the body of research on online programs and raised the need for a process by which programs and institutions could be compared by academics or prospective students. Unfortunately, the concerns first identified by Phipps and Meritosis continue to persist (Hannafin, Oliver, Hill, Glazer, & Sharma, 2003; Sherlock & Pike 2004).

These issues provided the impetus for this study, the goals of which were to identify quality indicators specific to community college online programs, and to determine stakeholders' perceived importance of those indicators. A literature review identified common standards and best practices for online courses and programs

developed by accrediting organizations and policy groups. The terms *best practices,* *criteria,* and *standards* are used interchangeably in the literature when discussing recommendations regarding practices and policies institutions should adopt for distance learning programs (Twigg, 1999a). One goal of the present study is to identify a set of *indicators*, and the *best practices*, *criteria*, and *standards* from the literature provide a place to start in the identification of possible indicators of quality.

Synthesizing these sources yielded five categories: institutional support, curriculum and instruction, faculty support, student support, and evaluation and assessment. A case was made for adding technical support as a sixth category. This information was used to guide the development of a Delphi study to identify potential indicators. Twenty distance education program administrators from community colleges and 4-year institutions agreed to participate in the study; fifteen completed the initial survey and thirteen the full process.

The potential items identified through the Delphi process were used to create a three-part stakeholder survey, which was designed to collect input on perceived levels of importance for each potential indicator using the magnitude estimation technique. Participants were also able to recommend indicators not included in the survey, and demographic data were collected. The stakeholder survey was then distributed to students and faculty, technical support staff, and program administrators participating in online courses offered by a community college system in the Midwest.

The perception of importance, as measured through the stakeholder survey, did not suggest that any Delphi items should be eliminated, and the relatively equal

perceptions of importance indicated by each stakeholder group provides validation for the results of the Delphi study.

A third research step was added to refine the results of the Delphi process which included a mix of potential indicators, factors, and other measures.   A group of distance learning experts, identified through their scholarly research and professional activity, was asked to review the Delphi items and classify each as a factor or indicator according to the following definitions. Indicators are outputs that an organization can point to as signs of success, and factors are inputs consciously made by the institution in support of its program.

Results from this study identify where and how an institution might look for data when measuring the effectiveness of its online programs and services. The potential indicators and factors identified in these three studies represent parameters that support the examination of how an institution supports its programs, or how programs might compare across institutions. What these items do not address is how an institution uses the data it collects on its programs.

CHAPTER 1: STATEMENT OF THE PROBLEM

While distance education has existed for nearly 100 years, Internet-based (online) courses and programs are a relatively new option. In the past decade, online education has gained widespread acceptance by higher education and the public it serves (Meyer, 2002). Acceptance is especially evident at community colleges, one of the largest providers of distance education courses. The National Center for Educational Statistics (NCES) found that nearly 50% of all online courses offered in 2001-02 were offered by 2-year institutions (Waits & Lewis, 2003). According to the Sloan Consortium (2005), as of the fall 2004 term nearly 78% of institutions granting associate degrees had online programs, compared to 34% of baccalaureate institutions. The widespread acceptance and rapid growth of online course offerings have resulted in questions about the oversight and quality of Internet-based courses and programs.

Overview

One such question is how to evaluate the quality of online courses and programs (Twigg, 2000). While educators have investigated the impact of online instruction on student learning, few studies have examined the overall quality of online programs (Buck, 2001; Phipps & Merisotis, 1999). Furthermore, the question of what constitutes a high-quality online program has yet to be resolved (Hannafin, Oliver, Hill, Glazer, & Sharma, 2003; Sherlock & Pike, 2004).

The present study sought to address this gap by identifying quality indicators for online programs at community colleges. A Delphi study using distance education program directors from 2- and 4-year institutions was conducted to identify a core set of indicators. The results of the Delphi study were then used to develop a survey of distance

education stakeholders at a single community college. The research concluded with a third study designed to reduce the set of items discovered through the Delphi process.

The terms *online*, *Internet-based*, and *Web-based* will be used interchangeably to identify a mode of instruction that delivers content and assessment as well as facilitating communication among students and instructors through a Web-based interface. This would include courses using a course management system such as Blackboard, WebCT, Desire2Learn, Sakai, Angel, and so forth. Digital media may be used to augment instruction but do not serve as the primary mode of content delivery. Activities and interactions may be synchronous or asynchronous, and students are not required to visit campus for activities directly related to the course. It is possible, if not likely, that some distance-learning students may never set foot on campus, so a degree program that delivers all courses and services through electronic means rather than through visits to a campus location is an online degree.

The terms *best practices, criteria, standards, factors,* and *indicators* are used throughout the literature, sometimes confusingly. Accordingly, some clarification is necessary regarding how these terms are used in this document. The terms *best practices, criteria,* and *standards* are used interchangeably in the literature when discussing recommendations regarding practices and policies institutions should adopt for distance learning programs (Twigg, 1999a). One goal of the present study was to identify a set of *indicators*, and that term is used throughout to denote outputs that an institution can point to as signs of success. *Factors* are defined as inputs consciously made by an institution to support its program.

Online Quality

Phipps and Merisotis (2000) reviewed research on distance education effectiveness during the 1990s, with a focus on studies supporting the "no significant difference phenomenon" (NSD) first discussed by Thomas L. Russell. Their review identified several concerns with those studies, including a lack of consistent context for comparing institutions. Mayes (2001) furthered the argument for a comparative tool or process and raised the need to provide students with a measure of quality in distance programs. Mayes pointed out the continued lack of research addressing the criticisms of Phipps and Merisotis (1999), which continues to be discussed in the literature (Hannafin, Oliver, Hill, Glazer, & Sharma, 2003; Joy & Garcia, 2000; Sherlock & Pike 2004; Tallent-Runnels, Thomas, Lan, Cooper, Ahern, Shaw, & Liu, 2006).

The need for a set of indicators with the potential to measure the effectiveness of a program was evident in a shift from comparing performance between instructional media to a dependence on outcomes as found in the revised accreditation process developed by the North Central Association (Hanna, 2003). Reviews of more recent recommendations by accrediting (North Central Association [NCA] and Western Interstate Commission for Higher Education [WICHE]) and policy organizations (Institution for Higher Education Policy [IHEP] and the Sloan Consortium [SLOAN-C]) indicated a focus on defining how to measure quality in online programs. One important concept that emerged was a common set of themes: institutional support, student and faculty services, curriculum, and evaluation and assessment (Meyer, 2002). The research and recommendations have provided standards of best practices, organized into larger categories, which could serve as a baseline when examining the quality of an institution's

online programs; however, none of these ventures took the next steps of identifying a set of indicators, defining a process for evaluating quality, and designing instruments that may be applied to the institutions. This study has provided a step forward by identifying a set of indicators that can be used in designing tools and procedures for assessing quality in online courses and programs.

Two accrediting organizations, Western Cooperative for Educational Telecommunications (WCET, 1997) and the North Central Association of Colleges and Schools (NCA, 1997), now known as the Higher Learning Commission, developed early criteria for the evaluation of online programs. The Western Interstate Commission for Higher Education (WICHE) subsequently developed an expanded set of best practices that has since been adopted by NCA and other accrediting agencies. Additional work through two higher education consortia, the Institute for Higher Education Policy (IHEP) (Twigg, 2001a) and the Sloan Consortium (SLOAN-C) (Bourne & Moore, 2002), led to a pair of research studies in 2000 and 2001 respectively. However, the recommendations generated through both studies and accrediting bodies were identified as best practices, not standards, criteria, or indicators.

<center>Stakeholders</center>

It became evident from a review of the recommendations made by WCET, WICHE, SLOAN, and others that these recommendations were representative of some, but not necessarily all, stakeholders. Faculty and administrators have both been involved in developing different sets of best practices; however, a review of the literature found little reference to input from support personnel or students in developing these criteria.

<center>4</center>

Statement of the Problem

The proliferation of online programs, the impact of these programs on accreditation, and questions of instructional quality and cost make it imperative that higher education institutions take a serious look at how to measure the effectiveness of online instruction. One problem is a lack of comprehensive indicators for determining the quality of online programs. A set of such quality indicators would not only address Phipps and Merisotis' concern about the lack of tools for comparing programs, it would also provide prospective students with a tool to compare potential online degree programs. This lack of comparative indicators of quality is compounded by the need to address the perspectives of all stakeholders in distance programs and the diversity of organizations in higher education.

Purpose of the Study

The primary goal of this study was to identify an explicit and measurable set of indicators that could be used to create an instrument for evaluating the quality of an online program at community colleges. A secondary goal was to identify the perspectives of principle stakeholders regarding the indicators identified for evaluating a distance education program.

Significance of the Study

The creation of best practices and recommendations by both an accrediting organization and higher education policy groups illustrates the need to develop detailed, comprehensive indicators for measuring the quality of an online program. Focusing on community college programs places the indicators identified through this study within a comparative context, thus attending to one criticism of Phipps and Merisotis (1999), and

the final set of indicators provides a baseline for further study of quality and online education.

Faculty, students, employers, some institutions of higher learning, and others have expressed general concern with the validity, quality, and effectiveness of instruction delivered online versus that of the traditional classroom. This concern has persisted even after the No Significant Difference site posted studies finding no difference between online and traditional forms of instruction (Russell, 1999), summarizing research supported by the PEW Symposia (Twigg, 2001b), and assessing institutional support (Compora, 2003; Valentine, 2002). Valentine noted the increased accountability expected of higher education by local and state governing bodies. The validity of online instruction has been examined in a range of studies over the past 10 years. The present study did not focus on the effectiveness of online instruction but instead examined what measures should be taken by an institution to ensure the quality and effectiveness of their program.

This study also provides new insights into the attitudes, concerns, and interests of students, faculty, support staff, and program administrators regarding online education. It was an opportunity to examine how attitudes may have shifted as the number of Web-based programs has expanded and the general acceptance of online courses and programs has continued to grow.

<center>Research Questions</center>

This effort attempts to examine the following research questions:

1. What are indicators of the quality of online programs at community colleges?

2. What is the perceived importance that stakeholders place on each of these quality indicators?

<center>6</center>

Chapter Summary

Chapter 1 examined how the delivery of courses and programs via the Internet has resulted in widespread growth of online education programs in higher education. Along with this growth have come questions about the quality and effectiveness of online courses and programs. There have been attempts to address these issues; however, concern has been expressed with the applicability of results across all institutions of higher education. In an attempt to address one segment of higher education, a set of three studies were used to identify indicators that can be applied to distance education programs offered at community colleges was conducted.

Chapter 2 reviews the literature about best practices identified by accrediting agencies and higher education policy groups, studies about online education in community colleges, and stakeholder perspectives. Chapter 3 describes the research methods used in this study. Chapter 4 presents the results of the Delphi study, the stakeholder surveys, and the factors versus indicators survey. Chapter 5 discusses the results, presents some preliminary conclusions, and examines possibilities for future research.

CHAPTER 2: REVIEW OF THE LITERATURE

Distance education programs in higher education, especially those delivered online, have been widely studied in recent years. Higher education organizations and accrediting agencies have proposed various sets of "best practices," or standards for effective online programs, especially after the advent and subsequent growth of Web-based methods of instruction. It is valuable to learn how the various participants in distance education programs perceive the quality of their experience, and these views are valuable for framing the goals of a possible valuation instrument. Further, a review of community-college-specific literature is important for contextualizing the present study. Finally, education research utilizing the Delphi method will be examined. This review is divided into five sections:

1. Best Practices and Distance Education Programs

2. Perspectives of Stakeholders

3. Community Colleges and Distance Education

4. Delphi and Education Research

5. Magnitude Estimation Technique

Best Practices and Distance Education Programs

To date no comprehensive set of quality indicators for online programs has been fully agreed upon, and the Institute for Higher Education Policy (IHEP) has stated that a separate set of standards is needed for distance learning (Twigg, 2001). Accrediting agencies, higher education institutions, consortia, and policy groups have focused on identifying and promoting guidelines or best practices for quality online instruction, rather than addressing the need for identifying what defines a quality program.

This section begins with a brief overview of studies of online quality and their focus on comparisons to traditional classroom instruction. The recommendations of accrediting agencies are then reviewed. This section concludes with a review of the best practices guidelines proposed by a range of higher education consortia and policy groups.

Online Course Quality

Studies examining the quality of online education have been generally limited to course-specific questions. Many early studies of online quality focused on comparing classroom instruction and online learning environments (Linder, 1998; Pond, 2002; Rivera & Rice, 2002). Despite more than 300 studies compiled at the No Significant Difference (Russell, 1999) Web site, this has continued to be a consistent focus of recent discussions about evaluating quality (Meyer, 2002). Another large body of literature addressing online quality focuses on individual experiences or class-specific outcomes (Meyer). A limited number of studies by higher education professionals questioned whether alternative forms of instruction are equivalent to classroom learning (O'Quinn & Corry, 2002; Schifter, 2000). Beginning in 2001, the Campus Computing Project found that operational budgets continue to grow tighter in higher education; therefore, it has become even more important that the true cost of online programs be determined by evaluating of the benefits and effectiveness of online courses in comparison to more traditional modes of instruction (Schocken, 2001; Valentine, 2002).

Accreditation of Distance Education

Accreditation of distance education programs is not a new issue in the United States. The growth in institutions offering correspondence programs led to the creation of the Home Study Council in 1925, which was recognized by the Department of Education

as an accrediting agency in 1955. In response to the "increasing modes of distance education delivery," the Home Study Council was reorganized as the Distance Education and Testing Council (Lezberg, 2003, p. 428). Interest in distance education rekindled as a result of a 1995 Department of Education study finding that more than 90% of the largest higher education institutions (more than 10,000 students) offered distance education programs, and 85% of medium-sized institutions (3,000 to 10,000 students) offered some form of distance education.

Despite these developments, it would still take several years before the first recommendations were made for accrediting distance programs in light of the expanded range of delivery technologies available. Kezar (1999) stated that one possible reason for this delay was an emphasis on comprehensive evaluation in the 1990s. Another factor that may have delayed interest was increasing pressure from governing agencies to measure the effectiveness of classroom teaching and learning (Lazerson, Wagener, & Shumanis, 1999). In any case, the first of a series of new attempts to address distance education programs using the newer technologies began with the Western Interstate Commission for Higher Education (WICHE).

<center>Best Practices</center>

At least seven different accrediting organizations or policy groups have generated a set of "best practices" in the past 8 years. While each organization brings its own unique elements to the question of what practices are needed for a good online program, it has been noted that these best practices fall within one of five categories: institutional support; curriculum; student support and faculty support; and assessment, consistent across the range of recommendations (Meyer, 2002). Recommendations from several

<center>10</center>

accrediting agencies and higher education consortia and policy groups are summarized in the following sections.

WCET

The Western Cooperative for Educational Telecommunication's (WCET) Principles of Good Practice for Electronically Offered Academic Degree and Certificate Programs was implemented in 1997. The Western Interstate Commission for Higher Education (WICHE) founded WCET in 1989 for users and providers of education via telecommunications technology; WCET's goal was to promote innovation in education (2003).

WCET's principles are divided among three categories: Curriculum and Instruction, Institutional Context and Commission, and Evaluation and Assessment (WCET, 1997). Curriculum and Instruction consists of four standards generally addressing instructional methods. This first principle focuses on learning outcomes "appropriate to the rigor and breadth of the degree or certificate awarded," and the second addresses the need for program coherence (http://www.wcet.info/projects/balancing/principles.asp, retrieved January 2005). The third good practice concerns student-instructor and student-student communication and interaction, while the fourth item requires the use of "qualified" faculty.

Evaluation and Assessment consists of two practices, the first of which addresses what an institution uses to evaluate program effectiveness. Possible data include assessment of student learning in relation to outcomes, retention, and satisfaction of both students and faculty. The second priniciple focuses on the institutional assessment plan and process.

11

The most extensive category, Institutional Context, comprises more than 10 recommendations in five divisions: Role and Mission, Faculty Support, Resources for Learning, Students and Student Services, and Commitment to Support. Role and Mission consists of two practices that address the consistency of online programs with the institution's mission and a process to ensure that the technology used is appropriate. Faculty Support includes two more recommendations: the existence of support, and training for distance teaching. Resources for Learning addresses the availability of comparable learning resources to distance students. Students and Student Services, the largest subcategory, concerns the need for communication regarding program requirements and available services before and during the course, access to comparable student services for distance students, and accurately representing the program in advertising. Commitment to Support has two practices that address the institution's need to evaluate faculty and instruction, and its commitment to offer the necessary courses so that students are able to complete their programs.

Many of the WCET principles of good practice can be found in other organizational best practices, standards, or guidelines. WCET's focus on institutional commitment was particularly important to the present study. WCET asks whether distance education is germane to the role and mission of the institution, and then follows up by examining how the institution supports distance education both academically and financially. While institutional commitment is often part of other sets of guidelines or best practices, it is rarely as well stated.

In response to growth in distance education courses and the potential impact on existing accreditation, the North Central Association of Colleges and Schools (NCA) published Guidelines for Distance Education in 1997. The NCA guidelines define distance education as a "formal educational process in which the majority of the instruction occurs when the student and the instructor are not in the same place," (p. 1) then note that distance education courses and programs must meet the same standards as all other coursework offered by the institution under its existing accreditation. The guidelines are divided into five categories: Curriculum and Instruction, Evaluation and Assessment, Library and Learning Services, Student Services, and Facilities and Finances.

Curriculum and Instruction guidelines go beyond the foundation set by WCET, resulting in a total of seven recommendations covering instructional method, appropriateness of technology, institutional policies on ownership and compensation, and faculty training and support. While the Evaluation and Assessment category consists of the same basic evaluation and assessment recommendations as WCET, NCA expands on the assessment of student performance by tying assessment to "intended" learning outcomes. Also, NCA recommends a pre-assessment of student readiness for distance education coursework. The Facilities and Finances category is not nearly as well-defined as WCET, and it generally addresses equipment, infrastructure, and budget.

Of the two remaining categories, Student Services is a subcategory of Institutional Context, and Library and Learning services not addressed by WCET. In the NCA guidelines, the category of student services is expanded to address a common theme in all

subsequent sets of standards or best practices. At the core of this category is the need to provide distance students with access to the same type of services a traditional student would find on campus. Distance students should also be able to remotely access all the information needed for the course, program, and institution, and there must be sufficient technical support and training to ensure student success. Library and Learning Resources require that the institution provide students with access to the same learning support system as on campus and that student use of this be monitored and evaluated.

AFT

The American Federation of Teachers (AFT, 2000) developed a set of criteria in response to Phipps and Merisotis's (1999) critical evaluation of distance education research. The AFT used a survey of its higher education members in the fall of 1999 that showed support for online learning and provided a basic set of guidelines. Subsequent work led to 14 recommendations published as Guidelines for Good Practice late in the 1999/2000 academic year.

While AFT criteria are not sorted into categories, there are clear themes regarding faculty, curriculum, and evaluation and assessment. Faculty issues focus on academic control, ownership of materials, and requirements for teaching online. Curriculum guidelines address course design, outcomes, interaction between faculty and students, student assessment, and class size.

The remaining guidelines consider the methods used in evaluating the effectiveness of online courses. The AFT guidelines state that assessment activities are to be comparable to classroom instruction, noting that this guideline resulted from concerns

14

about the reduced use of testing in distance courses. The evaluation criteria focus not on learning outcomes but on a need for regional and national oversight of programs.

It can be argued that the AFT's role as faculty union is expressed in the criteria, and this perspective is valuable, since the other evaluation standards and best practices have been generated through leadership or accreditation groups. The specific concerns with faculty rights is an attitude worth review, and the information may prove useful in designing an evaluation that meets the needs of all stakeholders.

WICHE

In 2000 the Western Interstate Commission for Higher Education (WICHE) expanded on the WCET best practices by adopting the Best Practices for Electronically Offered Degree and Certificate Programs. The new recommendations were developed with the eight regional accrediting agencies (including North Central) in the United States, and these expand the WCET best practices from three to five categories consisting of nearly 30 standards. While the core of WCET's Institutional Context and Commitment is maintained, WICHE expanded on the technology standards (accounting for half of the individual criteria), adding the categories of Student Support and Faculty Support and expanding the standards under Curriculum and Instruction and Evaluation and Assessment.

The addition of these new categories for student and faculty support follow the trend begun with NCA. The basic standards were part of the original WCET recommendations, and WICHE reorganized and expanded on these. Particular focus was paid to the need for comparable services for distance students, and access to the same level of support. The Faculty Support section focuses on the same general training and

technical support needs, and new recommendations regarding workloads and intellectual property were added.

WICHE (2000) followed up on the NCA shift toward measures of program effectiveness, which include assessment of student learning relative to outcomes and evidence of assessment activities that measure student achievement in all courses in the program. WICHE goes further to address the need for annual program evaluations and the integration of distance evaluation into the overall institutional program. By addressing technology, under the heading of Institutional Context, WICHE points out the importance of a well-planned technology infrastructure and a technical support system. WICHE also recommends a centralized operation to manage both the technical infrastructure and the scheduling of courses and programs.

WICHE furthers the basic standards presented in the WCET document by addressing Student and Faculty Services. The primary emphasis of the Student Services category is that the institution provide a wide range of program and institutional information and access to the support services students need for success. Faculty support focuses on the support a faculty person will need when developing and delivering a course online.

IHEP

In the late 1990s the Institute for Higher Education Policy (IHEP) conducted a study—commissioned by the National Education Association and Blackboard, Inc.—that resulted in 7 criteria containing 24 individual standards. This study began by reviewing previous attempts to identify best practices and synthesized the recommendations into a set of more than 40 items. The new list was then distributed to practitioners, and follow-

up interviews were used to refine and validate the list of criteria. In the end, 13 of the original standards were eliminated and three new standards were identified (IHEP, 2000).

The report notes that both the WECT and WICHE best practices were reviewed, and the difference between IHEP and WCET/WICHE is an expanded curriculum and instruction section. IHEP separated what was one category under WCET and WICHE into three separate sets of standards: course development, teaching/learning, and course structure.

Course development and course structure expand upon the general framework developed in earlier standards (IHEP, 2000). This can be seen in new standards addressing teaching methods (course development: "Courses are designed to require students to actively engage themselves in analysis, synthesis, and evaluation as part of their course and program requirements" [p. 11]) and expectations (course structure: "Faculty and students agree upon expectations regarding times for student assignment completion and faculty response" [p. 12]).

Three of the remaining four categories are consistent with the WICHE standards. IHEP's Institutional Support standards are not nearly as extensive as earlier sets. While the standards address technology, they do so through general statements, such as that the dependability of the "delivery system is as failsafe as possible" (IHEP, 2000). There was no attempt to gauge the institutional commitment or perception of online instruction beyond the existence of a technology plan and the recommendation for a central department for managing online services.

The IHEP reviewers pointed out the problem with all standards examined to this point. While each presents a way to evaluate a Web-based instructional program, the

actual standards are either so general as to not be quantifiable or simply a yes/no

evaluation. This shortcoming is noted in a review of the indicators at a PEW Symposium

for higher education leaders in 2000, where participants noted that the IHEP criteria and

standards were more in the realm of "best practices" than true indicators, and that

indicators that "imply specific measures of high, or the best, quality and gradations

moving toward those measures" are needed (Twigg, 2001a, p. 7).

As noted, the IHEP criteria and standards in this discussion underwent some

modification after being reviewed by practitioners. The review process consisted of

surveys, site visits, and interviews. Participants were higher education practitioners at a

range of institutions that included 2-year and 4-year, public and private, teaching and

research colleges and universities. In addition to assessing the criteria and standards, the

researchers also collected information about whether these items were being integrated

into institutional policy (Twigg, 2000).

C2T2

The Center for Curriculum, Transfer and Technology (C2T2) is an organization

that "supports educators in the college, university college, institute and agency system in

British Columbia." C2T2 is made up of higher education partners and government

representatives, and one of its goals is to foster online education in British Columbia. A

group of educators participating in C2T2 expanded the IHEP indicators into a new set of

criteria that met their program needs. Many of the IHEP criteria and standards were

retained, new items were added, and the resulting set was reorganized by C2T2

participants. It was noted that this was not a blanket adoption of the IHEP criteria. The

18

C2T2 criteria were published online by Munro at http://www.c2t2.ca/binary.asp?from=media&item_id=393, last retrieved July 2004.

C2T2 divided the criteria into Macro and Micro, where Macro addresses institutional, contractual, or regulatory issues and Micro focuses on items that are "under the influence of faculty or course teams" (Munro, 2002). Indicators on Institutional Support, Student Support, and Faculty Support are categorized by C2T2 as Macro, while Course Development, Teaching and Learning, and Course Structure are identified in the Micro category.

While the Macro and Micro indicators include many of the standards recommended by IHEP, C2T2 expanded some of the items and tailored others to meet their needs, especially in the Micro category. The two principle contributions in the Macro category are found under Institutional Support. Here the C2T2 group added one indicator requiring a cost model that supports both upkeep and modification of a program, and another combining the student and faculty technical support indicators.

Several new indicators were added to the Micro category, expanding on and detailing many of the IHEP criteria and standards addressing Course Design and Teaching and Learning. The additional indicators detailed what C2T2 identified as effective design and teaching activities, and the recommendations were more extensive than any other criteria or indicators to date. The additional Course Design indicators focused on audience assessment, addressed various learning styles, examined consistency of course structure, and stressed that "courses are designed to delight, surprise, and lead students to self-discovery" (Munro, 2002). Similarly, detailed instructional methods were added to the Teaching/Learning Activities. While never directly referenced, elements of

the constructivist learning paradigm are present, especially that learning is a social process (Barab & Duffy, 2000). These include active communication and promotion of a community of learners, as well as recommendations for student research activities.

The C2T2 recommendations do not include all the IHEP criteria or standards in their indicators. It is noted that even though some of the IHEP recommendations are not part of the C2T2 indicators, these are supported, just not specified.

CHEA

The Council for Higher Education Accreditation (CHEA) undertook a 2002 survey of professional accrediting agencies (engineering, nursing, etc.) regarding standards used in evaluating distance education programs. CHEA received responses from more than 50 accrediting agencies, and the standards submitted were divided into seven categories similar to those found in the WCET, WICHE, NCA, and IHEP best practices: Curriculum and Instruction, Faculty Support, Student Support, Assessment of Educational Effectiveness, and Student Learning Outcomes are familiar categories. CHEA classified several standards under Mission, Goals, and Objectives or Resources, and these are comparable to the standards found under Institutional Support or Commitment.

One significant contribution made by the CHEA study is its emphasis on competency standards, though this may not be unexpected given the nature of the organizations studied. Earlier examples featured discussion on clearly stated student outcomes; however, CHEA was the first to state the need for such criteria when evaluating quality. However, while WICHE proposed a certification process, it did not extend this best practice to a measure of competency.

Whereas CHEA supported the standards proposed in other studies, it did not display much interest in evaluation criteria associated with the technology infrastructure or the reliability of a delivery medium. In many respects, the CHEA findings on technology criteria are similar to the minimal criteria proposed by IHEP.

SLOAN-C

In the mid 1990s, the Alfred P. Sloan Foundation's Sloan Consortium (SLOAN-C) first proposed Five Pillars for Quality Online Education: Learning Effectiveness, Student Satisfaction, Faculty Satisfaction, Cost Effectiveness, and Access. Beginning in 1999, SLOAN-C began fleshing out the details of these pillars by inviting researchers from institutions in the consortium to present their findings at a national workshop (Lorenzo & Moore, 2002). The Sloan Consortium is composed of higher education institutions and public and private organizations with an interest in online education. A current list of member organizations is available at http://www.aln.org/aboutus/currentmemberslist.asp.

At the core of the SLOAN-C project is an emphasis on continuous quality improvement feedback from all stakeholders in an institution's online education program, and creating an environment wherein institutions can share their success with each of the pillars (Mayadas, Bourne, & Moore, 2002). To facilitate communication, SLOAN-C has created a Web site and publications, including the *Journal of Asynchronous Learning Networks*, for dissemination of research results. Each pillar has a lead editor who manages the information for that particular group.

The first pillar, Learning Effectiveness, consists of three overarching concepts: interaction, higher order learning, and the need for continuing research into the most

effective methods of online instruction. The overarching goal of this pillar is to show that online instruction is equivalent to the classroom (Mayadas et al., 2002). One of the early contributions to SLOAN-C questions how the No Significant Difference results could draw real conclusions from the limited range of variables. Researchers were urged to focus on learning effectiveness as a result of pedagogical practices, not the medium used to deliver the course (Joy & Garcia, 2000). Much of the initial work addressed individual design strategies and their effect on student learning, including student interaction (Koorey, 2003; Swan, 2002) and collaboration (Hilz, Coppola, Ritter, Turoff, & Benbunan-Fich, 2000). Programmatic approaches have also been included, such as Northwest Technical College's Distance Nursing and Allied Health program (Wrigth & Thompson, 2002) and Rio Solado Community College's "Keys to Instruction" (Scarfiotti, 2003).

The second pillar is Student Satisfaction, which recognizes students as consumers and means that online courses must include "productive interaction," and that graduation and retention data are important measures of instructional effectiveness. The consortium participants have been particularly interested in defining and measuring what is meant by effective interaction in online environments and the effect on student satisfaction with the online course experience (Kashy, Albertelli, Bauer, Kashy, & Thoenessen, 2003; Sener & Humber, 2002) and how student perception of learning affects satisfaction (Frederickson, Pickett, Shea, Pelz, & Swan, 2000).

Faculty Satisfaction, the third pillar, focuses on faculty's need for "moral support," the need for a team approach to design and delivery (referred to as the Monroe Model), and the need not only to accept the impact of technology on education but to

promote scholarship on the subject. The *Journal of Asynchronous Learning Networks* contains a number of contributions addressing each of the three components of this pillar.

The overriding goal of fourth pillar, Cost Effectiveness, is efficient management of cost while maintaining a competitive edge. Contributions have addressed how to effectively measure the cost of online programs (Rumble, 2001) and evaluating models used at member institutions (Bishop, 2003; Wright et al., 2002).

The final pillar, Access, concerns barriers to student access. While the "digital divide" has been reduced, it still exists, which means some potential students do not have access to Web-based instruction. Member institutions have been sharing institutional initiatives used to make online education accessible (Champagne, Hewitt, Short, Pietrangelo-Brown, Epstein, & Bowers, 2002; Stover, 2002). The other principal barrier to access is financial, whether it is tuition or cost of services (Chaloux, 2002)

The Sloan Consortium promotes research by member institutions, and by creating the five pillars it encourages professionals and practitioners to develop and test a range of evaluation tools and methods, then to share their results with other consortium members. Through this process the consortium hopes to flesh out the details of each pillar through the peer review process (Mayadas et al., 2002).

DETC

The Distance Education Training Council (DETC) began as the National Home Study Council in 1926 as an organization formed to address the practices of correspondence course providers; the name was changed in 1994. The DETC is the only organization that provides national accreditation for exclusively distance education institutions. It uses 13 institutional standards that address familiar issues such as

institution and mission, learning effectiveness, faculty training and support, student

support, and evaluation methods (DETC, 2004).

<div align="center">Stakeholders' Perspectives on Distance Education</div>

The literature identifies four groups of participants with a significant investment

in distance education: students, faculty, program administrators, and support staff.

Students and faculty make up the two largest groups, while program administrators and

support staff are much smaller populations. Few studies reflect the administrative

perspective, and even fewer examine support staff perspectives on distance education.

<div align="center">*Student Perspectives*</div>

While distance education is not a new concept in higher education, its expansion

due to technologies such as videoconferencing and Web-based courses is forcing

researchers and practitioners to reexamine what is understood about distance education

students. A shift in the nature of distance students has occurred over the past decade. In

the early 1990s the NCES found that most were female and over the age of 30. Since then

the population has shifted to include a balance of genders and traditional and

nontraditional ages (Waits & Lewis, 2003), though a continuing criticism is lack of

participation by low-income and minority populations (Phipps & Merisotis, 1999). While

the students in distance education programs have changed with time, many of their

concerns and attitudes have persisted.

Studies of student attitudes have identified common themes. Well-designed

course sites with easy-to-find content and supplementary tools were regularly cited as a

contributing to satisfaction or enhanced learning by distance students (Conrad, 2002b;

Inman et. al, 1999; Roval & Barnum, 2003; Song et al., 2003; Tricker et al., 2001).

<div align="center">24</div>

Students expressed a need for faculty to improve clarity of instructions, especially those related to grades (Hara & Kling, 1999; Song et al., 2003). The applicability or relevance of assignments was also important to students (Conrad, 2002b; Tricker et al., 2001).

Student attitudes often were influenced by the amount of personal communication with and access to the instructor (Brown et al., 2002; Daugherty & Funke, 1998; Haynes & Dillon, 1992; Tricker et al., 2001); the greater the access and communication, the greater the reported satisfaction. Timely return of assignments and the quality of feedback were other significant factors identified by students (Hara & Kling, 1999; Song et al., 2003; Tricker et al., 2001).

Course design, clear instruction, frequent communication, and feedback are integral to two of the recurring criteria proposed for evaluating distance education effectiveness: faculty training and instructional design. There were discrepant findings, however, regarding distance students' sense of community. Both Hara and Kling (1999) and Conrad (2002b) found positive attitudes for student-student interaction and community, while Inman et al. (1999) and Song et al. (2003) found concerns about lack of community or connection. The variation of these perceptions on community building reinforces the importance of consistency in course design and faculty training.

In nearly every study, students identified one barrier to instruction: technical problems and technical support (Daugherty & Funke, 1998; Hara & Kling, 1999; Haynes & Dillon, 1992; Song et al., 2003; Talent-Runnels et al., 2006). Technical problems might be expected during adoption and implementation of new programs and technologies, but the issue is still identified by students long after that. The persistence of

this problem indicates that more attention must be paid to the usability and reliability of technical media.

Finally, students claimed to have been little influenced by marketing (Tricker et al., 2001); rather, individual needs were more likely to prompt interest in distance education (Conrad, 2002b; Tricker et al.). Students did not typically express concerns with noninstructional services, though these were common concerns cited by institutions.

Faculty Perspectives

The earliest studies on distance learning found two common perspectives among faculty. Level of experience with the technology was directly related to faculty's perspective on how well they utilize a given distance medium (Bailey & Chambers, 1996; Clark, 1993), and the faculty role in a distance course was perceived as different from that of the traditional classroom (Beaudoin, 1990). The shift in role is tied to student-teacher interaction and reflects a shift from transfer of knowledge to supervision and direction (Beaudoin). While faculty were positive about distance learning in general, they expressed a negative attitude regarding their use of distance technologies (Clark).

Clark's (1993) national survey of higher education faculty provides a baseline for examining faculty perspectives prior to the advent of online courses. Clark surveyed more than 500 faculty representing a range of higher education institutions and instructional disciplines. This study elicited faculty attitudes toward distance education programs (telecourses, correspondence courses, etc.) through five questions:

1. How likely are faculty to credit distance education?

2. Is there a relationship between professional characteristics and receptivity?

3. What effect does experience with distance education have on receptivity?

4. How do faculty perceive the media and methods common to distance education?

5. How do faculty explain their receptivity or nonreceptivity to distance education?

Clark (1993) found a slightly positive overall attitude toward distance education, and that faculty's attitudes reflected their level of experience with distance education. Professional characteristics also influenced receptivity. Faculty in general education programs and business were more receptive than those in the hard sciences. Faculty also expressed more positive attitudes about video-based technologies (videoconferencing and telecourses) than less interactive forms of distance learning. Lastly, Clark found that while faculty were generally accepting of distance education, their attitudes were not as positive about their own distance courses, a contradiction that persists in later studies (Inman, Kerwin, & Mayes, 1999; Wang, MacArthur, & Crosby, 2003).

A recurring theme among faculty that mirrors student perceptions was the persistence of problems with technology and technical support (Cookson, 1995; Daugherty & Funke, 1998; Inman et al., 1999; Talent-Runnels et al., 2006). The problem with technical systems is not unique to any one medium but is found in studies of courses delivered via a range of technologies.

Time was another recurring theme among faculty. Studies regularly identified faculty concerns with the time demands of distance education, ranging from preparation time (Daugherty & Funke, 1998; Hara & Kling, 2001; Pajo & Wallace, 2001; Wilson, Vernhagen, Kasprzak, Hunting, & Taylor, 2003) to time spent communicating with students and preparing supplementary materials to augment the distance environment

(Wolcott & Betts, 1999). More recently, concerns with training and the availability of instructional design support have been on the rise (Talent-Runnels et al., 2006)

Benefits identified by faculty included student learning and the development of new skills, experience with independent learning, access to a wider range of resources, and improved communication skills due to the textual nature of online learning.

Administrators and Support Staff

Dooley and Murphrey (2000) used SWOT analysis (strengths, weaknesses, opportunities, threats) to identify how the perspectives of administrators, faculty, and support staff influence distance education growth. The study took place at a Research I institution that had been delivering distance courses for 10 years. In general, the perspectives of the three groups were not found to be significantly different. All agreed that three steps are needed to promote development of distance courses by faculty: (a) increased administrative commitment for more and better technical support and "seamless" infrastructure; (b) more training, not just on technology but also instructional design and pedagogy; (c) more faculty incentives such as release time, stipends, or credit towards promotion.

Rangecroft, Gilroy, Tricker, and Long (2002) interviewed three program administrators about the strengths and weaknesses of the programs they oversaw. Their perspectives were compared to student feedback obtained through a survey. Administrators and students both expressed a positive attitude toward distance learning. Both groups agreed on the value of marketing materials and that student experiences should match expectations. However, opinions diverged in several areas. Students expected texts to be included in the tuition of the course, whereas administrators did not.

28

Further, students complained that the assignments were too theoretical and not linked to professional experience. The most significant divergence concerned students' high expectations of extended feedback. The principle conclusion drawn from this study was that small problems can escalate rapidly in the absence of a face-to-face environment.

Distance Education and Community Colleges

A core mission of community colleges is to provide access to higher education (Cohen & Brawer, 1996), and distance education gives community colleges a new tool for extending access to populations limited by time and distance (Cassara, 2001; Easterday, 1997; Floyd, 2003; Lever-Duffy, Lemke, & Johnson, 1996). The acceptance of distance education by community colleges is reflected in their offering nearly 50% of all courses at a distance (Waits & Lewis, 2003). Do community college distance education faculty and students have differing perspectives? Or are the perceived problems and barriers the same?

The access theme is evident when examining whom community college distance programs serve in studies performed in Tennessee and Maine. The community college population is predominantly of nontraditional age, racial distribution, and gender ratio (Cohen & Brewer, 1996), and the early distance population appears even more nontraditional. A study of participants in the Chattanooga system found that the telecourse program served "niche" learners, especially physically disabled students who required the flexibility distance learning offers, and utility workers who could not take courses offered on a traditional schedule (Miller, Hyatt, Brennan, Betani, & Trevor, 1996). Researchers studying Maine community colleges found a similar niche of rural

students who were predominantly female (more than 70%) and over the age of 30 (more than 50%) (Lyons, MacBrayne, & Johnson, 1994).

While the student population may be nontraditional, the perspectives of community college students are similar to general attitudes found in higher education. Students participating in telecourses were found to be generally satisfied with their experiences; however, significant concerns were raised regarding a lack of interaction with the instructor (Bower, Kamata, & Smith, 2001; Inman et al., 1999). Other common themes were the reliability of technology and lack of technical support (Inman et al.)

Community college faculty appear to share many of the perspectives of other higher education faculty, but they tend to express even more positive attitudes regarding the potential of distance education. Shortcomings with technology and institutional support were commonly expressed as a barrier to success (Easterday, 1997; Inman et al., 1999; Levin, 1999). Concern with the time investment was another perspective shared with the rest of higher education (Levin; Wang et al., 2003).

Clark's (1993) national study of distance education faculty included a large population of community college instructors. While higher education faculty generally expressed a positive attitude toward distance education technology, Clark found that community college faculty were more receptive than any other group. Community college faculty were also found to have greater experience with distance education teaching than their 4-year counterparts. Clark found that community college faculty shared the same contradiction found in the larger group: a positive attitude towards distance education but less positive feelings about their individual use of distance

technologies. This contradiction persisted through later studies (Inman, et al, 1996; Wang et al., 2003).

In some cases, faculty claimed they had little or no training for distance education (Inman et al., 1999; Wang et al., 2003). While this was not identified as a concern, it indicates a need to focus on faculty training and instructional design in evaluating programs. Some faculty noted that an incentive for teaching at a distance is the opportunity to learn more about technology and the chance to reach a new audience of students (Easterday, 1997; Florida State Board, 2000). Community college faculty see themselves as actively engaged in identifying effective teaching methods and factors that improve student performance and retention (Doherty, 2000; Glahn & Gen, 2002; Halsne, 2002; O'Quinn, 2002).

Community colleges have not ignored quality in distance education. John C. Calhoun State Community College of Alabama examined grade distributions for distance student and traditional students and found no significant difference between the two groups (Searcy, 1993). Lever-Duffy, Lemke, and Johnson (1996) led a panel to identify model distance education programs at community colleges. Sixteen institutions were recognized for exemplary programs; strong technical infrastructure, student support services, and innovative instructional methods were common ingredients among all 16. While not measuring quality, the Florida state system has expanded electronic student and learning services in response to the Southern Association of Colleges and Schools criteria for distance learning (Florida State Board, 2000).

The Delphi Method and Research in Education

Using a panel of experts to seek consensus in decision making and forecasting has proven a reliable instrument by Rand and the United States Air Force (Dalkey, 1969). This technique, known as the Delphi method, has since been used to address questions not easily quantifiable. The Delphi method typically begins with an open-ended collection of information before proceeding to consensus building. A modified Delphi study moves straight to consensus building if a set of possible solutions already exists.

The Delphi method has experienced recent growth in popularity and is especially germane to education research in three applications: identifying educational goals and objectives, developing curriculum or campus planning, and creating criteria for evaluation (Eggers & Jones, 1998). Recent Delphi studies in education range from curriculum development in technology, computer science, and agriculture, to deciding how to measure quality in educational programs. Recent studies in educational technology measuring the quality of programs illustrated Delpi's potential utility for the present study.

Researchers in technology education have used the Delphi method to address a range of questions. Wicklein (1993) used Delphi to forecast challenges facing those teaching technology. Croker (1996) used Delphi in conjunction with Total Quality Management to define measures of quality in vocational programs in Idaho. Clark and Wenig (1999) collected performance indicators using Delphi to evaluate the quality of technical education programs in North Carolina. In another application, Rogers applied Delphi to the question of what factors influenced individuals to pursue advanced degrees in technology education.

Identifying how to assess "quality" in any situation is challenging due to the various interpretations of that term. In the cases examined by Coker (1996) and Clark and Wenig (1999), Delphi was used to compile what experts identified as germane to the quality of two different education programs. Delphi has been applied to questions of quality in other programs. Clark and Scales (2000) used it to identify criteria for evaluating quality in a graduate technical program in graphic communications.

Soo and Bonk (1998) used a Delphi study to explore consensus among distance faculty regarding the instructional value of student interaction. Another application of Delphi forecast the future research needs of distance education from the perspective of program directors (Rockwell, Furgason, & Marx, 2000). Delphi was used in a similar forecasting study by Buss (2001) to identify obstacles to a particular distance technology. More recently, Goho, MacAskill, and McGeachie (2003) applied Delphi to planning for future needs of and challenges to distance education in Canada.

The Delphi process can be used to identify or forecast trends in most educational systems, and to achieve consensus among experts where no previous work exists. This consensus function has been applied with some success to identifying quality measures in at least one program and to address curricular changes in another. It is this utility that made Delphi the initial method for identifying quality indicators in the present study.

Magnitude Estimation Technique

Magnitude estimation technique (MET) was originally developed for use in psychophysical experiments evaluating sensory response to physical stimuli, and it is still widely used in auditory applications (Stevens, 1975). More recently, this technique has been applied to social science applications where judgment of worth reveals more than

33

simple ranking or Likert scale input (Schriesheim & Gardiner, 1992). The technique uses an "anchor" statement that is given an arbitrary rating (such as 100) by the researcher. The participant is then presented with a series of related statements and asked to judge these new statements relative to the anchor. If a statement results in a reaction half as strong as the anchor, the statement is assigned a value of 50. If the statement results in a reaction three times as strong as the anchor, the statement is assigned a value of 300, and so on (Sturges, 1990).

The results of MET can be approximated according to the function $R = kS^b$, and logarithmic transformation of the statement results in the linear relationship

Log R = log k + b log S (Foley, Cross, & O'Reilly, 1990). R is the response, S is the scaling factor, and k and b are empirical factors determined from the data. The implication is that participants' judgments, or perceptions, of identical statements should follow a pattern.

There are concerns with applying this method to social science. Care must be taken with instructions, and the more explicit the better (Sturges, 1990). Participants have a tendency to use certain whole number responses and to default to a Likert scale categorical response (Stevens, 1975). Critics of the power function $R = kS^b$ argue that while it is an accepted law of psychophysics, inconsistencies in measurement require too much data massaging for similar reliability in the social sciences (Cliff, 1973; Hamblin, 1974). However, care in design of the instruments, especially explicit instructions, can lead to reliable applications to social science systems (Stevens, 1975).

MET is an alternative to ranking or Likert scale surveys when the goal is to learn not just how the items may be ranked but also when individual reactions, such as

34

importance, are important to the research. This was the case with the stakeholder survey. The goal was to collect information about perceptions of importance by the different groups of stakeholders.

Chapter Summary

Educational policy groups, accrediting agencies, and academic institutions are all dealing with the new landscape of distance education brought about by the delivery of courses and programs via the Internet. Despite some variation among the groups, a common set of standards or best practices that address institutional support, technical infrastructure, curriculum and instruction, student and faculty support services, and assessment and evaluation of program effectiveness can be identified.

A number of studies have examined student and faculty perceptions regarding their experiences with distance education. Both groups share concerns about the technical reliability of the media and the amount of time required for success. Students have been found to expect more feedback than faculty anticipate and clear connections between course activities and assessment. Higher education faculty have shown a general acceptance of distance education, especially at the community college level, but express concern about their individual ability to effectively use the medium. Faculty also note concerns about the time requirements of teaching online and the value of access to a much wider range of educational resources.

The Delphi method is a research protocol used to forecast trends or achieve consensus on points of interest. Educators have recently used Delphi studies to address technology and program trends, to identify changes to curriculum, and to refine measures of quality in educational programs. The Delphi method's applicability for identifying a

indicators to measure the quality of distance education programs is illustrated in higher education studies using it to identify technology standards for vocational programs, benchmarks of technical programs, and future research needs in distance education.

Magnitude estimation technique is a surveying tool that allows the investigator to go beyond simple ranking of criteria or indicators. The stakeholder survey is a tool for measuring perceptions of importance among participants in online education, and MET provides an instrument to achieve this goal.

CHAPTER 3: RESEARCH METHODS

The literature indicates that Phipps and Meritosis's (1999, 2000) criticisms have yet to be addressed. Several best practices have been proposed for establishing and managing an online program; however, a lack of specific indicators for measuring a program's quality and its performance still exists. The present study was developed to discover a consistent method for comparing the quality of online programs at community colleges, and to evaluate the perceived importance of quality indicators used to evaluate an online program. These purposes led to the following two research questions:

1. What are indicators of the quality of online programs at community colleges?

2. What is the perceived importance that stakeholders' place on each of these quality indicators?

Stakeholders included in this study were faculty, students, program administrators, and technical support personnel.

A review of the literature regarding best practices helped gauge the current state of research on quality in online programs and revealed that the need for quality indicators still exists. As a result, three studies were designed to address these goals: a Delphi study to collect and refine a set of quality indicators, a stakeholder survey to identify the perceived importance of the indicators to participants in online learning, and the factors versus indicators survey. The stakeholder survey was developed using the potential indicators identified through the Delphi study, and magnitude estimation technique (MET) was applied to identify the perceived level of importance of these items to individuals in each stakeholder group. The surveys were distributed to four groups of stakeholders in a community college district serving a mix of urban, suburban, and rural

constituencies. The factors versus indicators survey was sent to a group of distance education researchers in an effort to refine the results of the Delphi study.

Limiting the validation to community college programs serves a number of purposes. Community colleges serve a much broader population of students than do traditional 4-year colleges and universities, and this group of stakeholders may have a unique set of perspectives. In general, the organizational model of community colleges is less complex than the rest of higher education (Cohen & Brawer, 1996), yet the results may prove applicable to a particular unit or college in a 4-year college or university.

This chapter is divided into four major parts. It begins with a section outlining the potential factors and indicators identified in the literature. The second section reviews the methods used in the Delphi study. The final two sections present the process used in the stakeholder survey.

Quality Indicators

The lack of consistent quality indicators for comparing online programs in higher education, as noted by Phipps and Merisotis (1999, 2000) and asked for by IHEP, meant relying on existing standards identified in the guidelines or best practices proposed by higher education policy groups, consortia, and accrediting organizations. The intent at this point was to compile a set of quality indicators from the accrediting agencies and higher education organizations examined in the literature review. The resulting indicators would then be used as a baseline for comparison with the results of both the Delphi study and stakeholder survey.

The literature uses a range of terms for the assorted items found in the various guidelines and best practices. *Standard* is widely used in best practices guidelines and the

literature on program evaluation; it refers to an accepted measure for comparison in a qualitative or quantitative study. *Criteria* refer to evidence demonstrating whether a goal has been met.

The goal of this study is to identify a set of indicators. Myers & Silvers define indicators as measures or outcomes that address performance (1993), while the National Center for Educational Statistics [NCES] as "measures that provide answers to the questions" (2003). For the purposes of this study, *indicators* are signs (outputs) of success; in this instance achieving success indicates quality. *Factors* are items that contribute (inputs) to the goal; in this case the goal is quality. The need to distinguish between factors and indicators became important in the latter stages of this study.

<center>Categorizing Standards and Best Practices</center>

The literature review indicated that guidelines or best practices are generally categorized according to five general themes: institutional support, curriculum and instruction, faculty services, student services, and evaluation and assessment. Meyer (2002), reviewing studies on measuring quality in distance education programs, discovered four general themes: evaluation and assessment, curriculum and instruction, support services (students and faculty), and institutional support. An argument can be made either way for combining or separating out faculty and student support services.

While the five categories are consistent, a closer examination allows for the addition of a sixth category: technology. Technology is rarely used as a separate theme or category in the literature. When technology is addressed in a standard, it is usually included under the category of institutional support. A sixth category is necessary for several reasons: the need for a robust and flexible infrastructure to support a distance

<center>39</center>

education program, the restrictions an institution's IT infrastructure can place on instructional design, and the need for strong technical support for both students and faculty.

An effective distance education program will place demands on the institution's technical infrastructure. Klingentstein (1998, p. 25) supported investment in a robust infrastructure to avoid being overburdened by the "volatility of emerging technologies," to support integration across systems supporting distance education, and to provide "authentication and customization" to support users, who often employ a variety of computers over a semester. The administrators of the Virginia Community College System (VCCS) statewide e-learning system similarly noted a concern with the rate of change in technologies and the need to keep faculty trained and supported (Hengehold & Schultz, 2000). Dirr (2003) noted the costs that technology bring to an institution and that educators are still learning how Web-based technology affects student learning.

The impact of technology costs was confirmed in a 2001 report on financing of technology infrastructure in higher education. Phipps and Wellman (2001) noted that a survey of more than 70 higher education information technology (IT) directors by *Educause* found IT to be the number one challenge, and that distance education and funding for its infrastructure had the greatest potential for affecting institutional mission. The literature review found that technical problems were identified as a concern by Clark in 1993, and this concern has continued to be expressed by faculty as recently as 2003 (Wilson et al., 2003)

Computing technologies coupled with digital media provide the potential for innovative new instructional tools; however, storage space and bandwidth for

transmission of the media needed to support innovative instruction can place a limit on how course materials are designed (McGraw & Ross, 2000). The late 1990s and early 2000s saw a telecommunications industry investing heavily in fiber technology for anticipated bandwidth demands (Olsen, 2003). The economic downturn that began prior to and was accelerated by the events of September 11, 2001, had a significant negative impact on higher education technology budgets (Kiernan, 2002) and the telecommunications industry in the United States (Olsen, 2003). The Campus Computing Project's annual survey has found the number of institutions reporting this concern steadily increasing since the 2001 academic year, and the 2003 survey found that more than 40% of the institutions responding experienced core funding cuts that affected instruction. Because most of the best practices and standards reviewed predate this period, these recommendations do not address how an institution's support for distance education's technical infrastructure has evolved to a mission critical status, and how technology budgets have become one of the first to be cut in tighter economic times (Phipps & Wellman, 2001).

The various accrediting institutions (NCA, CHEA, etc.) and higher education policy groups (IHEP, SLOAN-C, etc.) have proposed standards of best practice that address student and faculty technical support services. While it could be argued that technical support standards should be located under institutional or student and faculty support, a new category specifically addressing an institution's technical infrastructure is also appropriate.

The idea that quality is a moving target is illustrated by how institutional support of technical infrastructure in recent years has gone from a foregone conclusion to one of

the first to be sacrificed when budgetary shortfalls occur. Coupling this problem with infrastructure's potential to limit instructional design and the need for flexible systems that adapt to users' needs and habits, it is proposed that the five categories (institutional support, curriculum and instruction, faculty support, student support, and evaluation and assessment) identified by Meyer (2002) be expanded to include a sixth category: technology.

<div align="center">Potential Indicators from the Literature</div>

The terms *best practices, criteria, standards, factors,* and *indicators* are used throughout the literature, sometimes confusingly. Accordingly, some clarification is necessary regarding how these terms are used in the following discussion. The terms *best practices, criteria,* and *standards* are used interchangeably in the literature when discussing recommendations regarding practices and policies institutions should adopt for distance learning programs (Twigg, 1999a). One goal of the present study is to identify a set of *indicators*, and this term is used to denote outputs that an institution can point to as signs of success. The following *best practices*, *criteria*, and *standards* from the literature provide a place to start in the identification of possible indicators of quality.

Various standards of best practices for online programs in higher education exist, and six general categories of standards have been identified. While these standards, best practices, and criteria were not set forth as indicators of quality, these provide one baseline against which the results of the present study may be compared. To create a baseline set of indicators for comparing the results of the Delphi study and stakeholder survey, the guidelines, criteria, and best practices discussed in the literature review were assessed for common standards. Tables 1 and 2 illustrate those standards by organization.

<div align="center">42</div>

Table 1

Standards Found in Two or More Best Practices Guidelines, 1 of 2

	NCA	WCET	IHEP	CHEA	AFT	C2T2	SLOAN	HLC
Institutional Commitment								
Budget and Personnel	1	1	0	1	0	1	1	2
Mission	0	1	0	1	0	0	0	0
Institutional Assessment Plan	2	2	1	1	0	1	1	4
Technology								
Technology Plan	1	1	1	0	0	1	0	1
Centralized Technology	0	1	1	0	0	1	0	0
Management Infrastructure	1	0	1	0	0	0	1	2
Course Management System	0	0	0	0	0	1	0	1
Technical Support	1	1	2	2	0	1	1	2

NCA – North Central Association

WCET – Western Cooperative for Educational Telecommunication

IHEP – Institute for Higher Education Policy

CHEA – Council for Higher Education Accreditation

AFT – American Federation of Teachers

C2T2 – Center for Curriculum, Transfer and Technology

SLOAN-C – Sloan Consortium

HLC – Higher Learning Commission

Table 2

Standards Found in Two or More Best Practices Guidelines, 2 of 2

	NCA	WCET	IHEP	CHEA	AFT	C2T2	SLOAN	HLC
Curriculum and Instruction								
Design	2	1	2	1	4	4	1	1
Outcomes	0	1	1	0	0	2	0	0
Standards	0	0	2	0	1	1	0	1
Certification	0	1	0	0	0	2	0	0
Faculty Services								
Development	0	0	0	1	0	0	1	1
Training	1	1	0	1	0	1	0	2
Mentoring	0	0	1	0	0	1	0	0
Student Services								
Pre-enrollment services	3	2	1	1	1	1	1	3
Enrollment Services	0	0	3	1	0	0	0	1
Student Support Services	1	1	0	1	1	0	1	1
Learning Support Services	2	1	1	1	1	0	1	2
Evaluation and Assessment								
Evaluation Process	2	1	2	1	1	3	0	0
Assessment Process	0	1	0	0	2	1	0	1

These standards of best practices provide a baseline set of possible indicators for comparison to the results of the Delphi study and the stakeholder survey. While each was identified as common to two or more best practices, the standards do not include many more indicators unique to each organization. Also, many of the sources used to generate the baseline set of indicators are at least 5 years old. Advancements in technology and growth in online courses could mean a reduced need for some indicators and possibly a need to include new indicators.

The next step was to independently identify a set of quality indicators, which was done through a Delphi study. Harrington and Harrington (1996) identified five methods for collecting input, noting that which method to use depends on the goal(s) of the organization. To maximize results a combined internal and external process was used, where the internal population consisted of community college professionals and the external population was representatives from other higher education institutions. Such an approach allows input from both competitors and noncompetitors.

Results of this study could be generalizable to other higher education institutions to the extent that an external industry study surveys experts from a variety of such institutions. An external competitive study would have limited the study to institutions within one subgroup of higher education. This external approach brings together the opinions of 2- and 4-year institutions, public and private, teaching and research, profit and nonprofit.

A review of existing criteria, indicators, and best practices shows common themes; however, the main problem raised by Meritosis and Phipps (1999, 2000), lack of measurable indicators, still exists. Each set of criteria examined in the present study

45

consists of some specific elements unique to the organization's needs or the stated purpose. The Delphi method was used to develop a broader set of indicators by collecting input from a diverse group of program directors.

<center>The Delphi Study</center>

Generating a set of indicators via input from various institutions could be accomplished through a variety of methods. An experimental method designed to generate "consensus of opinion of a group of experts" is Delphi (Dalkey & Helmer; 1963, p. 438). Linstone and Turoff (1975) noted specific applications in which the Delphi method would be particularly applicable, such as when an issue cannot be analyzed in a traditional quantitative fashion, or when the diversity of participants makes collaboration difficult or impossible.

The Delphi process begins with identifying a panel of 15-20 experts who are willing to participate in a series of surveys. The diverse institutions involved in the present study should lead to a stronger set of indicators; however, error can result from the natural hierarchy that exists among higher education institutions. The Delphi technique avoids this by having the experts work independent from one another. By taking steps to avoid contact among experts, a research study can achieve group consensus and avoid a "bandwagon effect" that could result from the professional respect group members hold for other individuals or the institutions they represent (Linstone & Turoff, 1975, p. 4).

Once the experts have been identified and contacted with the conditions of the study, each participates in a series of surveys. The first survey uses an open-ended instrument. In the present study, participants were asked to list possible indicators of

quality relative to online course offerings and programs. The researcher then compiled

the submissions and synthesized the input into a set of possible indicators, using keyword

searches to identify themes. How this process was applied will be illustrated later in this

chapter.

The final stage of the Delphi process refined the set of potential indicators

through three consensus surveys. The first survey asked participants to indicate their level

of agreement with each indicators by using a 7-point Likert scale (Fish & Busby, 1996).

The results of the first consensus survey were compiled and two statistics were

computed: median and interquartile range. The median was used to identify large-scale

group consensus, since it indicates the midpoint in a group's response. In this study a

rating of 1 represented "strong agreement" and 2 represented "agreement" on the 7-point

scale; correspondingly, a rating of 6 represented "disagreement" and 7 was "strong

disagreement." A median of 2 or less meant that at least half the panel indicated

agreement on the indicators. The interquartile range (IQR) measures the difference

between the upper and lower quartile of responses and is used to measure the spread of

the middle 50% (25% above and below the median) of respondents. If the combined

median is 2 or less with an IQR of 1.5 or less, consensus to include a given indicator has

been reached (Fish & Busby, 1996). Similarly, a median result of 6 or greater combined

with an IQR of 1.5 or less signaled a consensus to eliminate a given indicator.

The second consensus survey comprised those indicators that had not yet

achieved consensus (agreement or disagreement). Panelists were provided with the group

median and IQR and reminded of their individual response to the previous survey. They

were then instructed to review the remaining indicators, reflect upon their response after

comparing it to the group results, and indicate a level of agreement using the same 7-point Likert scale. Again, the results were compiled and the median and IQR statistics reviewed for consensus.

A third consensus survey was generated using the remaining indicators that had not achieved consensus on either of the previous surveys. The same method was used as in the second consensus survey, except in this case the group statistics for both previous surveys were included. Once again panelists were asked to reflect upon the results and indicate their level of agreement using the 7-point Likert scale. The final list of indicators consisted of those individual indicators for which the panel of experts achieved a consensus of agreement on one of the three consensus surveys, which was indicated by the two statistics: a median score of 2 or less and an IQR of 1.5 or less.

Delphi Panel of Experts

Twenty-one regional experts were identified to serve on the expert panel. Experts in this study are identified as individuals with "special skills or knowledge derived from training or experience" (Eggers & Jones, 1998, p. 55). The relatively short period of most online learning does not allow for long-term experience, so in this instance experts had to be identified principally through work experience and external roles in higher education. Potential experts were first identified through a review of regional (Missouri and Kansas) online higher education programs. Individuals had to have served in a distance education leadership role at their institution for at least 5 years. Once potential candidates were identified, their participation in local and regional distance education organizations (Missouri and Kansas) was examined. To be identified as an expert, the candidate needed

to be active in at least one such organization. The mix of organizations represented by the panelists is illustrated in Table 3.

Table 3

Distribution of Delphi Panelists by Type of Higher Education Organization

Panelist's Organization	Agreed to Participate	Responded to Delphi I
Community College - Public		
Urban	5	4
Rural	7	4
Teaching University		
Private	2	1
Public	3	2
Research University		
Public	2	2
Private	0	0
Distance Education Consortium	2	2
Telecommunications Company	1	0
Total	22	15

Of the 15 respondents to the first Delphi survey, 9 were male and 6 female. All but one of the respondents were White/Caucasian, and one respondent was African American. Only 3 of the panelists were under the age of 40, and 6 had served in their current position for more than 8 years.

Delphi I: The Open-Ended Survey

The initial survey of the Delphi process consisted of open-ended questions designed to stimulate input from the panelists. Their responses then formed the content of

the remaining consensus surveys. The final draft of the open-ended survey (Delphi I) used in this project consisted of questions on how an institution might support an online program within the six common categories identified in the literature review (institutional support, technology, curriculum and instruction, faculty support, student support, and evaluation and assessment). The questions addressed the general nature of each category and responses were later organized by these themes. This format was use to reduce the potential of "statistical mortality" in the subsequent consensus surveys (Eggers & Jones, 1998). A seventh question asking panelists to explore other possible themes concluded the open-ended survey.

Editing Delphi I

After the final draft of Delphi I was completed, three potential panelists were asked to review the survey regarding clarity of directions and questions. The reviewer's impressions of the original survey were collected using telephone and online surveys (Appendix A). Responses indicated that changes to both the procedures and questions were necessary, resulting in the elimination of a directive statement informing participants that there was no expected minimum or maximum number of responses to a given question. In question 2 the reference to support services was removed. Question 7 was significantly revised: The phrase "what other ways" was replaced with "what other services, support, policies, or actions."

The final instructions defined how online courses were to be defined for the purposes of this study:

> For the purpose of this study, an online course is defined as one in which content, assessment activities, and communication between students and instructors takes place through a Web-based interface. Digital media may be used to augment

instruction, but not serve as the primary mode of content delivery to insure that students can access courses via low bandwidth systems such as a 28.8k modem. Activities and interactions are asynchronous, and students are not required to visit campus for activities directly related to the course. It is possible, if not likely, that some students in such a program may never visit the campus.

Participants were also told what form an indicator could take and that the study was limited to community colleges:

Quality indicators can take a number of forms, from institutional policies to resources and services provided to one or more constituencies. Call upon the experiences and training that identify you as an expert when responding to each of these questions. While the study focuses on the indicators for community college, these indicators should not be limited to community college perceptions. Your task is to generate a list of indicators that you perceive to be indicative of a quality program in response to each question.

After nearly a full page of instructions, participants were presented with the set of questions.

The final Delphi I survey consisted of seven questions:

1. What are indicators that a community college's leadership supports the delivery of quality online programs?

2. How would a community college demonstrate support of quality online programs through the technology resources provided for all users?

3. What policies or activities must a community college promote to support curriculum, development, and effective instruction in its distance education program?

4. What are indicators that a community college supports faculty in a quality online program?

5. What are indicators that a community college supports students enrolled in a quality online program?

51

6. What evaluation and assessment activities indicate that a community college provides a quality online program?

7. In what other services, support, policies, or actions could a community college demonstrate its support for quality online programs?

The survey wrapped up with a short note of thanks to the participants.

Participant Packet

Upon completion of the revisions to Delphi I, the participant packet (Appendix B) was readied for distribution. The packet included a letter that described the purpose of the research project, what the responsibilities and expectations were for participants, and contact information for the researcher. Participants were told the number of surveys they would be expected to complete and the need to maintain confidentiality. Finally, the packet included a consent waiver to be signed and returned before the first survey would be sent.

Response to Delphi I

The first survey was sent to participants upon receipt of the signed participant waiver. Sixteen of the original 22 participants contacted returned the consent waiver, and fifteen submitted a response to the survey. These experts responded with 360 individual items in response to the open-ended questions of Delphi I. The task facing the researcher was to synthesize the range of indicators into a comprehensive document (Appendix C). Particular care was taken in identifying semantically different yet basically similar indicators (Brooks, 1979; Fish & Busby, 1996; Wilhelm, 2001).

The first step in the synthesis process was to organize the submissions by key words (e.g., marketing, infrastructure, support, mentoring, training, professional

development, evaluation). Once the indicators were sorted by key word, groups of indicators were reviewed for similarity and synthesized into a limited number of statements. A second key word search was then completed to further refine the larger keyword groupings. For example, "technical support" generated more than 40 responses that fell into several categories identified when applying additional key words (e.g., availability, help desk, support, training). A final review was still necessary because the keyword search did not sort all similar submissions, due to variations in language. This is illustrated in the following example of how similar submissions were synthesized. Particular care was taken during synthesis to protect semantic differences.

A research log was used to help the researcher represent individual ideas expressed by the panelists and avoid injecting the researcher's bias into the interpretation. The researcher recorded thoughts or impressions about why, or why not, two or more submissions were synthesized into a single item. As an example of the process used, 15 items were submitted on the availability of technical support. Keyword searches yielded the following items:

1. Technical support would need to be easily made available to those instructors.

2. It would offer a 24/7 help desk.

3. A help desk is available 24/7 to assist those needing technological assistance.

4. Real time, on-line support for the initial opening of the classes to ensure a successful beginning.

5. Funding provided to establish and adequately staff a student help desk beyond an 8-5 M-F schedule.

6. Help desk availability.

7. They should be providing specific resources that students can see a value for, such as help desk services, student email accounts, online help or tutorials, etc.

8. Technology help desk.

9. Support services (help desk, electronic reserves, online tutoring services, online admissions and registration).

10. Must provide online and phone tech support.

11. It would provide both students and faculty with help desk/tech line support throughout the week.

12. Providing technical support in person, phone, and by email.

13. Providing technical support in a broad range of times.

14. Students would have access to technical support when needed.

15. Tech support.

These 15 submissions were aggregated into two indicators:

1. The institution provides appropriate levels of technical support via a range of technologies and over a broad range of times.

2. The institution provides a 24/7 help desk to assist those needing technological assistance.

Notes from the research log indicated that these submissions reflected two different issues. There was a consistent voice for a range of communication modes needed by the help desk, and differing opinions about the availability of support. The decision to include the second indicator (a 24/7 help desk) resulted from variations in recommended availability. It should also be noted that some of the items in this case

address support services beyond a technical help desk. This was one value of the key word search, which helped the researcher identify crossover submissions.

A follow-up analysis of the process indicated success; however, there were two significant omissions from the indicators submitted in Delphi I and the synthesized results that made up Delphi II, III and IV. The first omission ("required" training) was a variation to the faculty training indicators. The second omission (use of "peer" evaluations) was a variation in the faculty evaluation indicators. Concerns of researcher bias could have been avoided by the use of two additional researchers in synthesizing the results of Delphi I (Wilhelm, 2001).

Once the full set of responses was compiled and similar submissions synthesized, the resulting set of indicators totaled 130 items (actually 129 due to one duplicate), and these potential indicators were used to create the second Delphi survey.

Achieving Consensus: Delphi II-IV

The second part of Delphi is the consensus building process. Through the first Delphi survey 129 potential quality indicators emerged, and these were refined through three subsequent surveys in which participants worked to achieve consensus on a smaller set of indicators.

Delphi II

In Delphi II (Table 4), instead of an open-ended survey, participants were sent 130 indicators (there was one duplicate) and asked to reflect upon the goals of the study, review their original submissions, and then either affirm their original response or support another indicator (Linstone, 1999). Agreement was determined through a 7-point Likert scale (Fish & Busby, 1996).

The survey was delivered electronically, and respondents were given the option to

return it in either electronic or print formats. The following instructions accompanied the

Delphi II survey:

Identify how strongly you agree or disagree with the potential utility of the following
Quality Indicators for measuring the Effectiveness of a Distance Education Program at a
Community College. The Agreement-Disagreement scale ranges from 1-7, where 1
represents strong agreement, 4 equates to neutrality, and 7 indicates strong disagreement.
Identify your response to each question by replacing the box to the right of the number
with an X. Thank you again for participating in this study.

Table 4

Sample of Delphi II Survey

Agree – Disagree
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐   1. The college's online program is overseen by a
professional manager with sufficient institutional
authority to organize and support the academic and
support services necessary for student success.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐   2. In all aspects of the distance education program, the
college's administration promotes the use of best
practices for online programs and instruction published
by regional and national organizations.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐   3. The online programs offered by the community college are
consistent with the institution's mission and needs of the
community served.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐   4. The community college is committed to supporting the
scheduling of online courses that meet the degree
requirements of all students currently enrolled in an
online program.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐   5. The community college provides the financial resources
necessary to support the technical infrastructure, training
and support personnel, and full range of faculty and
student support services required for online courses and
programs.

Delphi II was distributed to the 15 respondents remaining from the initial survey

(Delphi I). Thirteen participants submitted responses. Responses to Delphi II were

compiled and the results analyzed using SPSS 11.5. The two statistics used to identify

panel consensus were the median and IQR. The median indicates where the middle 50%

of the results fell; IQR illustrates the range of the outer two quartiles. Consensus on an

indicator was identified when the median had a value of 1 or 2 and an IQR less than or

equal to 1.5 (Fish & Busby, 1996). Similarly, an indicator was eliminated due to a

consensus of disagreement: if the median had a value of 6 or 7 and an IQR of 1.5 or less.

Respondents to Delphi II achieved consensus on 44 items, and no items were eliminated.

Delphi III

The third survey continued the process of consensus using essentially the same

methods as Delphi II. One difference in Delphi III is that panelists were provided two

additional pieces of information that resulted from the statistical analysis of Delphi II: the

mean score and IQR for every indicator. The purpose behind this addition was to

facilitate the reflection of panelists on their responses to Delphi II (Fish & Busby, 1996).

Additionally, individual versions of Delphi III were generated with responses on Delphi

II.

Participants were asked to reflect on their response to Delphi II in light of the

additional information, then again rate their level of agreement with each indicator using

the same 7-point Likert scale (Table 5). Delphi III asked participants to reconsider the 85

potential indicators on which they did not reach consensus, again using the original 7-

point Likert scale. A sample of the how questions were delivered to participants can be

found in Table 6, and the full survey is in Appendix C.

57

Table 5

Survey Instructions for Delphi III

You will be asked to reconsider your responses to a number of items on Survey II after reviewing the additional information provided with each indicator.

Each question now includes a summary of the responses of all participants. Each question is displayed with the median and the interquartile range (IQR) statistics for all responses. The median represents the ranking below which 50% of all responses fell. The interquarile range examines the middle 50% of all responses, and the size of the IQR is an indication

Median	IQR	Previous Response	Quality Indicators
4	3.00	1□ 2□ 3□ 4□ 5□ 6□ 7□	A. The institution provides online faculty with the technology needed to adequately develop and deliver their online courses.
1	0.50	1□ 2□ 3□ 4□ 5□ 6□ 7□	B. The community college emphasizes the need for all departments to support online programs.

- The median for A indicates that 50% of the responses were Neutral (4) to Strongly Agree (1), and the large IQR indicates a wide range of responses from the middle 50% of panelists.
- The median for B indicated that more than 50% of the panelists indicated Strong Agreement (1), and the small IQR further indicates the small difference between the responses of the middle 50% of participants.

Please reflect upon each indicator and the net responses of the panel. Remember to rate each indicator and to place an X in the box to the right of the appropriate number.

58

Table 6

Excerpt from Delphi III Survey

Agree – Disagree	Median	IQR	Survey 2 Response	Quality Indicators
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	2	2.00		2. In all aspects of the distance education program, the college's administration promotes the use of best practices for online programs and instruction published by regional and
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	3	0.50		7. The college promotes the successes of online courses and programs.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	3	1.50		8. Marketing of online programs emphasizes the skills needed for student success and clearly articulates that the academic expectations and time commitment in online courses are consistent with traditional classroom instruction.

59

Delphi III was sent to the 13 remaining panelists, all of whom responded. The median and IQR statistics were applied again, and another 30 items met the requirements for consensus. When added to the 44 items that achieved consensus in Delphi II, the panel of experts had now reached agreement on 74 items.

Delphi IV

A review of the remaining 63 potential indicators found several instances where participants were nearing consensus (IQR values less than 2.0 and median values near 2). To ensure that all input had been gathered, a fourth Delphi survey, comprising only these near-consensus indicators, was distributed to be sure that no potential indicators in the remaining items were overlooked, even after two previous consensus trials.

The same method used in Survey III was followed, with the addition of IQR and median data for Survey III. Participants were asked to reflect a final time on their previous responses (results from Delphi II and III were included) and again indicate agreement, using the same 7-point Likert scale, with the importance of each remaining indicator. Instructions for Delphi IV are available in Table 6.

Delphi IV was limited to those remaining indicators near agreement (median of 2 or less and IQR of 1.5 or less) or disagreement (median of 6 or greater and IQR of 1.5 or less). Delphi IV consisted of 50 of the remaining 56 potential indicators. A sample of how the items were presented in Delphi IV is in Table 7, and the complete survey is in Appendix C.

Table 7

Survey Instructions for Delphi IV

You will be asked to reconsider your responses to remaining items on Surveys II & III in light of the additional information provided with each indicator.

As in Survey III, each question includes a summary of the responses of all participants. Each question is displayed with the median and the interquartile range (IQR) statistics for all responses. The median represents the ranking below which 50% of all responses fell. The interquarile range examines the middle 50% of all responses, and the size of the IQR is an indication of the level of agreement by panelists. Finally, your responses from Surveys II & III are included for your assistance.

Agree – Disagree	Median	IQR	Survey 2 Response	Survey 3 Response	Quality Indicators
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	4	3.00			A. The institution provides online faculty with the technology needed to adequately develop and deliver their online courses.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	1	0.50			B. The community college emphasizes the need for all departments to support online programs.

- The median for A indicated that more than 50% of the panelists indicated Strong Agreement (1), and the small IQR further indicates the small difference between the responses of the middle 50% of participants.
- The median for B indicates that 50% of the responses were Neutral (4) to Strongly Agree (1), and the large IQR indicates a wide range of responses from the middle 50% of panelists.

Please reflect upon each indicator and the net responses of the panel. Remember to rate each indicator and to place an X in the box to the right of the appropriate number.

61

Table 8

Excerpt from Delphi VI Survey

Agree – Disagree	Median	IQR	Survey 2 Response	Survey 3 Response	Quality Indicators
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	5	2.50			9. The college demonstrates its commitment to online programs by discontinuing delivery of courses and programs via other distance media such as ITV and videoconferencing.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	2	2.00			10. The community college communicates recognition of the value and academic equivalence
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	2	2.50			12. The online program staff actively work with students services to insure awareness of online student needs and program requirements.

62

Delphi IV was sent to the 13 participants, all of whom responded. Statistical analysis of the median and IQR values was completed, and three additional items were added to the set of indicators. As a result, after starting with 129 items, the Delphi consensus process refined the final list to 77 potential quality indicators. The full set of items is reviewed in detail in chapter 4.

The Stakeholder Survey

The stakeholder survey was the second phase of research on quality indicators for online programs at community colleges. The Delphi study collected the input of experts to identify potential quality indicators. The stakeholder survey was intended to refine this set of indicators and to determine how the groups (students, faculty, program administrators, and technical support professionals) perceived the importance of each indicator generated by the Delphi study.

A stakeholder survey links external experts' consensus, achieved via the Delphi method, with the needs and perspectives of stakeholders within an organization, a step that allows the researcher to tailor the indicators to meet organizational goals (Harrington & Harrington, 1996). Including stakeholders in decision making also provides an opportunity to gauge their unique perspectives on each of the indicators and incorporate those into the final design. In short, a stakeholder survey validates the potential indicators found in a Delphi study. The confirmation of any or all Delphi items by the stakeholder survey strengthens the results.

The present study's stakeholder survey comprised the 77 quality indicators identified through the Delphi study, divided among the six categories identified in the literature: institutional support, technology, curriculum and instruction, faculty support,

student support, and evaluation and assessment. Survey respondents were asked to gauge the level of importance of each indicator using a magnitude estimation technique (MET). Additional demographic data were also collected from respondents in hopes of identifying any new trends. Stakeholder groups consisted of students, faculty, program administrators, and technical support staff. The survey was administered at a medium-sized Midwestern community college with five locations. More than 100 responses were collected across all stakeholder groups.

Design of the Stakeholder Survey

The survey consisted of three sections: the indicators, input on perceived missing indicators, and demographics. The stakeholder survey was developed for delivery online using Visual Basic to create an active server page (ASP) environment for displaying questions and collecting responses. The purpose of this instrument was to collect stakeholder input on the 77 potential indicators, which were divided into the six categories identified in the literature review. Following the indicators section of the survey, participants could comment on any indicator they believed was not represented in the list of indicators in the first section. Finally, demographic information was collected in the final section.

Online Delivery of the Survey

The Web survey tool was designed so that all stakeholder groups could use the same instrument; however, each of the groups entered the site through a unique URL. The Web interface also captured the IP address of the computer used to submit the survey and the time of submission. The IP was compiled with the response data.

An online survey does present some concerns. While there is not complete agreement in the literature, there is evidence that the response rate to e-mail and Web-based surveys is lower than with traditional paper-based instruments (Shannon & Bradshaw, 2002). There is some evidence that this rate can vary based on user experience and comfort with technology (Moss & Hendry 2002). The ideal situation would include both technically savvy designers and respondents (Shamon, Johnson, Searcy, & Lott, 2002). It is assumed that the present study's instruments met the experience criteria with its focus on users of online learning. It is also assumed that both online faculty and technical support professionals are experienced and comfortable with Web-based technology. While program administrators may not be as familiar with the technology used, all members of this stakeholder group that were contacted responded to the survey.

Categorizing Potential Indicators

As noted, the 77 items identified through the Delphi study were divided among the six categories identified in the literature: institutional support, technology, curriculum and instruction, faculty support, student support, and evaluation and assessment. Classification was managed by comparing the indicators to standards and best practices found in the literature review. Of the 77 potential indicators, only 8 had not been identified in the literature.

Four of the new indicators were classified under institutional support. Three of the four are clearly institutional responsibilities: internal marketing, external marketing, and obtaining articulation agreements. It could be argued that equivalency of fees be classified under student services; however, there was a clear trend in the literature to classify fiscal standards under institutional support. Recognition of faculty coursework or

professional development completed online was clearly under faculty support. Similarly, providing protections for faculty taking risks by teaching online or through new media was another faculty support item. The need for student honors organizations to recognize online course work was similar to many of the student support standards listed in the literature. A final item requiring use of programmatic evaluations was classified under evaluation and assessment. The full set of potential indicators is examined in detail in chapter 4.

Instruction for Stakeholders in Magnitude Estimation

The greatest challenge in designing the stakeholder survey was to present clear instructions on how to respond using magnitude estimation scaling (MES), a technique where participants compare cases to a standard stimulus. In this case the standard stimulus consisted of an anchor statement selected from each group, to which participants then compared the remaining cases.

As noted, the 77 potential indicators were divided among the six categories from the literature. The first item in each group was designated as the anchor statement. A randomly chosen statement could have been used, but the purpose of the anchor statement is to identify the baseline perception of importance for a given category. Consequently, at the beginning of each category, participants were presented with an anchor statement for comparison with the remaining indicators in that category. The anchor statement was given an arbitrary value of 40 points, and participants were asked to indicate the importance of the remaining indicators relative to the anchor statement (Crano & Brewer; 2002; Stevens, 1975).

Asking participants to judge the level of importance of items relative to the 40 points assigned to the anchor statement has potential for significant misunderstanding. Therefore, care must be taken with instructions, and the more explicit the instructions the better (Sturges, 1990). Previous studies indicate that participants have a tendency to use certain whole number responses and to default to a Likert scale categorical response (Stevens, 1975). The following instructions were used to explain the MES scoring method used in the survey. The two examples indicated how scoring worked in this survey.

> The first indicator in each category has a value of 40 points. You will review the second indicator and determine if it is more or less important to you, and your online experiences, than the **first** indicator. If the second indicator is half as important to you, then you indicate this by giving it a score of 20 points (1/2 of 40 points).

> Next examine the third indicator; is it more or less important to you than the **first** indicator? Suppose it is three times more important to you than the first indicator. You would indicate this perceived value with a score of 120 points (3 x 40 points).

To further clarify the instructions, a sample exercise followed the survey instructions.

Schriesheim and Novelli (1989) found that including a preparatory exercise comparing line length significantly improved the performance of participants encountering an MES survey. A similar example was adopted for use in the stakeholder survey. Participants were instructed that the first line was the standard (anchor) line, with a "length" of 40, and they were asked to compare the length of the remaining lines to the anchor, as illustrated in Table 9.

Table 9

Example of Magnitude Estimation I*ncluded in Survey Directions*

Before proceeding to the indicators, here is a simple exercise to assist you with this scoring method.

You can see that there are five lines below. The first line is rated as 40 points. You need to indicate the size of the other four lines relative to the first line.

Score

40	Line 1	——————————
___	Line 2	————
___	Line 3	————————————————————
___	Line 4	———————
___	Line 5	———————————————

In the same way you will be asked to compare your perceived importance of the indicators within each group.

An unanticipated consequence of the survey was a chance to validate participants' understanding of the MES approach by collecting responses to the line exercise. Sixty-one participants completed the line exercise, and the results indicated that participants as a whole understood the instructions (Table 10).

Table 10

Statistics from the Line Example Illustrating MES to Stakeholders

	n	Accepted Value	Median	Mean	STD
Line 2	61	20	20	19.61	1.819
Line 3	61	120	100	101.5	18.022
Line 4	61	30	30	30.66	6.421
Line 5	61	80	80	72.54	14.452

Only in the case of Line 3 was the median value different from the accepted value. Closer examination reveals that the standard deviation indicates greater variation in responses.

A histogram of responses (Figure 1) indicates that respondents generally chose one of two responses (100 or 120), which could indicate they had a harder time estimating larger lines or a had concern with exceeding 100. To further clarify the process, a reminder of the process was included with each page of indicators.

Figure 1. Histogram of Line 3 stakeholder responses.

Delivering the survey electronically allowed participants to enter the perceived

value in a text box next to each item (Table 11).

Table 11

MES Excerpt from Stakeholder Survey

Category 4 – Faculty Support

The items listed below were identified as possible indicators of how well a community college supports faculty participating in its online programs. Review the first indicator, and then identify how important you find each of the remaining indicators in comparison.

Score		Indicator
40	1	The institution support online faculty participation in professional development courses addressing online methodology.
___	2	Faculty are provided training on a variety of software programs to enhance student learning.
___	3	Faculty training addresses the function of technologies available to the instructor, to the students, and addresses the need for contingency plans (for when the technology doesn't work).
___	4	Faculty "advancement" criteria recognize online instruction and reward faculty for innovation and risk-taking.
___	5	The college recognizes work that instructors have done advancing their own degree (or other professional development activities) obtained through online programs.
___	6	The college demonstrates respect for faculty member's academic freedom by allowing him or her to develop the course in a way that coincides with his or her teaching style.
___	7	The college supports faculty in pilot projects investigating alternative scheduling, remote teaching, or other innovations.
___	8	The college supports online faculty in the development of their online classes through a design department equipped with the hardware, software, and technical staff to assist with the incorporation of audio and visual content.

The second section allowed participants to submit possible missing indicators by using a text entry box (Table 12).

Table 12

Section 2 – Missing Indicators

Now that you have reviewed the Quality Indicators identified in a previous study, are there any indicators that you believe need to be added? If so, then please submit missing Quality Indicators using the text box below.

Please type what you believe to be missing indicators here (your submission is limited to 1000 characters):

```
┌──────────────────────────────────────────────────────────┐
│                                                          │
│                                                          │
└──────────────────────────────────────────────────────────┘
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Note: Input was limited to 1000 characters, and this limit was clearly indicated to participants.

The third and final section of the stakeholder survey consisted of questions soliciting demographic information: gender, ethnicity, age, and (for students) online experience. The survey concluded with a final screen thanking respondents for participating. The survey could be exited at any time at the discretion of the respondent.

Refining the Stakeholder Survey

Before the stakeholder survey was delivered to participants, it underwent two reviews. The first was completed by some of the Delphi panelists; the intent was to ensure that their work was properly represented. The second review was completed by a group of potential participants; the purpose was to review to instructions and questions for clarity.

To insure the continuity and integrity of their work, three of the Delphi panelists reviewed the survey for clarity and to ensure the integrity of the panel's input. Each was asked to complete an e-mail questionnaire, and all three concurred that the indicators

were accurately represented. All three stated that the indicators presented in the stakeholder survey draft were consistent with what had been examined in the Delphi study.

The final draft of the stakeholder survey, including the full set of instructions and examples, was reviewed by a select group of potential stakeholder participants who reviewed the instrument for its usability and clarity of instructions and content. Each was given an URL and asked to complete an online questionnaire. If the responses on the questionnaire were ambiguous, a follow-up interview was used to collect additional input. Reviewer feedback is summarized in Appendix D.

Reviewer feedback resulted in two changes to the instructions. The original draft did not address whether responses could exceed a value of 100. One example was changed so that the response resulted in a rating of 120. The other change was a rewrite of instructions for the sample line exercise to make it more clear that all lines should be compared to the anchor line's value of 40 units.

Stakeholders

The survey was distributed to students, faculty, administrators, and technical support staff at a medium-sized community college system located in a large metropolitan region in the Midwest. This system consists of five locally governed campuses with an overarching administration. System enrollment has been consistently around 18,000 students per semester for more than 5 years. The community college's online program began in 1998 with 10 courses and just over 100 students, growing to more than 3000 students currently taking nearly 200 Web-based courses per semester.

Invitations to all potential participants were delivered through electronic forms of communication. Student invitations were delivered through an announcement posted in selected courses. Faculty, technical staff, and administrators were contacted through e-mail.

Students

The community college district that participated in this survey consists of five college campuses in a major Midwestern metropolitan area. Four campuses serve students in a specific part of the metropolitan area, and the fifth campus provides vocational and technical programs to regional businesses. The four student campuses serve the general education mission of the district and support a limited number of vocational programs.

For this study each campus was assigned a number. Campus 1 is the system's newest location and serves a mix of rural and suburban communities. Campus 2 is the largest campus and serves urban, suburban, and rural communities. Campus 3 serves the fastest growing portion of the metropolitan area, which is largely a suburban population with some rural students. Campus 4 serves the urban core and includes a large health services vocational program. Campus 5 is the vocational technical location. Because the online program at campus 5 consisted of only one course, it was not included in the study.

This community college system offered 159 online courses during the Fall 2005 semester. These courses met all requirements for an associates of applied science degree in both business and computer applications, and all but one of the institution's

requirements (speech) for an associate of arts degree. The distribution of courses by disciplines and locations varied. The institution classifies courses by academic instructional unit, and the majority of courses offered fell into one of these units, the exception being vocational programs. The instructional units are English and Humanities, Social Sciences, Biological Sciences, Math and Physical Sciences, and Business and Computer Science. Additionally, Nursing and Allied Health offered a limited number of vocational courses online.

Forty-five courses were identified to receive the surveys. The courses used for this survey were randomly chosen within selected categories. The distribution of courses by discipline and location varied, and every attempt was made to choose courses to follow these institutional patterns. The 159 available online courses were organized by instructional unit and campus location to determine the general distribution (Table 13).

Table 13

Distribution of All Online Courses by Campus

Instructional Units	*n*	Campus 1	Campus 2	Campus 3	Campus 4
Biological Sciences	4	3	0	0	1
Business and Computer Science	45	13	13	13	6
Humanities	34	4	12	7	11
Math and Physical Sciences	11	1	5	1	4
Social Sciences	50	9	15	9	17
Vocational	15	4	0	0	11
Totals	159	34	45	30	50

Courses were randomly selected within each discipline and campus group to conform as closely as possible to the full distribution across the district. The final set of courses to receive student invitations is illustrated in Table 14.

Table 14

Distribution of Online Courses by Campus Contacted for Stakeholder Survey

Instructional Units	*n*	Campus 1	Campus 2	Campus 3	Campus 4
Biological Sciences	2	1	0	0	1
Business and Computer Science	13	2	5	4	2
Humanities	10	2	4	1	3
Math and Physical Sciences	5	1	2	0	2
Social Sciences	15	2	5	3	5
Totals	45	8	16	8	13

The 45 courses served more than 900 potential student participants, which include some duplicates. Data complied for the college system's Higher Learning Commission meeting indicated that online students enrolled in an average of 1.4 courses. Thus, it can be estimated that 650 potential student stakeholders were invited to complete the survey. Fifty-two students proceeded past the line exercise. Another 19 surveys were submitted in which the participant did not proceed past the line exercise. Students were invited to participate through an announcement posted in their online courses, and a follow up e-mail reminder was sent approximately 10 days after the announcement was posted.

Faculty, Administrators, and Technical Support Staff

Invitations to participate in the survey were sent via e-mail to administrators, technical support staff, and some online faculty. A unique invitation was created for each stakeholder group asking the individual to participate, stating the amount of time required, and indicating the URL for the survey (Appendix D).

77

All five administrators contacted responded to the survey, and 5 of the 10 technical support staff completed surveys. Twenty faculty opened the survey; however, five did not proceed beyond the preparatory questions on line length. Sixty-nine students accessed the survey link, and 52 proceeded beyond the line example.

Survey Participants

The stakeholder surveys were distributed during the Fall 2005 semester, and during that term the community college district had a headcount of slightly more than 18,000 students, with nearly 3000 students taking at least one online course. Information about the college, its locations, students, and employees was compiled using factbooks published by the college's Office of Research and Assessment and reports filed with the Higher Learning Commission (HLC) as part of the institution's reaccreditation in Spring 2006. The information compiled in a Request for Institutional Change to offer online degrees proved to be a great assistance in compiling the demographics of the institution.

Students

Students participating in selected online courses during the Fall 2005 semester were invited to participate in the stakeholder survey. The community college district offered nearly 3000 courses to just over 18,000 students, and the institution's full-time equivalent (FTE), based on a full load of 12 credit hours, was 10,353. The student population was 61% female and 39% male. The online student population of slightly more than 5000 students was almost 70% female and just over 30% male.

Slightly more than 40% of the student population indicated an age between 18 and 22 (slightly under 37% online). Nearly 30% of all students were between the ages of 23 and 28 (slightly over 32% online). Eight percent of the student population were

between 29 and 34, compared with 11% online. Six percent of the population is between 34 and 40 (just under 8% online). Eleven percent of the district's students were over 49, compared to 12% online. The greatest difference was found in the under-18 population, with the general population at 6% and about .5% online.

The ethnicity of the online population was 80% White, compared with 72% of the total district population. The largest minority population was African American (12%), though they made up less than 10% of the online population. The Latin/Hispanic student population was close to 3%, but just less than 2% of the online population. Similarly, the overall Asian population was about 2%, but just over 1% online. Less than 1% of the full student population indicated they were of Native American descent, and about .5% were online students. Five percent of the full student population indicated "other," while 7% of the online students did so.

Invitations to participate were distributed to the more than 650 students participating in the online sections identified in the previous section. Seventy-one students visited the survey URL, and 52 proceeded beyond the line example.

Faculty

The community college district employed 267 full-time faculty during the Fall 2005 semester; 57% were female and 43% male. The community college system indicated in its report to the HLC that the target full-time to part-time faculty ratio is 55% to 45%. The full-time faculty in Fall 2005 were mostly White/Caucasian (87%), with its largest minority population being African American (slightly more than 8%). Less than 5% of the teaching faculty were of either Asian or Latin/Hispanic descent. Only 1% of

79

the full-time faculty were ages of 23 to 28. Almost 10% of the faculty were 29 to 34, and just over 16% were 35 to 40, leaving nearly 68% over the age of 40.

Eighty-one faculty taught an online course during the Fall 2005 term, of which 62 were full-time. The full-time to part-time ratio online was very close to 3 to 1. The gender breakdown was 47% female and 53% male. Seventy-two of the online faculty were White/Caucasian. Of the remaining faculty, 7 were African American and 2 Latin/Hispanic. Four of the online faculty were ages 29 to 34, another 12 were 35 to 40, and the remaining 65 were over the age of 40. Twenty faculty opened the survey; five did not proceed beyond the line exercise.

Administrators

A much smaller population of administrators was invited to participate. Each of the college locations has one academic administrator responsible for all course offerings, both online and classroom. The instructional administrators consist of two men, both White/Caucasian, and three women, two White/Caucasian and one Latin/Hispanic. All five administrators are over the age of 40. The five administrators were invited to participate, and all submitted stakeholder surveys.

Technical Support Staff

The district supports online students through a centrally managed help desk staffed by 10 full- and part-time employees. The help desk employees four men, three White/Caucasian and one African American; and six women, four White/Caucasian, one Asian, and one Latin/Hispanic. Two of the help desk technicians were 23 to 28, three were 29 to 34, one was 35 to 40, and four were over the age of 40. All 10 help desk staff persons were invited to participate in the study, and 5 did so.

Of the 101 potential stakeholders who opened the survey, 77 proceeded beyond the line example (Tables 15-17).

Table 15

Stakeholder Survey Respondents by Gender

Stakeholder Group	*n*	Male	Female	No Response
Student	52	9	35	8
Faculty	15	4	9	2
Tech Support	5	2	3	0
Administration	5	2	3	0

The student participation rate of 67% was similar to the gender distribution in online courses: 70% female. Female faculty responded at nearly twice the rate of males, which was not consistent with the approximately 50-50 gender breakdown.

Table 16

Stakeholder Survey Respondents by Ethnicity

Stakeholder Group	White/ Caucasian	African- American	Hispanic/ Latin	Asian/ Pacific Is.	Native/Alaskan American
Student	35	5	0	3	1
Faculty	11	2	0	0	0
Tech Support	3	1	1	0	0
Administration	4	0	0	0	0

The overall ethnicity of respondents was not dissimilar to the overall online population. A White/Caucasian response rate of nearly 70% is comparable to the 80%

White/Caucasian student population. Similarly, 70% of faculty responded, compared to 87% online. The largest minority student and faculty population to respond was African American, though the response rates of both were well below their approximately 10% representation in the online population. The lack of a Hispanic student response was not too surprising given the overall number of respondents.

Table 17

Stakeholder Survey *Respondents by Age*

Stakeholder Group	18 - 22	23 - 28	29 - 34	35 - 40	> 40	No Answer
Student	13	8	9	4	10	8
Faculty	0	0	0	3	10	2
Tech Support	0	1	1	0	3	0
Administration	0	0	0	0	4	1

The age distributions generally represent the larger population for each group. More age choices above 40 could have provided insight into the breakdown of the senior population.

Additional information about the student stakeholders was collected regarding total college credits earned, online credits, and first online experience (Tables 18 and 19).

Table 18

Online and Total Credit Hours Earned, Student Respondents Only

	n	<12	12-24	25-36	37-48	49-60	>60	No Answer
Online Credit Hours	52	29	9	4	2	0	0	8
Total Credit Hours	52	5	12	5	1	10	11	8

Table 19

First Online Course, Student Respondents Only

	n	2000	2001	2002	2003	2004	2005	No Answer
Fall	31	0	0	1	1	4	17	8
Spring/Winter	13	0	1	0	3	4	5	0
Summer	8	0	0	0	0	0	8	0

The student experience data, hours earned, and first course taken indicate that most of the respondents were new to online instruction.

Factors versus Indicators

While the purpose of the Delphi study was to identify "indicators," the results were not all indicators in the strict sense of the term. Some of the items represented actions taken by the institution that could contribute to the quality of the program (factors), other items could serve as evidence of a program's quality or success (indicators), and others fell into neither category. A third instrument was developed to determine which of the 77 items were indicators, factors, or other.

A group of researchers and practitioners in online education were asked to classify the 77 items using the following definitions:

> *Indicators* are signs of success that the community college has a quality program and can be identified as outputs that are directly related to the quality of the program

> *Factors* are inputs consciously made by the institution that contribute to the quality of the online program, whether through resources, policies, requirements, or other actions.

A third option of "other" was provided for those items that did not meet the indicator or factor definition.

Given the large number of items, the total set was split between two instruments to limit the time required of participants. The items were divided between the two instruments so that all six categories were equally represented (Appendix I).

Researchers and practitioners were identified through their contributions to distance learning through the literature and activity in professional meetings. Resources used in identifying potential participants included journals such as the *Online Journal of Distance Education Administration* and *Educause*, and meetings such as Distance Learning, Instructional Technology Council, and the League for Innovation in the Community College. A total of 15 researchers were identified as potential participants in this study.

Before proceeding with the study, one of the participants was contacted to provide a review of the instrument, give feedback on the clarity of the instructions, and confirm the time needed to complete the sorting task. The feedback provided by the preliminary participant did not result in any changes to the instrument, and this individual indicated that it took 20 to 25 minutes to complete the analysis.

Factors versus Indicators Instrument

Participants were provided with the following instructions, definitions, and examples of factors and indicators for sorting the 77 items.

> *Indicators* are signs of success that the community college has a quality program and can be identified as outputs that are directly related to the quality of the program.

> *Factors* are inputs consciously made by the institution that contribute to the quality of the online program, whether through resources, policies, or requirements.

Participants were instructed to use the category of "other" for any items that do not meet the indicator or factor definitions.

In an effort to clarify the definitions, two examples for both factors and indicators were provided.

> Factor examples:

> *The institution provides technical assistance via a 7x15 help desk.* This would be classified as a factor because it is an input provided by the organization in support of its program.

> *The college uses a standard course template for all new courses.* This would be classified as a factor because it is an institutional requirement that would contribute to a consistent look for students.

> Indicator examples:

> *The institution compiles and regularly reviews help desk communication and then uses this information to improve support services, modify the learning environment, and identify program needs.* This item fits the definition of an indicator because the institution compiles output (collects data) that indicates institutional performance and may be used to improve performance.

> *The college measures student success rates in online courses and compares the results with traditional classroom sections.* This would be classified as an indicator because it is an output measure of the program.

Participants were given the option of completing the instrument electronically or via telephone; all participants chose the electronic option. Table 20 illustrates how the items and options were presented to the participants.

Table 20

Example of Factors versus Indicators Instrument

Items	Indicator	Factor	Other
A professional manager with sufficient institutional authority to organize and support the academic and support services necessary for student success oversees the college's online program.			
The college has developed an infrastructure for the efficient archiving and restoring of courses from semester-to-semester.			

Factors versus Indicators Participants

Fifteen distance learning professionals were identified for the factors versus indicators study. Only 10 respondents (5 for each of the instruments) were needed; however, a set of alternate candidates was identified to account for the likelihood that not all 10 would agree to participate. Of the original 10 participants contacted, 5 agreed to participate, 1 declined, 3 did not respond, and 1 recommended a different individual from that organization. The recommended alternate was contacted and agreed to participate. The 5 additional individuals were contacted, and 4 of the 5 agreed to participate. All 10 participants chose the electronic version of the instrument.

One of the two instruments was sent to a participant upon receipt of a signed consent to participate in the study. Four participants were employed by community

colleges, four were research faculty at research universities, one served as a program administrator at a community college policy group, and one was a program director for a higher education distance learning consortium. Nine of the respondents were Caucasian, and one was Hispanic/Latin. The group consisted of four men and five women, and all the participants were over 40 years of age.

The responses were compiled and only those items identified as an indicator on at least three of five submissions were considered indicators. A total of eight indicators were identified through this process, while only two items were identified as other (Appendix J).

<div align="center">Chapter Summary</div>

Three different studies were performed to identify a set of quality indicators for online programs at community colleges. An initial set of potential indicators was compiled through a Delphi study, and the results were refined through a stakeholder survey. The first two studies generated 77 items that consisted of both factors and indicators. A final study asked professional researchers on distance education to identify which of the 77 items were factors and which were indicators.

Thirteen experts participated throughout the identification of quality indicators to conduct an external industry benchmarking study via the Delphi method. The Delphi experts consisted of distance education program mangers representing the range of higher education institutions that were also active in at least one regional distance education organization. The results of the Delphi panel were then used to create a stakeholder survey delivered to faculty, students, technical support personnel, and administrators in a community college system. The goal was to generate information about internal

perceptions of quality indicators and collect information about the perspectives of each group of stakeholders. Finally, ten distance education researchers were asked to categorize the Delphi items into factors, indicators, or other, and this group identified eight indicators. Of the remaining items, 2 were identified as other and 67 as factors.

The three methods described here—the Delphi panel, stakeholder surveys, and sorting into factors and indicators—resulted in a set of eight indicators potentially applicable to measuring or comparing the quality of a community college's distance education program. Other benefits include adding to what is known about the perspective of students and faculty who participate in distance learning programs, as well as that of administrators and support staff that provides the resources and services that makes such programs possible.

CHAPTER 4: RESEARCH RESULTS

The Delphi panel and stakeholder surveys provide new insight into the perceptions of various interested parties as to what procedures, policies, and actions indicate the potential quality of an online program at a community college. The Delphi panel identified more than 70 potential indicators, some of which were consistent with previous studies. However, eight new indicators not previously found in the literature were identified. The stakeholder surveys then provided specific insights into how each group affected by distance education interpreted the results of the Delphi method, and the factors versus indicators survey further refined the set of potential indicators.

Results of the Delphi Study

The Delphi panel started with an open-ended survey about how a community college institution would demonstrate support of its online program(s). The results of this survey were used to create a series of follow-up surveys with the goal of achieving group consensus on a subset of items. Three consensus surveys were administered, resulting in 77 indicators of quality.

Delphi I

The first survey was designed to collect a large set of possible quality indicators from the expert panel. This was done using seven open-ended questions, and the panel responded with more than 300 items. The submissions were then categorized using keyword searches. After accounting for variations among similar submissions, 129 indicators were identified.

Delphi I Data

The 15 panelists who responded to Delphi I submitted 360 items, which were synthesized via a series of keyword searches into a final set of 129 potential indicators. Table 21 displays those indicators identified through the keyword search that appear on at least five different surveys.

Table 21

Frequency Data of Indicators Submitted on Five or More Delphi I Responses

Potential Indicator	Freq.	Potential Indicator	Freq.
Tech support line/help desk	15	Incentives for course design	7
Instructional designers or training	15	Internal marketing	7
Course and faculty evaluations	15	Limited class size	6
Design support and/or design teams	14	Faculty receive same compensation for online as in classroom	6
Access to on-ground learning support services	14	Faculty are provided "sufficient" time for course development	6
Faculty training program	13	Testing services to support online	6
Budget and personnel	11	Mandatory review of all new courses	6
External marketing of programs and services	11	Integrated info systems orientation for online programs	5 5
Tech training lab/resource center	11	Use of a course management system	5
Best practices/standards	11	Sufficient infrastructure	5
Program information available to potential students	9	Students and faculty complete satisfaction surveys	5
Assessment of student performance on learning outcomes	8	College recognizes online as equivalent to classroom	5
Faculty professional dev. support	7	Online enrolment services	5
Faculty access to leading-edge tech	7	Online department/administrator	5

Seven similar indicators were submitted on four responses to Delphi I, and three respondents submitted another nine items. Fourteen different indicators were submitted on two surveys, and there were 32 unique submissions (Appendix C). No immediate judgment was made regarding the panel's consensus based on the initial frequencies compiled through the keyword search. All submitted indicators were regarded equally.

Once the results were categorized, those with similar terminology were reviewed for semantic variations. Those that represented the same item were synthesized into a single statement, and that refinement process resulted in 129 potential indicators. Chapter 3 includes an example of the process used to synthesize the submissions. Because of the possibility of researcher bias in this process (Brooks, 1979), a research log was maintained to minimize bias (Lincoln & Guba, 1985). The researcher recorded the reasons for or against synthesizing any two or more submissions, as well as any concerns that researcher bias might have entered into a decision.

An audit of the research log indicated two significant omissions from the indicators submitted in Delphi I and the synthesized results used in Delphi II, III and IV. The first omission was a variation to the faculty training indicators: omission of the term "required" training. The second omission was a variation in the faculty evaluation indicators: omission of "peer" evaluations. Using a team of three reviewers was one method that could have been used to minimize omissions and moderate the potential for researcher bias (Wilhelm, 2001); however, this study was limited to a single researcher. The use of a single researcher is a significant limitation, and the potential for researcher bias must not be overlooked.

Delphi II, III, and IV

The next step of Delphi required that the expert panel refine the list of indicators compiled in Delphi I through a series of consensus surveys. Three consensus surveys were used, and panelists were asked to indicate their level of agreement with each indicator using a 7-point Likert scale ranging from 1 (strongly agree) to 7 (strongly disagree). Thirteen of the 15 contributors to Delphi I responded to Delphi II, III, and IV. Consensus was determined through the use of two statistics, and the panel refined the list from 129 potential indicators to 77.

Statistical Analysis of Delphi II, III, and IV

In all three cases responses were compiled and SPSS 11.5 was used to calculate the median and interquartile range (IQR) for each indicator. Agreement on a given indicator is achieved when the median for responses to the level of agreement is 2 or less and the IQR is 1.50 or less (Fish & Busby, 1996). An indicator was eliminated if the median was 6 or higher and the IQR was 1.50 or less. SPSS was used to generate frequency statistics, mean, median, and upper and lower quartiles. The quartile values determined by SPSS were imported into Excel 2000 to calculate the IQR using the following formula: IQR = upper quartile – lower quartile.

A median of 2 or less indicated that at least 50% of the panelists indicated agreement or strong agreement for the indicator. This statistic indicates the large-scale agreement of participants. The IQR is used to show that the variation between the extremes (upper and lower quartiles) is minimal. This method verifies large-scale agreement, the median, with minimal variation, the IQR (Fish & Busby, 1996).

Delphi II

Thirteen of the 15 participants returned Delphi II. Table 22 provides examples of median and IQR results from the survey.

Table 22

Example of Median and IQR Statistics from Delphi II

Quality Indicator Identified in Delphi I	Median	IQR
The online programs offered by the community college is consistent with the institution's mission and needs of the community served.	2	1.50
The community college communicates recognition of the value and academic equivalence of online programs to all stakeholders.	2	2.00
The college uses a single sign-on system with secure technologies as appropriate to meeting both access and privacy needs.	3	2.50
The college promotes the use of standardized Internet tools in the delivery of online courses.	1	1.00
Online students have the opportunity to complete a technical skills screening prior to enrollment in online classes.	3	1.50
Campus lab and library personnel are familiar with distance learning applications and trained to offer assistance.	2	1.00
New online courses are reviewed by the department or program to insure quality of subject matter and verify that it meets program outcomes.	1.5	2.00
The college monitors the potential for grade inflation in online classes.	4	3.00
Faculty receive regular and objective feedback from students about their courses and instruction.	1	2.00

The Delphi panel results indicate consensus when the median of responses is 2 or less and the IQR is 1.50 or less. Respondents to Delphi II indicated agreement on the first, fourth, and sixth indicators in Table 22. Because these indicators had achieved consensus, the panelists did not review them as part of the remaining consensus surveys (Delphi III or IV).

The second indicator found in Table 22 was near consensus due to a median of 2; however, the IQR result of 2.00 was just above the acceptable score of 1.5. The fifth indicator is another example of near agreement because the IQR of 1.50 meets one condition; however, the median of 3 is just above the requirement of 2 or less. The seventh indicator has a result far from consensus, with the conditions for elimination being a median of 6 or greater and an IQR of 1.50 or less.

After statistical analysis, a total of 44 indicators met the consensus requirements for agreement. No indicators achieved consensus for elimination.

Delphi III

The remaining 75 indicators were sent back to the panel in the second consensus survey, Delphi III. In this survey participants were provided additional information about the outcome of the first consensus survey, including the median and IQR results. A reminder of their rating of each indicator was also included. Participants were then asked to reflect again on each indicator and indicate a level of agreement on the same 7-point Likert scale (1 = strongly agree through 7 = strongly disagree).

All 13 participants who had responded to Delphi II submitted responses for Delphi III. Median and IQR statistics were calculated for each indicator (Table 23).

Table 23

Example of Median and IQR Statistics from Delphi III

Quality Indicator Identified in Delphi I	Median Delphi III	IQR Delphi III	Median Delphi II	IQR Delphi II
The community college communicates recognition of the value and academic equivalence of online programs to all stakeholders	2	1.50	2	2.00
The college uses a single sign-on system with secure technologies as appropriate to meeting both access and privacy needs.	3	1.50	3	2.50
Online students have the opportunity to complete a technical skills screening prior to enrolment in online classes.	2	1.50	3	1.50
New online courses are reviewed by the department or program to insure quality of subject matter and verify that it meets program outcomes.	2	1.00	1.5	2.00
The college monitors the potential for grade inflation in online classes.	3	2.50	4	3.00
Faculty receive regular and objective feedback from students about their courses and instruction.	1	1.00	1	2.00

97

Table 23 also illustrates how the group of experts works towards consensus over time. Items 1, 3, 4, and 6 did not meet the conditions for agreement in Delphi II, but with additional information and reflection, the panel achieved greater agreement during the next review (Delphi III). The experts agreed on an additional 30 indicators with Delphi III, and no criteria met the conditions for elimination. This brought the total of indicators to 74.

Delphi IV

The remaining 56 indicators included some approaching the conditions for agreement, so Delphi IV was created. In general, two to three consensus surveys are sufficient, while a fourth is not likely to result in any additional consensus (Dalkey, 1969). Only 50 of the remaining unresolved indicators were included in the final consensus survey. Six potential indicators had not indicated any change from Delphi II to Delphi III, so these were eliminated from Delphi IV.

Delphi IV consisted of the remaining 50 indicators, and the median and IQR results from Delphi II and III were included with each. Each expert was also given his or her scoring history from the two previous surveys. The experts were asked to review each potential indicator and the related information from the earlier surveys, then to reflect upon their prior decisions before indicating their level of agreement, again using the same 7-point Likert scale. The survey was sent to the same 13 respondents to both Delphi II and III, and all 13 sent in a response to Delphi IV. Once the surveys were collected and data compiled, the median and IQR statistics were calculated using SPSS 11.5 (Table 24).

Table 24

Example of Median and IQR Results for Delphi IV

Quality Indicator Identified in Delphi I	Median Delphi IV	IQR Delphi IV	Median Delphi III	IQR Delphi III	Median Delphi II	IQR Delphi II
The college uses a single sign-on system with secure technologies as appropriate to meeting both access and privacy needs.	3	2.50	3	1.50	3	2.50
The college monitors the potential for grade inflation in online classes.	4	3.00	3	1.50	4	2.50

From the results of Delphi IV, a final three indicators were agreed upon, and again no potential indicators were eliminated. The final three indicators identified through Delphi IV brought the total set of indicators to 77 (Appendix C).

Classifying the Indicators

Before the stakeholder survey was conducted, the 77 indicators identified through the Delphi study were organized according to an appropriate taxonomy. The literature provides such a set of classifications in the six categories identified through the review of the guidelines and best practices for online instruction. After comparing the Delphi indicators to the various sets of standards found in the literature review (as summarized in Tables 1 and 2), it was determined that eight new indicators previously not found in the literature had been identified through the Delphi process (Table 25).

Table 25

New Potential Indicators Identified through the Delphi Study

1. The college's marketing plan includes promotion of online courses and programs.

2. Marketing of online programs emphasizes the skills needed for student success and clearly articulates that the academic expectations and time commitment in online courses are consistent with traditional classroom instruction.

3. Articulation agreements are pursued with area 4-year colleges to create seamless transfer opportunities for students in online programs.

4. The tuition and fees of online courses and programs are comparable to those on campus.

5. Faculty "advancement" criteria recognize online instruction and reward faculty for innovation and risk-taking.

6. The college recognizes work that instructors have done advancing their own degree (or other professional development activities) obtained through online programs.

7. Student academic honor and service programs accept online and traditional coursework.

8. Periodic program evaluations are used for program improvement, to aid in institutional decision making, to provide program outcomes for funding agencies, to ensure stakeholders access to technology, and to assess the range of services provided, course offerings, and barriers and challenges to online instruction.

The remaining 69 items were sorted into one of the appropriate six categories, according to comparable standards found in the review of guidelines and best practices. The eight new items were reviewed, and all consisted of elements that fit within one of the six categories identified through the literature. The case made for each follows.

Institutional Support

Management and fiscal services have consistently fallen in the category of institutional support. Two of the new indicators addressed internal and external marketing, and marketing has historically been a role of the organization.

- The college's marketing plan includes promotion of online courses and programs.
- Marketing of online programs emphasizes the skills needed for student success and clearly articulates that the academic expectations and time commitment in online courses are consistent with traditional classroom instruction.

Similarly, another new indicator focused on the need for the institution to pursue and maintain articulation agreements with transfer institutions, and this has traditionally been the role of institutional leadership in community colleges.

- Articulation agreements are pursued with area 4-year colleges to create seamless transfer opportunities for students in online programs.

A fourth new indicator identified the need for consistency of fees and tuition across all forms of instruction. While some argument could be made that equivalency of fees is related to student services, there was a clear trend in the literature to classify fiscal requirement within institutional support. As a result the following item was classified under institutional support.

- The tuition and fees of online courses and programs are comparable to those on campus.

102

Faculty Support

In the literature those items directly related to policies and procedures that support, and even protect, faculty were found under faculty support. The following pair of new indicators clearly fit within this role.

- Faculty "advancement" criteria recognize online instruction and reward faculty for innovation and risk-taking.
- The college recognizes work that instructors have done advancing their own degree (or other professional development activities) obtained through online programs.

There were a total of eight items classified under Faculty Support.

Student Support

The category of student support has been used for the wide range of student-specific services provided by institutions, and one of the new indicators directly addressed students' eligibility for student honors.

- Student academic honor and service programs accept online and traditional coursework.

This additional indicator brought the total under student support to 15.

Evaluation and Assessment

One new indicator identified through the Delphi study recommended an expansion of the evaluation tools used when reviewing online programs fitting this category.

- Periodic program evaluations are used for program improvement, to aid in institutional decision making, to provide program outcomes for funding agencies, stakeholders access to technology, the range of services provided, course offerings, and barriers and challenges to online instruction.

None of the eight new potential indicators fit in the categories of technology or curriculum and instruction. The full set of 77 potential indicators organized by category is list in Appendix E.

Once this classification was completed, the information was ready for review by a group of stakeholders in an online program at a community college. It was anticipated that the results of the stakeholder survey would demonstrate how the indicators identified through the Delphi process might be refined for use at a given institution, provide insight into what indicators are important within each group of stakeholders, and possibly identify indicators missed by the Delphi process.

Results of Stakeholder Surveys

The stakeholder survey was designed to collect information about how different groups of stakeholders in a community college online program (students, faculty, administrators, and technical support staff) would perceive this new set of quality indicators. In particular, the study addressed the perceived level of importance within each category. The magnitude estimation scaling (MES) approach was used to collect these perceptions. Additionally, demographic information was collected to identify trends according to gender, race, ethnicity, or age.

The stakeholder survey consisted of three sections, the first of which asked the participant to quantify the importance of the 77 quality indicators identified through the Delphi study. The second section asked if any indicators were missing from the set reviewed in part one, and the final section collected demographic information.

The first part of the analysis focused on the MES results and involved calculating statistics and generating histograms from the perception data collected in part one. The

MES analysis was followed by a series of ANOVA tests intended to identify any trends in the perception data across the demographic variables.

Results of Magnitude Estimation Technique

The MES data were collected within each of the six categories of indicators: institutional support, technology, curriculum and instruction, faculty support, student support, and evaluation and assessment. The first quality indicators within each group served as the anchor statement, with a value of 40 units, and the remaining indicators in the group were compared to the corresponding anchor statement. Participants were instructed to compare each of the remaining indicators only with the anchor, and their task was to judge how important each indicator was relative to the anchor statement. Respondents gave the indicator a numerical score relative to the anchor's 40 units that represented this perceived difference in importance. Detailed instructions with examples and a trial exercise were included with the survey.

Analysis of the MES data consisted of calculating the median, mean, and standard deviation by stakeholder group for each indicator. Care needs to be taken when evaluating MES results; a researcher cannot rely solely on descriptive statistics. The arithmetic mean can be influenced by a small number of participants. The median is included to help the researcher better gauge the average of each group of stakeholders, and a review of the data frequencies is necessary to identify possible skewing by a small number of respondents (Stevens, 1975). The full sets (by stakeholder group) of frequency distributions are illustrated through histograms (Appendix F).

Once the statistics were calculated and the histograms generated, variations in perception were identified when a difference of 50% or more existed between responses

of one or more groups for a given indicator. The four groups of stakeholders did not generate many large differences in perceived importance on the range of quality indicators. Out of 77 indicators and four groups of stakeholders, 32 differences were identified.

Before reviewing the identified differences in importance, the following example is provided to illustrate the MES analysis. This example uses indicators found in the institutional support category. The anchor statement in this case was as follows:

> The college's online program is overseen by a professional manager with sufficient institutional authority to organize and support the academic and support services necessary for student success. (I1)

> The fourth item in this set addressed programmatic constraints required of the institution as follows:

> The community college's leadership demands that online programs meet the same programmatic requirements of on-campus programs. (I4)

> The frequency statistics, histogram, median, mean, and standard deviation were compiled for each stakeholder group using SPSS 11.5 (Table 26).

Table 26

Stakeholder Results: *MES Statistics for Indicator I4 by Stakeholder Group*

	n	Median	Mean	STD
Student	51	50	61.57	37.262
Faculty	15	40	48.33	24.177
Technical Support	5	40	50.00	40.00
Administration	5	55	63.00	38.013

An initial review of the median and mean results indicated that the student and administrator groups may have placed greater importance on this indicator. However, the standard deviation suggested a great deal of variance, so a review of the data histogram was necessary (Figure 2).

Figure 2. Histogram of student data for item institutional support 4.

The histogram in Figure 2 illustrates how a few students can skew the data. The

mean value is more than 20% larger than the median. The skewing would not be

identifiable without looking at the distribution. In fact, the frequency for the

administrators' group shows a similar influence by one or two respondents, which in a

smaller sample size greatly influences the resulting statistics (Figure 3).

Institution 4

Figure 3. Histogram of administrator data for item institutional support 4.

In the case of the administrators, the histogram illustrates how one large outlying response in a relatively small sample can skew the median and mean. In the case of indicator I4, the results show how possible differences involving students and/or administrators might be magnified in the statistics. The possibility of influence by a limited number of respondents in both cases can be confirmed by the information found in the histograms. Interpretation of the statistics in conjunction with the histograms, with a normal distribution being ideal, is necessary to avoid undue influence by an outlier (Stevens, 1977).

Thirty-two differences in perceived level of importance were identified after completing the statistical and graphical analysis. A difference was considered to exist when the perceived level of importance differed by at least 50% (median difference of +/-20). In this case of perceptions of greater importance, no group of stakeholders exceeded a factor of two (median of 80). At the same time, no reduced level of importance was less than half (median of 20) relative to any of the anchor statements (Appendix F).

Students

Students identified the most items (22) that were perceived to be of greater importance; these covered the range of categories (Tables 27-29).

Table 27

Institutional Support and Technology Indicators Students Identified as of Greater Importance

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I10. The tuition and fees of online courses and programs are comparable to those on campus.

I11. The college's marketing plan includes promotion of online courses and programs.

I14. The community college's leadership demands that online programs meet the same programmatic requirements of on-campus programs.

I15. The community college has obtained the necessary accreditation for online programs.

T7. The institution provides integrated access to electronic resources in support of online education.

T8. The institution invests in a user-friendly course management system for the delivery of on-line coursework.

T10.The college promotes the use of standardized Internet tools in the delivery of online courses.

Table 28

Curriculum and Instruction, Faculty Support, and Evaluation and Assessment Indicators Students Identified as of Greater Importance

C5. The college communicates a regular schedule of training courses focusing on the technical aspects of on-line courses for both faculty and students.

C6. The institution provides adequate online technical, design and pedagogical support for faculty in the development of their online courses.

C7. The community college supports faculty with the assistance of instructional designers or through training that will help faculty to become instructional designers.

C11. The college encourages faculty involvement in peer-to-peer organizations and conferences where issues related to online instruction are discussed.

C13. Faculty respond to online student inquiries and manage grading of assignments and testing in a timely fashion.

F8. The college supports faculty in pilot projects investigating alternative scheduling, remote teaching, or other innovations.

E6. Faculty receive regular and objective feedback from students about their courses and instruction.

Table 29

Student Support Indicators Students Identified as of Greater Importance

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S2. Students are able to register and pay fees without having to visit the college.

S3. Access to traditional on-ground services for on-line students, including library, career services, and opportunities for professional development and networking are provided to students, both online and on-ground.

S4. Potential students have access to training about the expectations, needed skills, guidelines, policies regarding testing, program requirements and prerequisites, and technical support available to students taking online classes.

S7. All pertinent information related to the college such as schedules, catalogue, policies and procedures, are available in a range of user-friendly formats on the college's web site.

S12. The college provides on-site testing services or off-site proctored testing services to meet the needs of online students and faculty.

S13. Campus lab and library personnel are familiar with distance learning applications and trained to offer assistance.

S14. The college library provides electronic reserves in support of online programs and takes advantage of local and regional college partnerships to guarantee students the opportunity to access learning resources online.

Students did not rate any of the items below the level of importance of any of the anchor statements provided (median of 40). Are all of these potential indicators important to students, or are students more focused on not discounting any of the items? There is not sufficient information available to make a conclusion.

Faculty

Faculty responses are of special interest because this group expressed a neutral opinion throughout the stakeholder survey. In fact, only one item was rated of greater overall importance when compared to the other groups of stakeholders, and none of the items was rated lower. The one item rated of greater importance (C6) addressed the need for technical, design, and pedagogical support. Students also identified this to be of greater importance. The neutral nature of the faculty responses is illustrated by items that were identified as of greater importance by the other groups, while faculty respondents rated these as no more important than the anchor statement (Table 30).

Table 30

Items that All Stakeholders Except Faculty Rated as of Greater Importance

T8. The institution invests in a user-friendly course management system for the delivery of on-line coursework.

C 4. The community college supports new online faculty by providing instructional designers to assist with an instructor's initial experience teaching online and help solve teaching difficulties.

C11. The college encourages faculty involvement in peer-to-peer organizations and conferences where issues related to online instruction are discussed.

F8. The college supports faculty in pilot projects investigating alternative scheduling, remote teaching, or other innovations.

S8. The college provides web-based information geared toward the needs of online and prospective online students, including expectations related to online courses, FAQs about the online program and common technical problems, explanations of online terminology, and easy-to-find information on support services and courses offered.

S9. The college provides students with multiple communication options (telephone, email, US mail, etc.) for obtaining assistance and contacting support services.

S12. The college provides on-site testing services or off-site proctored testing services to meet the needs of online students and faculty.

Faculty did rate both F4 and F5 as being half as important (median of 20). F4 addresses the need to recognize online instruction as part of advancement and to reward faculty for innovation and risk-taking, and this could be due to the differences in advancement criteria used by community colleges. F5 similarly focuses on institutional recognition of the online courses taken by an instructor.

114

Administration

Administrators identified the second largest group of items (16) as of greater importance (Tables 31-32). The administrator and student groups displayed considerable similarity.

Table 31

Items from Institutional Support, Technology, and Curriculum and *Instruction* R*ated of Greater Importance by Administrators*

I6. The online program(s) offered by the community college is(are) consistent with the institution's mission and needs of the community served.
I14. Articulation agreements are pursued with area four-year colleges to create seamless transfer opportunities for students in online programs.
I15. The community college has obtained the necessary accreditation for online programs.
I16. The online program staff actively works with student services to insure awareness of online student needs and program requirements.
T8. The institution invests in a user-friendly course management system for the delivery of on-line coursework.
T10.The college promotes the use of standardized Internet tools in the delivery of online courses.
C6. The institution provides adequate online technical, design and pedagogical support for faculty in the development of their online courses.
C11. The college encourages faculty involvement in peer-to-peer organizations and conferences where issues related to online instruction are discussed.

Table 32

Items from Faculty Support and Student Support Rated of Greater Importance by Administrators

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F3. Faculty training addresses the function of technologies available to the instructor, to the students, and addresses the need for contingency plans (for when the technology doesn't work).

F7. The college demonstrates respect for faculty member's academic freedom by allowing him or her to develop the course in a way that coincides with his or her teaching style.

F8. The college supports faculty in pilot projects investigating alternative scheduling, remote teaching, or other innovations.

S7. All pertinent information related to the college such as schedules, catalogue, policies and procedures, are available in a range of user-friendly formats on the college's website.

S8. The college provides web-based information geared toward the needs of online and prospective online students, including expectations related to online courses, FAQs about the online program and common technical problems, explanations of online terminology, and easy-to-find information on support services and courses offered.

S9. The college provides students with multiple communication options (telephone, email, U.S. mail, etc.) for obtaining assistance and contacting support services.

S12. The college provides on-site testing services or off-site proctored testing services to meet the needs of online students and faculty.

S13. Campus lab and library personnel are familiar with distance learning applications and trained to offer assistance.

Administrators identified one item as of lower importance:

E2. Evaluations of online programs are consistent with that used for on campus programs.

This was an interesting outcome, given the oversight role of administrators.

Administrators did not indicate that any of the items were of low enough importance to be removed from the set.

Technical Support

Technical support professionals identified 10 items as being of greater importance (Tables 33-34).

Table 33

Items from Technology, Curriculum and *Instruction, and Faculty Support that Technical Support Staff Indicated to be of Greater Importance*

T8. The institution invests in a user-friendly course management system for the delivery of on-line coursework.
C2. The community college supports new online faculty by providing instructional designers to assist with an instructor's initial experience teaching online and help solve teaching difficulties.
C11. The college encourages faculty involvement in peer-to-peer organizations and conferences where issues related to online instruction are discussed.
F8. The college supports faculty in pilot projects investigating alternative scheduling, remote teaching, or other innovations.

Table 34

Items from Student Support that Technical Support Staff Indicated to be of Greater Importance

S3. Access to traditional on-ground services for on-line students, including library, career services, and opportunities for professional development and networking are provided to students, both online and on-ground.

S4. Potential students have access to training about the expectations, needed skills, guidelines, policies regarding testing, program requirements and prerequisites, and technical support available to students taking online classes.

S5. Online students have the opportunity to complete a technical skills screening prior to enrolment in online classes.

S8. The college provides web-based information geared toward the needs of online and prospective online students, including expectations related to online courses, FAQs about the online program and common technical problems, explanations of online terminology, and easy-to-find information on support services and courses offered.

S9. The college provides students with multiple communication options (telephone, email, US mail, etc.) for obtaining assistance and contacting support services.

S12. The college provides on-site testing services or off-site proctored testing services to meet the needs of online students and faculty.

Technical staff identified the item on external marketing of online programs to be
of lower importance:

> I12. Marketing of online programs emphasizes the skills needed for student
> success and clearly articulates that the academic expectations and time
> commitment in online courses are consistent with traditional classroom
> instruction.

In summary, a total of 32 differences were identified among the four groups of
stakeholders. Students were the most willing to rate items of greater importance (22),
while not differing with any of the other groups on the lower side. Administrators
identified 11 items of greater importance, with only one of lower importance. Technical
support identified four indicators of greater importance and only two of lower
importance, while for faculty indicated two of lower importance respectively.

There were twelve items that two or more groups of stakeholders identified as
being of greater importance. The most striking being item T3, which focused on the need
for a user friendly course management system, which was rated as of greater importance
by all Stakeholder groups. In fact Technology items were the most commonly agreed
upon potential indicators of greater importance, further supporting the argument for
adding this as a category. Students and Administrators were the two groups of
stakeholders that commonly agreed upon an item being of greater importance (Table 35).

Table 35

Indicators Two Groups Agreed of Greater Importance

Indicators	STU	FAC	TECH	ADM
I4 – equivalent program requirements	x			x
I15 – accreditation	x			x
T3 – sufficient network infrastructure	x	x	x	x
T5 – tech support center	x		x	x
T8 – course management system	x			x
T10 – standard Internet tools	x			x
C6 – technical, design and pedagogical support	x	x		
C11 – same learning outcomes as on-ground	x			x
S3 – access to traditional on-ground services	x			x
S4 – access to training for potential students	x		x	
S7 – web-site contains program information	x			x
S13 – lab and library personnel are trained for online support	x			x

One item with an interestingly split result was S12 - The college provides on-site testing services or off-site proctored testing services to meet the needs of online students and faculty. Students and Technical Staff rated it to be of greater importance (median of 60), while Faculty and Administration rated it to be of lower importance (median of 30). This is a very interesting split, especially given many of the concerns about the potential for online cheating.

120

One other possible indicator warranting some discussion was I7 - The College's marketing plan includes promotion of online courses and programs. While student's regarding it as of no greater importance, the other three stakeholder groups rated it of lower importance. Technical staff went so far as to rate this as half as important (median of 20). These results were puzzling given the traditional emphasis on program marketing.

While differences in levels of perceived importance were identified through the MES, no indicators were rated more than 50% below an anchor statement. As a result, respondents to the stakeholder survey did not eliminate any of the 77 quality indicators identified through the Delphi study. This was noteworthy given the concerns about researcher bias in synthesizing Delphi I submissions. The agreement between stakeholders and Delphi panelists serves to validate the results of the Delphi study.

New Indicators Recommended by Stakeholders

The stakeholders who participated in this study were asked for input about any potentially missing quality indicators. While the technical support staff did not make any recommendations, the remaining groups (student, faculty, and administration) all had at least one suggestion.

Student Input

Eight student respondents provided input about missing indicators, including recommendations about the design/management of their course(s) or personal feedback about their experiences. That feedback addressed communication and assessment, technical problems, concerns with how online courses were marketed at their institution,

and gratefulness for the opportunity to take courses online. Four suggestions could be interpreted as potential indicators:

1. Online courses should be less expensive.

2. Students should have the opportunity once or twice a semester to meet as a class.

3. If all or most students fail the class, perhaps the teacher's job standing or teaching methods should be assessed.

4. Developmental courses in math need to be offered.

Faculty Input

One faculty participant raised a concern about the possibility of the college offering developmental courses online. Currently, the institution that participated in this study does not offer developmental courses online, nor are there any plans to add such courses in the near future. While this suggestion was more a concern than a recommendation, it is interesting to note that a student participant suggested adding developmental courses. While the number of developmental online courses continues to increase, serious concerns with student readiness and the educational needs of developmental students are a concern to community colleges (Petrides & Nodine, 2005).

Administrator Input

One administrator suggested a need to include peer review in evaluations. This possible indicator was identified as an oversight during the researcher's audit of the research logs after completion of the Delphi study (discussed in chapter 3). The complete list of stakeholder recommendations is in Appendix G.

Demographic Data and ANOVA Analysis

The final section of the stakeholder survey collected information about gender, ethnicity, age, and experience. One-way ANOVA tests were run both within and across stakeholder groups and by each of the demographic variables (gender, ethnicity, and age). While no statistically significant relationships were identified within the individual stakeholder groups, significant results were found for age, gender, and ethnicity. Follow-up analysis using post hoc tests (Tukey and Bonferroni) did not identify any significant relationships across two or more variables. All ANOVA and post hoc tests were performed with SPSS 11.5 (Appendix G).

Age and ethnicity generated some statistically significant differences in survey responses, and an analysis by gender indicated one difference. Participants self-indicated age, gender, and ethnicity, and the only demographic variable with a distribution across the variable was age. Of those who indicated gender, 27 were male and 50 female. While respondents came from five different ethnicities, only two had any potentially significant numbers. Fifty-two indicated White/Caucasian ethnicity, and 8 participants indicated African American ethnicity. One participant each indicated Hispanic/Latin and Native American, and 3 participants identified their ethnicity as Asian/Pacific Islander. Age was broken down into the following ranges: 18-22, 23-28, 29-34, 35-40 and over 40.

Age and Quality Indicators

The goal in this analysis was to determine if the perceived importance of a given quality indicator depended on the age of the respondent. Therefore, perceived importance was the dependent variable and age the independent variable. The hypothesis was that age would influence a respondent's perception of importance. Results indicated that nine

123

quality indicators showed evidence of a statistically significant difference by age (Tables 36-37).

Table 36

ANOVA Results for Significantly Different Indicators by Age

	n	F	p	η^2	Power
I5. The community college's leadership openly defends the quality and equivalence of online courses and programs.	65	4.523	.005	.347	.983
I6. The online programs offered by the community college is consistent with the institution's mission and needs of the community served.	65	4.358	.006	.339	.895
T3. The college has developed an infrastructure for the efficient archiving and restoring of courses from semester-to-semester.	65	4.789	.004	.360	.923
T4. The college provides a technical support center with hardware, software and trained staff to provide technological support for all students, faculty and staff members.	65	3.653	.014	.301	.828
C2. The community college supports new online faculty by providing instructional designers to assist with an instructor's initial experience teaching online and help solve teaching difficulties.	64	3.680	.014	.302	.831

(table continues)

C4. The college provides faculty sufficient time to develop an online course before it is delivered to students.	64	2.952	.034	.258	.730
C11. The college encourages faculty involvement in peer-to-peer organizations and conferences where issues related to online instruction are discussed.	64	3.392	.019	.285	.795
S15. Student courseware is available and consistent from semester to semester.	64	2.905	.036	.255	.722
E7. Periodic program evaluations are used for program improvement, to aid in institutional decision-making, to provide program outcomes for funding agencies, stakeholders access to technology, the range of services provided, course offerings, and barriers and challenges to online instruction.	64	2.936	.035	.257	.727

Gender and Quality Indicators

The goal was to determine if the perceived importance of a given quality indicator depended on the gender of the respondent; thus, perceived importance was the dependent variable and gender the independent variable. The hypothesis was that gender would influence a respondent's perception of importance. Results indicated that only E10 showed evidence of a statistically significant difference by gender.

E10. Online assessment and evaluation tools are password protected to insure the anonymity of respondents.

ANOVA statistics indicated that male respondents placed a significantly greater level of importance on the need for password-protected assessment and evaluation tools than did female respondents ($n = 54$, $F = 4.660$, p = .038, $\eta^2 = .121$, Power = .555).

Ethnicity and Quality Indicators

The goal was to determine if the perceived importance of a given quality indicator depended on the ethnicity of the respondent; thus, perceived importance was the dependent variable and ethnicity the independent variable. The hypothesis was that ethnicity would influence a respondent's perception of importance. Due to the small number of Hispanic, Native American, and Asian/Pacific Islander participants, the ethnicity analysis was limited to White/Caucasian and African American. ANOVA revealed that eight quality indicators showed evidence of a statistically significant difference by age (Table 37).

Table 37

ANOVA Results for Significantly Different Indicators by Ethnicity

Indicator	n	F	p	η^2	Power
I7. The community college is committed to supporting the scheduling of online courses that meet the degree requirements of all students currently enrolled in an online program.	65	3.655	.022	.244	.750
I16. The online program staff actively works with student services to insure awareness of online student needs and program requirements	65	3.093	.040	.219	.669
C2. The community college supports new online faculty by providing instructional designers to assist with an instructor's initial experience teaching online and help solve teaching difficulties.	64	4.102	.014	.266	.802
C3. The college requires that online courses adhere to the same learning outcomes as traditional classes.	64	3.749	.020	249	.762
F2. Faculty are provided training on a variety of software programs to enhance student learning.	64	4.250	.012	.279	816
F8. The college supports faculty in pilot projects investigating alternative scheduling, remote teaching, or other innovations.	64	3.210	.036	.231	.685
S15. Student courseware is available and consistent from semester to semester.	64	3.207	.035	.221	.688
E3. The college solicits input from online faculty regarding the range of services and policies supporting online learning.	64	3.631	022	.243	.747

In all but one case, African Americans indicated greater importance for the indicators. Many of the indicators that African Americans characterized as of greater importance address the technical and pedagogical training and resources need for online instruction. Only in the case of the need for consistent courseware (S15) did the White/Caucasian respondents show a significantly higher perception of importance. The full set of ANOVA results for all indicators is in Appendix F.

The results of the ANOVA indicate some potentially interesting trends, especially with those in the 35-40 age range expressing a lower perception of importance than other age groups. However, the effect size and power indicate the likelihood of Type I errors in the cases identified by gender and ethnicity. The probability of Type I Errors must be included as a limitation.

<center>Factors versus Indicators Study</center>

The set of 77 items that resulted from the Delphi study consisted of a mix of factors, indicators, and other parameters. The factors versus indicators survey was designed to identify those items that were tied to indicators. The factors versus indicators survey was a sorting exercise where 10 professionals sorted lists of 38 or 39 items according to definitions for factors and indicators. Each of the77 items was reviewed by 5 of the 10 participants, and the individual item was then classified as a factor, indicator, or other if it was identified as such on three or more responses.

Participants identified eight items as indicators (Table 38), all but one of which came from the evaluation and assessment category. This result may have been influenced by the definition of an indicator, specifically the requirement that it be tied to an output.

<center>128</center>

Each of these indicators require institutions to collect data about the effectiveness of their

online programs, but there is no indication of what is to be done with what is collected.

Table 38

Indicators Identified through Factors versus Indicators Survey

Items	Indicator	Factor	Other
C6. New online courses are reviewed by the department or program to insure quality of subject matter and verify that it meets program outcomes.	4	1	0
E1. Regular evaluations of distance learning courseware, instructional philosophy, pedagogical methods, and faculty use of the technology take place.	3	2	0
E4. Student and faculty regularly complete satisfaction surveys about the online courses and programs.	3	2	0
E7. The college utilizes assessment methods recommended by accrediting bodies for distance courses (e.g. North Central Association, Higher Education Commission, Distance Education Standards).	3	2	0
E10. Student learning outcomes in online courses are assessed and compared with student outcomes achieved by other delivery methods.	3	1	1
E11. Periodic program evaluations are used for program improvement, to aid in institutional decision-making, to provide program outcomes for funding agencies, stakeholders access to technology, the range of services provided, course offerings, and barriers and challenges to online instruction.	3	2	0
E12. The college requires periodic review of courses delivered online.	4	1	0
E13. Student persistence and attrition in on-line classes are monitored in comparison to institutional trends.	3	2	0

Only two items were identified as other (Table 39). Both are clearly outside the conditions of system inputs or outputs as tied to the factor and indicator definitions, respectively.

130

Table 39

Items Classified as Other through the Factors versus Indicators Survey

Items	Indicator	Factor	Other
I15. The community college's leadership openly defends the quality and equivalence of online courses and programs.	0	1	4
F6. The college demonstrates respect for faculty member's academic freedom by allowing him or her to develop the course in a way that coincides with his or her teaching style.	0	2	3

A total of 67 items were classified as factors and are shown in Tables 40 – 4x

Table 40

Items Classified as Factors – Institutional Support

1. The college's online program is overseen by a professional manager with sufficient institutional authority to organize and support the academic and support services necessary for student success.
2. In all aspects of the distance education program, the college's administration promotes the use of best practices for online programs and instruction published by regional and national organizations.
3. The online programs offered by the community college is consistent with the institution's mission and needs of the community served.
4. The community college is committed to supporting the scheduling of online courses that meet the degree requirements of all students currently enrolled in an online program.
5. The community college's leadership acknowledges their commitment to the needs of online and on-campus students, programs and employees.
6. The community college provides the financial resources necessary to support the technical infrastructure, training and support personnel, and full range of faculty and student support services required for online courses and programs.
7. The college's marketing plan includes promotion of online courses and programs.
8. Marketing of online programs emphasizes the skills needed for student success and clearly articulates that the academic expectations and time commitment in online courses are consistent with traditional classroom instruction.
9. Articulation agreements are pursued with area four-year colleges to create seamless transfer opportunities for students in online programs.
10. The community college has obtained the necessary accreditation for online programs.
11. The online program staff actively works with student services to insure awareness of online student needs and program requirements.
12. The community college's leadership demands that online programs meet the same programmatic requirements of on-campus programs.
13. The community college's leadership openly defends the quality and equivalence of online courses and programs.
14. The tuition and fees of online courses and programs are comparable to those on campus.

Table 41

Items Classified as Factors - Curriculum & Instruction

1. The community college supports the philosophy that faculty use each technology for what it does best in meeting the needs of the course or program, emphasizing effective teaching and learning over technology.
2. The institution provides adequate online technical, design and pedagogical support for faculty in the development of their online courses.
3. The community college supports faculty with the assistance of instructional designers or through training that will help faculty to become instructional designers.
4. The community college supports new online faculty by providing instructional designers to assist with an instructor's initial experience teaching online and help solve teaching difficulties.
5. The community college follows an application process and training procedures for all faculty pursuing online teaching.
6. The college provides faculty sufficient time to develop an online course before it is delivered to students.
7. The college provides online faculty training and support related to the legal rights and responsibilities of faculty and the institution (i.e. copyright and intellectual property rights, FERPA, ADA).
8. The college encourages faculty involvement in peer-to-peer organizations and conferences where issues related to online instruction are discussed.
9. The college communicates a regular schedule of training courses focusing on the technical aspects of on-line courses for both faculty and students.
10. The college requires that online courses adhere to the same learning outcomes as traditional classes.
11. The college has compiled a set of institutional best practices for online courses and encourages its use by new online faculty during course development.
12. The institution has a clear policy as to the ownership of the content of its online courses.

Table 42

Items Classified as Factors - Technical Support & Faculty Support

Technical Support

1. The institution provides online faculty with the technology needed to adequately develop and deliver their online courses.
2. The institution provides integrated access to electronic resources in support of online education.
3. The institution provides sufficient network infrastructure (backbone, bandwidth, servers) necessary to deliver online classes.
4. The college has developed an infrastructure for the efficient archiving and restoring of courses from semester-to-semester.
5. The college provides a technical support center with hardware, software and trained staff to provide technological support for all students, faculty and staff members.
6. The institution provides appropriate levels of technical support via a range of technologies and over a broad range of times.
7. The college invests in and support information management systems (student information, course management, e-mail, etc.) that interface smoothly across the institution.
8. The institution invests in a user-friendly course management system for the delivery of on-line coursework.
9. Planning for new technology resources for the college includes and integrates online program needs into the budget and execution cycles.
6. The college supports faculty in pilot projects investigating alternative scheduling, remote teaching, or other innovations.
7. The college supports online faculty in the development of their online classes through a design department equipped with the hardware, software, and technical staff to assist with the incorporation of audio and visual content.

Table 43

Items Classified as Indicators - Student Support and Evaluation & Assessment

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Student Support

1. The college provides enrollment procedures that are easy and accessible to online students.
2. Students are able to register and pay fees without having to visit the college.
3. Access to traditional on-ground services for on-line students, including library, career services, and opportunities for professional development and networking are provided to students, both online and on-ground.
4. Potential students have access to training about the expectations, needed skills, guidelines, policies regarding testing, program requirements and prerequisites, and technical support available to students taking online classes.
5. Online students have the opportunity to complete a technical skills screening prior to enrollment in online classes.
6. An effective, self-directed online orientation is available for new students.
7. All pertinent information related to the college such as schedules, catalogue, policies and procedures, are available in a range of user-friendly formats on the college's web site.
8. The college provides web-based information geared toward the needs of online and prospective online students, including expectations related to online courses, FAQs about the online program and common technical problems, explanations of online terminology, and easy-to-find information on support services and courses offered.
9. The college provides students with multiple communication options (telephone, email, US mail, etc.) for obtaining assistance and contacting support services.
10. Online testing accommodates the range of student Internet access from dial-up to high-speed connectivity.
11. The college provides on-site testing services or off-site proctored testing services to meet the needs of online students and faculty.
12. Campus lab and library personnel are familiar with distance learning applications and trained to offer assistance.
13. The college library provides electronic reserves in support of online programs and takes advantage of local and regional college partnerships to guarantee students the opportunity to access learning resources online.
14. Student courseware is available and consistent from semester to semester.

Evaluation & Assessment

1. Evaluations of online programs are consistent with that used for on campus programs.
2. Faculty evaluation criteria are adjusted to account for online delivery, instructional methods, and practices.
3. Faculty receive regular and objective feedback from students about their courses and instruction.
4. Classroom assessment includes projects and portfolio building assessments, not just multiple-choice tests.
5. Online assessment and evaluation tools are password protected to insure the anonymity of respondents.

The five items in Table 40 were classified as indicators on two of five responses. Twenty-two items received one vote as an indicator, and at least one item in each of the six categories was classified as an indicator.

Table 44

Items Identified as Indicators on Two Responses

I9. The community college communicates recognition of the value and academic equivalence of online programs to all stakeholders.
I11. The community college has obtained the necessary accreditation for online programs.
I13. The community college's policies and procedures demonstrate consistency across all forms of instruction
S10. Student academic honor and service programs accept online and traditional coursework.
E3. The college solicits input from online faculty regarding the range of services and policies supporting online education.

Only a few of these items were classified as indicators or other by reviewers. The five items in Table 40 are of particular note beyond the two indicator responses; each was also classified once as "other" on another response to the survey. As a result, none of these items could be classified as a factor, indicator, or other.

Chapter Summary

The Delphi study participants reached consensus on 77 quality indicators for online programs at community colleges. Further review indicated that all fit within the six categories of criteria identified in the literature review, including the eight new indicators

identified through the Delphi study. How many of these are due to the mission, nature, and service population of the community college remains to be discussed.

The stakeholder survey collected a range of input on the perceived level of importance from stakeholders in online programs. While these stakeholders did not eliminate any of the 77 quality indicators identified by the expert panel, there were some interesting differences in perceived level of importance among groups. The most interesting results were a consistently lower rating given many indicators by faculty stakeholders.

ANOVA of demographic characteristics identified some statistically significant results by gender, ethnicity, and age, but none by stakeholder group. ANOVA results also indicate the potential for Type I Error in both the gender and ethnicity results, and the results must be reviewed in light of this limitation.

A third study was used to refine the set of 77 items found through the Delphi study. A follow-up survey of 10 distance learning professionals served to further refine items into a set of potential indicators. Respondents to the factors versus indicators survey agreed that 8 of the 77 items met the definition of indicator. Each of these eight potential indicators requires the institution to collect information about the effectiveness of the online program; however, there is no judgment as to what the institution does with this information.

CHAPTER 5: DISCUSSION

This study began with two research goals: to identify a set of quality indicators for online programs at community colleges, and to collect information about how stakeholders perceived these indicators. A total of three studies were use to collect data in an effort to meet these two goals, and the result of this research was the identification of a set of eight processes from which quality indicators may be extracted.

The study began with a review of the literature on program quality and accreditation associated with distance education courses and programs. The results of the literature review led to the design of a Delphi study, the purpose of which was to identify quality indicators that may be used in future research on the quality of online programs. The Delphi study resulted in 77 potential items, which were organized into six categories. This study was followed by a survey of stakeholders: students, faculty, administrators, and technical support staff. The stakeholder survey confirmed the indicators identified through the Delphi study, and the input from these surveys allowed for refinement of the indicators and factors for use in future studies. The research concluded with the factors versus indicators survey used to refine the set of items identified through the Delphi study into a set of potential indicators.

The goals of this study were rooted in the concerns first raised by Phipps and Merisotis (1999). Their analysis of research about online programs convinced them of the need for a consistent instrument to compare online programs. Compiling these quality indicators was a step towards meeting this need, and these results provide additional insight into online programs at community colleges as well as resulting in additional research questions. The results of the three experimental procedures will be reviewed in

this chapter, followed by a discussion of the findings and implications. Finally, topics for

further research will be proposed.

Summary of Results

This section will briefly review the purpose for the research, the procedures, and

the results.

Purpose

This study was developed to address two research questions:

1. What are indicators of the quality of online programs at community colleges?

2. What is the perceived importance that stakeholders place on each of these

quality indicators?

A Delphi study was used to identify a set of indicators, and a stakeholder survey

was used to determine the importance placed on each indicator by students, faculty,

administrators, and technical support staff. A final survey of professionals was used to

refine the set of items into a set of potential indicators. While the results indicate the

potential for applicability across institutions, the limitations of this study do not allow for

generalization of the results. The results can be used by institutions to improve existing

programs and by stakeholders when comparing programs.

Procedure

The first phase of this research began with a comprehensive literature review,

which identified current best practices and guidelines developed by a range of higher

education organizations and accrediting bodies. The literature also indicated that the

standards in these guidelines often fell into one of six categories: institutional support,

technology, curriculum and instruction, faculty support, student support, and evaluation and assessment.

The literature review was followed by a Delphi study intended to identify potential quality indicators. The panel was originally composed of 21 distance education program administrators employed by both 2- and 4-year institutions, with 13 participating through all four Delphi surveys. The Delphi process started with an open-ended survey that generated 360 possible indicators, which were synthesized into 129 items to be resolved through subsequent consensus surveys. The Delphi panelists reached a consensus on 77 items.

The 77 potential indicators were then incorporated into a stakeholder survey and delivered to four groups of online program stakeholders at a community college: students, faculty, technical support, and administrators. The survey collected participants' ranking of each indicator using magnitude estimation scaling (MES). Just over 100 stakeholders responded to the survey, of which 77 provided usable responses (having proceeded beyond the example exercise). The results were analyzed statistically and examined for trends using MES and ANOVA.

A final survey (factors versus indicators) was distributed to a group of recognized researchers in distance learning. The participants were asked to indicate which of the items were indicators, factors, or other. This final stage resulted in the identification of 8 potential indicators, 62 factors, and 2 "others." Five items that did not achieve consensus were omitted from the final results.

Findings

Delphi Study

The Delphi study generated 77 items related to the quality of online programs at community colleges. Almost all of these items were consistent with standards identified through the guidelines and best practices found in the literature. Eight new items were identified in this study, and further inspection of the findings revealed that all fit within the six categories (institutional support, technology, curriculum and instruction, faculty support, student support, and evaluation and assessment) identified in the literature review.

Institutional Support

Budget and organizational commitment were two items found across the range of criteria studied. Others such as mission, the need for accreditation, and policies and procedures addressing the management of online programs were also prevalent. New indicators focused on marketing online programs, the need for articulation agreements, and cost to students.

As stated, one of the new items identified through the Delphi process addressed marketing of online programs to internal and external constituencies. External marketing can be found in two instances: institutional leaders openly defending the quality and equivalence of online programs, and the need to market not only programs but also the skills needed for student success. Similarly, two other items addressed the need to convince the organization that online programs are equivalent to those offered in the traditional classroom. The need for articulation agreements and limiting the costs to students round out the new items identified using the Delphi panel.

Technical Support

The principal technology and technical support criteria consistently found in the literature address the infrastructure and technical support services provided by an institution. Other factors identified there include common software systems, integration across different platforms, inclusion in technology planning, and the need for a common course management environment. In the Delphi process no new items were identified in relation to technology.

Curriculum and Instruction

Several criteria in the literature review fit in the category of curriculum and instruction. Professional support for course development, a focus on student learning outcomes, a need for best practices, and an effort to address student learning needs were also identified as critical by the Delphi process. The main concern to arise in this category was the lack of any quality indicator tied to mentoring new faculty during development and their initial delivery of online courses. Mentoring was a common theme in the literature, and it was identified during the open-ended questioning of Delphi I. However, the mentoring item never achieved consensus, nor was it identified through the stakeholder survey.

Faculty Support

The literature review indicated that faculty support criteria focus on meeting the training and professional development needs of online instructors, and this direction was reinforced through the recommendations of the Delphi study. The new items included the need to recognize online course work and professional development by faculty and the need to protect and support risk-taking by faculty.

Student Support

Library and learning resources, online student services, pre-enrollment services, a well-designed Web site for informing students of needs and expectations, and an orientation program were common themes identified throughout the literature, all of which were represented in the items identified through the Delphi process. The one addition was an item regarding the need for student honors to recognize online activities as equivalent to traditional ones.

Evaluation and Assessment

The use of faculty evaluation with student feedback and assessment of student learning were consistent in both the literature and the Delphi study. The one new item identified through the Delphi process was the use of program evaluations to look at the interrelationships among factors both within and outside the control of the department.

The results of the Delphi study were used to create a stakeholder survey for delivery to four groups. The main purpose of this survey was to compile perceptions of importance and to identify any trends related to variables such as age, gender, and ethnicity.

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Stakeholder Surveys: Perceived Importance

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The stakeholder data revealed differences in perceived importance for about half of the items identified through the Delphi study. However, the groups did not indicate that any of the 77 items should be eliminated. Stakeholders provided minimal input regarding missing indicators, and the demographic data did not indicate any significant relationships within or between groups of stakeholders. The most intriguing results were

found by examining how different groups of stakeholders perceived the importance of the items relative to anchor statements used in the MES process.

Students

The student stakeholders indicated that 22 items were of greater importance than did at least two other groups, with a particular focus on those items directly affecting the quality of instruction through training, technical and development support, access to support services, and providing the resources needed to support the program. Students did not rank any items lower than did other groups of stakeholders.

Faculty

Faculty responses showed almost no divergence from the anchor statement; consequently, the faculty did not rate many indicators above or below the level of importance of the other groups. This pattern led to a result only seen in the faculty group: In instances where the other three groups had rated an item of greater importance than the anchor statement, the faculty did not vary from the anchors' perceived importance in six instances.

When faculty did indicate an increased perception of importance, their responses supported a need for technical and design support. Interestingly, the faculty did not express a need for protections provided under faculty support. It was clear that this group was not concerned about how experimenting with online teaching would affect their future employment or advancement.

Administrators

The administrator group was second only to students in identifying items as being significantly more important than the other two groups. In ten instances students and

144

administrators agreed on greater importance, especially those regarding the need for technical and student services support. Administrators indicated that the need for similarity between online and classroom evaluations was of reduced importance.

Technical Support Staff

The technical support staff represented a new perspective on online quality, and some intriguing differences in importance were expressed. Technical support staff indicated that training and information prior to students taking an online course were of greater importance than did other stakeholders.

Summary of Stakeholder Surveys

Each group demonstrated independent needs and priorities through its assessment of perceived importance. Many of these preferences are predictable, given the apparent needs of each group. Interestingly, though, administrators and students showed considerable similarity that a given item was of greater importance. The concurrence of students and administrators was greater than for any other pair of groups. Possible reasons for this agreement will be discussed in the next section.

While there were differences of opinion among the stakeholders, in no instance did a consensus rate an item more than half as important as an anchor statement. Consequently, there was no evidence to indicate that any item should be eliminated. This agreement between the stakeholder results serves to validate the results of the Delphi study, and allays fears about researcher bias influencing the Delphi results.

Stakeholder Survey: ANOVA

ANOVAs were used to explore trends among demographic and stakeholder groups. No trends were identified among stakeholders. However, some significant connections were found according to age, gender, and ethnicity.

Age

The 35-40 age group revealed lower perceptions of importance on nine items, most of which dealt with technical and student support services and the need to educate constituencies on the equivalence of online courses and the need for consistency with the institution's mission.

Gender

Only one item produced a statistically significant result relative to gender. Males indicated that the need for password-protected evaluation and assessment tools was of greater importance.

Ethnicity

Eight items generated statistically significant results by ethnicity. The small number of samples submitted by Hispanics/Latinos, Asians, and American Indians did not allow for ANOVA analysis, so the only comparisons were between White/Caucasian and African American ethnicities. In general, African American respondents attached greater importance to items addressing technical support and training. In one case, those of White/Caucasian ancestry indicated a preference for consistency in the software used.

The power and effect size results for the gender and ethnicity results indicated the potential for Type I errors. Some interesting trends surfaced, but any conclusions must be tempered due to the likelihood of a false positive result.

Factors versus Indicators Study

A final study was performed to refine the 77items identified through the Delphi process. In the factors versus indicators survey distance education professionals were asked to review and classify the 77 items according to a set of definitions. The outcome of the factors versus indicators survey resulted in the identification of eight indicators and 62 factors. The remaining seven items were either classified as other or did not achieve consensus.

Limitations and Assumptions

Limitations to this study include the conditions under which the study was completed, as well as, decisions made by the researcher. Some limitations resulted from the Delphi process—in particular, how the experts who served on the Delphi panel were identified. The panelists were selected by the researcher through institutional positions and activity in local and regional distance education organizations, rather than nominated or through a review of vita. These actions could have resulted in researcher bias or conflict of interest.

Another limitation was the regional nature of the study. All of the Delphi panelists were residents of the Midwest, and all but two were employed at Midwestern community colleges or teaching universities, even though the mix included rural and urban institutions.

The Delphi study itself was limited by the number of potential indicators. The panelists reduced a set of 129 potential indicators by less than 50%. Instructions to participants or clarity of definitions may have played a role. Efforts to minimize the impact of this limitation include the use of the factors versus indicators survey using

147

input from a different group of distance learning researchers and professionals to validate the outcomes of the stakeholder survey.

An additional limitation resulted from a single researcher's synthesis of input from the Delphi panel. The investigator took steps to minimize the influence of researcher bias through the use of a research log, as discussed in chapter 3, in an effort to identify where bias or an oversight might have occurred. The stakeholder survey also provides validation of the Delphi results. Even with these steps, the potential for researcher bias must be included in any discussion of the results. That potential was further compounded because the researcher was the sole individual involved in sorting the results into six categories.

Another limitation resulted from the context of the study and the number of respondents completing the stakeholder survey. The institution used to examine the perspectives of stakeholders was a community college system in a large Midwestern metropolitan area; thus, the perspectives of faculty, administrators, and support personnel involved in the evaluation were limited to this context. The number of respondents to the stakeholder survey was low given the size of the online program at the participating institution. This limits the generalizability of the conclusions to extend beyond community colleges.

There are clear limitations to the results of this study due to the potential for researcher bias, the limited response to some parts of the study, and the regional nature of some participating groups. The researcher took steps, such as research logs/diaries and follow up studies, to minimize the impact of limitations and in an effort to validate the results.

Discussion of Findings and Implications

The results of both the Delphi study and stakeholder survey produced new insights on how the quality of an online program is perceived inside and outside an organization. The Delphi study reinforced many of the standards and best practices found in the literature while identifying some new items that may be unique to community college programs. The results of the stakeholder survey confirmed that many of the issues identified in the literature still persist and suggested that new issues and perspectives have been added due to the expansion of technology. Finally, the factors versus indicators survey generated a set of eight potential quality indicators that address outcomes an institution may attempt to measure in an effort to gauge it's online program(s).

Delphi Study

The Delphi panel generated 77 items tied to the quality of online programs at community colleges. Only eight were new or not identified in the literature. It can be argued that some of the new items are due to the nature of the community college, and these have not been identified in more general studies examining all of higher education. Other new factors and potential indicators may not have been recognizable when the first criteria were developed in the late 1990s through 2001. The Delphi study did identify a few items applicable to community colleges different from those applicable to 4-year institutions, specifically those related to the mission of the community college and the general nature of the population served.

Institutional Support

Support for both internal and external marketing is evident in studies on faculty and student issues in distance education programs. Many online programs are part of

distance education units that began with Instructional Television [ITV] or other video-based programs. External marketing of ITV programs was a concern encountered in the literature, and this may be an artifact from previous technologies. Internal marketing may be a response to continued questions about the academic equivalence of online courses, as represented in the No Significant Difference project, among others.

The need for articulation agreements may be tied to the community college's transfer mission, which generally focuses on students completing the first 2 years of a bachelor's degree and then transferring to a 4-year institution to complete the remaining credits. The need to gain and maintain articulation agreements is a constant process at community colleges (Cohen & Brawer, 1996).

Similarly, there is ongoing consideration about fees, and other costs, and their impact on student access to community colleges. The concern that fees be comparable could be attributed to the access mission of the community college.

Curriculum and Instruction

The use of peer mentors to support new online faculty during development and the initial teaching experience did not survive the Delphi consensus process. This is interesting because the use of peer mentoring programs was identified in the literature. No explanation exists at this time, and this may result from the limitations of the present study.

Faculty Support

Identifying a need for institutions to recognize online courses completed by faculty as part of their professional development is possibly a result of the overall growth in both online academic programs and professional development opportunities since the

original guidelines examined in the literature review were published. Four years ago a limited number of faculty had participated in online programs or noted them on their resumes, a situation that has clearly changed.

The addition of protections for faculty who want to take risks or need some level of protection in advancement made up the final new indicator. While the use of advancement steps is more indicative of 4-year institutions, retention is a constant concern in the non-tenured environments more common on community college campuses. These items may be intended to provide some of the protections needed when a program director approaches faculty about participating in online or other new forms of instruction, even though faculty did not express concern about advancement.

While there were other items intending to protect faculty participating in online instruction, those addressing incentives for faculty to develop or participate in online programs did not survive the consensus process. Incentives for online course development and teaching were commonly addressed in the literature. The use of financial incentives, release time, or other incentives to promote the development of online programs varies among community colleges, and the elimination of this indicator may be due to the regional limitations of this study. The organizational structure of the community college may also play a role, given the wider variation in how resources are allocated for development and investigation of new instructional technologies. This, combined with the attitude that course design is part of a faculty member's professional responsibility, is another possible explanation (Cohen & Brawer, 1996).

Student Support

The only new item in this category that resulted from the Delphi process was the need for student honors to recognize the equivalence of online coursework when selecting students for academic recognition. This may also be due to the passage of time, much like the need to recognize online course work by instructors, as discussed under Faculty Support.

Evaluation and Assessment

The new item identified through the Delphi process was the use of program evaluations as part of reviewing online programs. Existing criteria and standards focus on course evaluations and assessment data. Again, the past 6 years have seen a move from offering online courses to online programs. As these programs enter the online realm, it is only natural that programmatic reviews follow.

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Stakeholder Survey

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The findings from the two analyses of the stakeholder survey reinforced some previously identified needs of online stakeholders, while new perspectives were identified for groups that have been studied little or not at all. The results also suggested some trends reflecting age and ethnicity. Explanations for these findings will be examined in this section.

Magnitude Estimation Scaling (MES)

Among students and faculty, the perceived importance of various indicators generally agreed with the literature. Administrators expressed more agreement with students than had been found previously. Technical support personnel generally indicated greater importance for items on student preparation and training for faculty.

The most significant result from the stakeholder survey may be the agreement between administrators and students on the importance of indicators that directly affect the student experience. Previous studies have found faculty and administrators to be in general agreement. The alignment of administrators with students identified in this study could be due to the simpler and shallower administrative structure of community colleges (Cohen & Brawer, 1996). Coupling the differing responsibilities of community college administration with its student-centric philosophy may explain this shift in perspective.

Another possible explanation may be found in how other institutions manage their online programs. It is common for 4-year colleges and universities to develop online and distance programs in the extension office. The community college in this study has located their online programs within existing academic units, directly under the supervision of an administrator responsible for instruction. This difference in program oversight may further explain why community college administrators expressed opinions more aligned with students than with faculty.

Technical support staff placed greater importance on items emphasizing proactive interventions such as orientations, support services, and training. This perception may be driven by the type of contact such staff have with students, which usually involve those students requiring a wide range of assistance, information, or direction. One could hypothesize that technical staff interact with a subset of the student population with especially limited technical skills, and this interaction influences the importance placed on training and proactive services.

Analysis of Variation (ANOVA)

The ANOVA test indicated some differences in perceived importance by age, ethnicity, and gender. Respondents in the 35-40 age range placed a lower value on each of the indicators identified. This group demonstrated a perceived importance at or below the anchor statement, while the other age groups rated these well above.

The one item with a statistically significant difference by gender may be the result of a Type I error. The statistical difference of the groups is slight, and the effect size (η^2) and power results indicate that the sample size was not sufficient for such a judgment. The nearly 3-1 female-to-male respondent ratio reinforces this conclusion.

In terms of ethnicity, African American respondents indicated greater importance for all but one of the eight items identified. Only in the case of student support criteria on consistent courseware did the White/Caucasian respondents indicate a significantly higher perception of importance. It is difficult to detect a pattern in these results, especially when considering that the respondent ratio was more than 8-1 White/Caucasian to African American. The strength of the power results in all cases adds to this concern.

There is some potential that the age 35-40 population may have different perceptions about technology needs and online education. The relatively low number of respondents does not allow for generalization. The ANOVA results raise some interesting questions about age and ethnicity, but the respondent population was not large enough to support any firm conclusions.

Factors versus Indicators

The factors versus indicators survey trimmed the original 77 items to eight potential indicators. Of the remaining 69 items, 62 were factors, 2 were other, and the remaining 5 did not achieve consensus. Seven of the eight surviving indicators came from the category of evaluation and assessment, while the remaining item was from curriculum and instruction. The seven items from evaluation and assessment represent just over half of the 13 items in that category.

The definition for indicators focused on outputs, and each of these potential indicators represents a process by which institutions could collect data about the effectiveness of their online programs. The definition for factors focused on actions taken by the institution that would support online programs but not generate measurable results.

The final eight potential indicators cover the mechanics of the online program from course content development to evaluating the learning environment. Others address the experiences and success of students, while other indicators ensure that the program meets institutional and accreditation standards (Table 45).

Table 45

The Eight Quality Indicators

1. The department or program reviews new online courses to insure quality of subject matter and verify that it meets program outcomes.
2. Regular evaluations of distance learning courseware, instructional philosophy, pedagogical methods, and faculty use of the technology take place.
3. Student and faculty regularly complete satisfaction surveys about the online courses and programs.
4. The college utilizes assessment methods recommended by accrediting bodies for distance courses (e.g. North Central Association, Higher Education Commission, Distance Education Standards).
5. Student learning outcomes in online courses are assessed and compared with student outcomes achieved by other delivery methods.
6. Periodic program evaluations are used for program improvement, to aid in institutional decision-making, to provide program outcomes for funding agencies, stakeholders access to technology, the range of services provided, course offerings, and barriers and challenges to online instruction.
7. The college requires periodic review of courses delivered online.
8. Student persistence and attrition in on-line classes are monitored in comparison to institutional trends.

The 62 factors and eight potential indicators identified in this study serve as a starting point for evaluating an online program. The factors provide a checklist of activities an institution might use to support any online program and service. The potential indicators provide institutions with methods by which information about the effectiveness of their online program(s) could be collected. However, these factors and potential indicators are only part of the story. What the institution does with the information compiled through these actions is the next step in closing the evaluation loop, and this step is not addressed by the factors and indicators identified in this study. It is possible to use these factors and indicators to compare community college programs, but this is only part of the evaluation process. Additional research will be needed to identify

the actions an institution should take in response to these indicators, and actions must be linked to the mission and purpose of the institution.

From Potential Indicators to Indicators

The 8 potential indicators identified through the factors versus indicators study do not truly fit the definition presented to participants. Indicators were defined as outcomes, and the 8 items resulting from the final survey were processes. However, there are indicators buried in each of these processes. In this section an attempt was made to tease out the indicators within these 8 processes.

1. The department or program reviews new online courses to insure quality of subject matter and verify that it meets program outcomes.

In this instance there are at least two different indicators that could be assessed. The first indicator is the quality of subject matter in the course, and a second would be whether or not the course meets program outcomes. The quality of the subject matter would require that content experts identify criteria for each potential course before the quality could be measured. Similarly, each unit would need to develop a set of program outcomes before any assessment could be made.

2. Regular evaluations of distance learning courseware, instructional philosophy, pedagogical methods, and faculty use of the technology take place.

The second process identified contains a number of possible indicators measurable via evaluations. An examination of the distance learning courseware is really an evaluation of the course materials used in the online course, and not the course management system. Such an evaluation, using the Quality Matters rubric, would include outcomes that address, navigation; clarity of instruction and content; links between content, outcomes and assessment; and links to learning support services.

Instructional philosophy and pedagogy would be examined through outcomes related to student learning. Measures such as student retention, assessment of student learning by course and/or program outcomes, and course evaluations would all provide information about the effectiveness of instruction.

Faculty use of technology can be measured through user surveys and data compiled from the course management system and other monitoring software. Outcomes such as areas visited in course sites, tools used by faculty, and amount of time spent in online course sites provide insight into faculty usage.

3. Student and faculty regularly complete satisfaction surveys about the online courses and programs.

This process will generate a number of outcomes for each user group; students and faculty. Outcomes generated through these surveys could include satisfaction with; usability of course management system, type and availability of learning and student support services, availability of online courses, services provided by the distance learning unit, and performance of the system running the learning management system.

4. The college utilizes assessment methods recommended by accrediting bodies for distance courses (e.g. North Central Association, Higher Education Commission, Distance Education Standards).

This set of outcomes would be linked to the assessment methods required by the relevant accrediting agency.

5. Student learning outcomes in online courses are assessed and compared with student outcomes achieved by other delivery methods.

The first assumption in this process is that there exists a method for comparison of student learning between the two modes of instruction. This process requires that the institution has an agreed upon method for measuring the learning outcomes for traditional

classroom instruction in any give course, and it is agreed that these methods translate

equally to the online courses. The outcome would then be the comparison of student

performance by sample groups from students taking the course online and in the

classroom.

> 6. Periodic program evaluations are used for program improvement, to aid in institutional decision-making, to provide program outcomes for funding agencies, stakeholders access to technology, the range of services provided, course offerings, and barriers and challenges to online instruction.

The institution must have identified criteria for program evaluations, and

outcomes would then be determined on a case-by-case assessment of what improvements

are needed and how the supporting unit addressed the need at the next program

evaluation. As an example, if a program evaluation identified a concern with the

introductory course in an online program, then one outcome would be how (or if) the unit

addressed the noted concern. This is really a process that would vary from program to

program and institution to institution. This is the only potential indicator that addresses

whether or not the institution responds to feedback.

> 7. The college requires periodic review of courses delivered online.

The seventh process, like the previous, would depend upon the college. The mission of

the institution, populations served, and other indicators determined by the nature of the institution

would play a role in defining institutional goals in periodic reviews. There is one simple outcome

that could apply to all organizations, and that is whether or not program reviews are required. It

would generally be assumed that quality programs do require periodic evaluations of each course,

so the actual outcomes would be determined by what criteria the institution uses.

> 8. Student persistence and attrition in on-line classes are monitored in comparison to institutional trends.

Monitoring student persistence and retention would be another process used to indicate program success. Outcomes include what percentage of online versus classroom students successfully complete comparable courses, and take future courses online or in the classroom. Similarly, one would examine the withdrawal rates in comparable online and classroom sections. Even an examination of grade distributions between comparable courses would provide an outcome that addresses this item.

Nearly twenty sources of data were identified in a brief review of the 8 potential indicators. These are just a starting point that a detailed parsing of the 8 processes, coupled with a similar analysis of the 62 factors, should provide future researchers with a final group of outcomes leading to a clear view of how well an organization both supports and details the quality of its online program.

Results and the Literature

In general, the results of this study reinforced previous research in online learning policy recommendations and surveys of students and faculty. Only 8 new items were identified through the Delphi study, and the perspectives of students and faculty were similar to those identified in previous studies. The results of this study both reinforce much of the previous research while adding additional insight.

Previous studies indicated that students placed a great deal of importance on course design and navigation (Conrad 2002b; Inman et al., 1999; Roval & Barnum, 2003; Song et al., 2003; Tricker et al., 2001). In the stakeholder survey, student respondents indicated that instructional design and support (item C6) and the use of instructional designers in the course development process (item C7) were of greater importance.

A concern raised by students in earlier studies concerned the amount and timeliness of communication with faculty and feedback on course work (Brown et al., 2002; Daugherty & Funke, 1998; Haynes & Dillon, 1992; Song et al., 2003; Tricker et al., 2001). Students indicated in the stakeholder survey that faculty should respond in a timely manner (item C13).

The literature indicated that students are concerned with the reliability of technology and the amount of support (Daugherty & Funke, 1998; Hara & Kling, 1999; Haynes & Dillon, 1992; Song et al., 2003; Talent-Runnels et al., 2006). Student responses to the stakeholder survey showed that usability of the course management software (T8), access to electronic services (T7), and use of standardized software (T10) were the most important items. This change in perspective may be due to the increased reliability of the infrastructure, indicating students have moved from worrying about whether the technology works to how well it works.

The one distinct difference between this study and previous research concerns the perspectives of administrators. Two previous studies (Dooley & Murphy, 2000; Rangecroft et al., 2002) focused on Research I institutions, and each found a link between faculty and program administrator perspectives. In this study on community colleges, the stakeholder survey revealed that students and administrators shared the same perspectives regarding important services and support. This may be an issue specific to the community college, as will be explored in the next section.

The Delphi study identified 8 new items not found in the literature. As discussed above, some of these items appear to reflect increased acceptance of distance education courses and programs over the past 5-7 years. The emphasis on accepting online credits

161

(students) and experiences (faculty) may simply be due to time. The addition of transfer agreements and alignment with the college's mission are community-college-specific issues, expected to arise in a focused study of this type.

Only one of the 8 new items made it into the final set of eight indicators: the need for program evaluation. This is again a result of the passage of time; few, if any, complete online programs existed between 1999 and 2001. During this period, online coursework was the prevalent issue, as can be seen in the focus on instruction and design. As complete programs are increasingly offered, it is only natural that programmatic evaluation be applied.

The 8 potential indicators identified through these studies can all be found in the different standards and best practices reviewed at the beginning of the research. In this series of studies these potential indicators represent processes that were sifted out of the larger set of standards, best practices, factors, etc., which has the potential to focus future research on quality in online education. One of the benefits of this research has been the refining of the large, and varied, set of recommendations into a usable set of consistent questions, processes, and potential indicators.

The literature and the results of this study are in general agreement regarding student attitudes towards online learning and the needed support and services. A shift in alignment between administrators and faculty to administrators and students was identified, though this could be due to the study's focus on community colleges. While a limited number of new items were identified, most appear to be the result of the growing acceptance of online courses and programs over time. In the larger scope, this research

has helped to focus the question of quality to a much more limited set of potential indicators.

<p style="text-align: center;">Implications for the Community College</p>

As noted in the previous section, the results of this study generally confirm what was found in the literature. At the same time, some items may be unique to the community college and could affect how community colleges plan for online programs in the future. New factors specific to the community college include the need for transfer agreements and alignment with institutional mission. Cohen and Brawer (1996) listed five missions of the community college: access, transfer, developmental, occupational, and community—all of which are natural concerns for an online program. Similarly, the need for articulation agreements to ensure transfer is critical to a community college.

Student responses to the stakeholder survey may also indicate a shift in perspectives on technology. Their responses seem to indicate that they are less worried about the reliability of the technology than about the functionality of software. This finding suggests that while continuing to support a reliable infrastructure, community colleges should give greater attention to the usability of, access to, and integration of all electronic services.

The stakeholder survey found several instances where students and administrators agreed on the increased importance of both factors and indicators. The one study of administrators discovered in the literature review found that administrators generally agreed with faculty. In the present study, there was much stronger alignment between students and administrators. This may be due to the shallower administrative structure of community colleges. Community college administrators do not have as much separation

from students as do their 4-year college and university counterparts, and this concern with the student experience in online programs could be due to the closer contact.

The factors versus indicators study reduced the original 77 items to eight quality indicators and 62 factors. Among them are some items distinctive to community colleges, such as the need for articulation agreements and alignment with institutional mission. The eight quality indicators do not address any activities unique to the community college. It was hoped that the results of this study could be applicable to other higher education institutions, and the indicators appear to bear that out. Given that the factors are actions taken to support the program, it makes sense that these would be linked to the nature of the institutions. The indicators are actions an institution would take to measure the effectiveness of the program, and these tools are more applicable across all of higher education.

Community colleges are not the same as their 4-year counterparts, and this is best exemplified by the alignment of administrator and student perceptions of importance. The factors also demonstrate that community colleges need to take specific action in support of their online programs, while the indicators of quality appear to be more generic and applicable to a wider array of institutions. It is important that the shift in perspective of community college administrators, the need to address factors specific to community colleges, and the potentially applicability of quality indicators to all of higher education be communicated to researchers and practitioners.

Recommendations for Further Study

This study built on previous research that examined various aspects of online programs and the experiences of various stakeholders. The results of the Delphi study and

stakeholder survey expand this knowledge base, at least within the realm of community college programs. However, many questions remain to be addressed. The stakeholder survey took a broad look at community colleges, so many of their programs and services were treated equally. The different missions of the community college—transfer, developmental, and vocational—as well as specific subsets of stakeholders may reflect different needs or perceptions. The stakeholder survey could be expanded by applying qualitative research methods, such as interviews and focus groups. Distinguishing between factors and indicators is a step toward comparing online programs, but more should be done to address the concerns of Phipps and Merisotis (1999).

Community colleges serve at least four distinct missions: transfer, developmental, vocational, and community education (Cohen & Brawer, 1996). Some courses support both the transfer and vocational missions, which raises an important question: Do the students and faculty in vocational programs have different needs and perceptions? As programs continue to grow, there will be expansion of both the developmental and community education missions. Further study of the stakeholders served through these missions is needed.

The 8 potential indicators provide future researchers with a set of processes from which multiple indicators may be identified. The next step in the examination of online quality could include research focused on vetting the specific factors and outcomes that can be measured through the various processes identified by these studies. From here the next step might be to develop an evaluation instrument.

Whether a college has implemented any of the factors is one sign of an institution's commitment to online learning. Whether a college collects data that address

165

the eight indicators would be another sign of the institution's commitment, but these two items are only part of evaluating an online program. How the college responds to the indicator data is another part of such an evaluation. How an institution uses the results were not addressed in this study.   There is also the potential for an evaluation instrument using the processes, factors, and potential indicators identified through this study. Additional research is needed to determine what criteria a college must meet and how an institution should respond to the data it collects in measuring its performance on each indicator, within the limitations of the institution and its mission.

The results of this study provide insight into online programs at community colleges and hint at differences between programs at 2- and 4-year institutions. The stakeholder results could be expanded by applying qualitative methods and an expanded application of MES. Additionally, stakeholder subgroups specifically served by one of the community college's four missions should be examined. Finally, there is a need to continue working towards defining the specific outcomes that can be measured via the 8 potential indicators identified in this study.

Summary

This study addressed two goals: identifying a set of quality indicators to evaluate online programs at community colleges, and determining how assorted stakeholders rank the importance of those indicators. While 77 potential quality indicators were identified through the Delphi study, eight were ultimately agreed upon as true indicators of quality by participants in the factors versus indicators survey.

Interestingly, the stakeholder surveys confirmed previous research on student and faculty perspectives of online services and support, as well as providing new insights

166

regarding administrators and technical support staff. These latter two groups have been rarely included in previous studies. The stakeholder survey also helped refine the notion of factors and indicators, which helped validate the results of the Delphi study used to initially identify these items.

Although community colleges share many of the same indicators as those of 4-year institutions, this study identified several factors that are unique to the community college's mission and students. Additionally, this study illuminated the distinctively similar perceptions of importance regarding quality in online instruction shared by students and administrators in community colleges. The differences in mission and target population between 2 and 4-year institutions must be recognized when examining how well a community college meets the needs of its online populations.

The perceived importance of these factors and potential indicators appears to depend on the perspective of the particular stakeholder group. Students placed a premium on support services, and program administrators expressed similar perceptions. Faculty in this study largely duplicated the perspectives identified in the literature, and technical support staff indicated a strong need for more preemptive training and support interventions. While these observations are not able to be generalized, the results provide new insight into perceptions and needs that may have shifted over time. Additionally, new questions about how different groups within each set of stakeholders perceive online education have been identified, providing opportunities for future study.

Ultimately, the overarching goal of this study was to improve methods for comparing online programs. The community college was chosen as a starting point due to the large number of online programs offered at such institutions, and for the scalability

community colleges have to larger and more complex higher education institutions. This study does provide those interested in online education with a starting point for evaluating online programs at community colleges as it refined and filtered the larger set of standards and best practices to identify a set of 8 processes that can shed light on the quality of an online program at a community college.

Given the rapid evolution of all facets of technology coupled with the burgeoning growth of online education, it is possible to conclude that it will be paramount to continue to monitor the needs and perceptions of the stakeholders in online education. The results of this study demonstrated this by identifying seven new factors and one new indicator. The need to periodically update what is known about the participants in online education, their expectations, and experiences is something that will continue to demand the attention of educators and researchers.

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APPENDIX A: DELPHI I INSTRUMENT

REVIEW OF THE FINAL DRAFT OF THE DELPHI SURVEY

Review Procedure

Reviewers were sent an informational letter and the current draft of the Delphi I

survey. They were instructed to review the instrument for clarity of content and

instructions, and their input was collected through telephone interviews.

Letter to the Reviewers

Thank you again for agreeing to participate on the Delphi Panel. The goal for the

panel is a set of quality indicators for evaluating online programs at community colleges.

Your current roles, experiences, and responsibilities identify you as an expert on distance

education in the higher education environment. Your input is crucial to the success of

this study.

An online course is defined as one in which content, assessment activities, and

communication between students and instructors takes place through a web-based

interface (this would include courses using a course management system such as

Blackboard, WebCT, Desire2Learn, etc.). Digital media may be used to augment

instruction, but not serve as the primary mode of content delivery to insure that students

can access courses via low bandwidth systems such as a 28.8k modem. Activities and

interactions are asynchronous, and students are not required to visit campus for activities

directly related to the course. It is possible, if not likely, that some students may never set

foot on campus, so extending this definition to all the courses in a degree or certificate

program, is in essence an online degree.

Final Draft for Review

The initial survey consists of seven (7) questions about general components that may indicate the success of an online program at a community college. Please respond to each question in the space (box) provided. Please be aware that there is no minimum or maximum number of responses expected for any one question, just be sure to respond to each question to the best of your ability.

1. What are indicators that a community college's leadership supports the effective delivery of online programs?

2. How would an institution demonstrate support of online programs through the technology resources and/or support provided to all users?

3. What policies or activities might a community college promote to support curriculum and effective instruction in its distance education program?

4. What are indicators that a community college supports faculty in an online program?

5. What services should a community college provide to support students enrolled in an online program?

6. What evaluation activities indicate that a community college expected effective learning in its online programs?

7. In what other ways might a community college indicate its support for online programs?

Please submit your responses to Leo Hirner via one of the following:

e-mail: lhirner@kc.rr.com
fax: 816-759-4673
mail: 1204 W 70th ST Kansas City, MO 64113

Thank you again for your participation in this project. You can expect to receive the next survey by May 2, 2005.

User Evaluations of the First Delphi Survey

Evaluees - a group of three to five participants representing the range of educational

institutions involved will be invited to participate in review of the First Delphi

instrument. The ideal participants include:

- Community College Program Director

- Public Four-Year Institution Program Director

- Private Four-Year Institution Program Director

Data Collection

The evaluation of the survey instrument will take place via e-mail, and the participants

will receive the survey prior to the interview. The interviews will take place in a campus

meeting room, via phone or videoconferencing at the convenience of the evaluator. All

interactions between the interviewer and the evaluator will be recorded.

Preparing the Evaluators

1. Thank the individual for participating

2. Explain that the interview is being recorded to insure that their input is properly

incorporated into the survey, and that they may choose to decline the opportunity to

participate at this time.

3. Explain that the purpose of this interview is to develop better ways to evaluate distance

programs, and that the current survey is still in draft form

4. Clearly state that the individual's participation will assist in improving courses &

services in the future, and that all comments are confidential and, for students, will not

affect their grade

Evaluation Questions

Goal 1-Navigation and Usability
1. Was the layout of the survey clear and were the directions easy to follow?

2. Was there any point where the directions became unclear?

Goal 2-Directions
3. Was there any place that you needed more instruction or directions?

4. Were the directions for the survey clear?

Goal 3-Content
5. Were there any questions that seemed too difficult? too easy?

6. Were any of the questions unclear or not relevant?

7. Did you feel the need for additional information before responding to any question?

Closing the Evaluation
1. Debriefing Questions

2. Do you think that there were any criteria left out of this study?

3. Ask follow-ups to earlier responses.

4. Thank the individual for participating once again. Remind them that their

   participation is appreciated, and that it will help improve future classes.

FEEDBACK FROM SELECTED REVIEWERS

Public Community College Program Director (CCPD)

The interview was conducted over the telephone. IN indicates the investigator and CCPD

the Community College Program Director

IN - Was the layout of the survey clear and were the directions easy to follow?

CCPD - yes

IN - Was there any point where the directions became unclear?

CCPD - Yes, Q 1 and Q2, programs, is courseware. More on Q2 , remove "the" before

   technology. When you say support, the question is what type

   Q3 – community college to support curriculum , be sure to add development.

   Q4 – what are (some or the) indicators

   Q5 – frame the same as Q4, keep the same thought process

   Q6 – expects versus expected, also where is assessment in this question

   Q7 – replace "a" with "community college personnel"

IN - Was there any place that you needed more instruction or directions?

CCPD - Confusion over Q1 – program versus courseware- Q7 – personnel versus the

   organization (make the breadth of it clear)

IN - Were the directions for the survey clear?

CCPD – Yes, but concerned with the minimum or maximum number of responses

IN - Were there any questions that seemed too difficult? too easy?

CCPD – Felt they covered the range - also very thought provoking questions

IN - Were any of the questions unclear or not relevant?

CCPD – All relevant, and prior suggestions were an effort to help clarify

IN - Did you feel the need for additional information before responding to any question?

CCPD – no

IN - Do you think that there were any criteria left out of this study?

CCPD – I have a concern about the use of the term measurable in the introduction.

Private Four-year College Program Director (PCPD)

The interview was conducted via e-mail. IN indicates the investigator and PCPD the Private College Program Director

IN - Was the layout of the survey clear and were the directions easy to follow?

PCPD – It was clear.

IN - Was there any point where the directions became unclear?

PCPD – No.

IN - Was there any place that you needed more instruction or directions?

PCPD – No.

IN - Were the directions for the survey clear?

PCPD – Yes.

IN - Were there any questions that seemed too difficult? too easy?

PCPD – No, the questions were straightforward.

IN - Were any of the questions unclear or not relevant?

PCPD – No

IN - Did you feel the need for additional information before responding to any question?

PCPD – No additional info was necessary.

IN - Do you think that there were any criteria left out of this study?

PCPD – I don't see anything missing.

Public Four-Year Panellist – Director of Educational Technology (P4YPD)

This interview was conducted via e-mail. IN indicates the investigator and P4YPD the

Public Four-Year College Program Director

Goal 1-Navigation and Usability

IN - Was the layout of the survey clear and were the directions easy to follow?

P4YPD - Overall, the survey was clear and the directions easy to follow (one exception—

    see comment below). It might be helpful to include a brief statement as to what a

    Delphi Panel is—or at least include such a statement in your first notice to the

    participants.

IN - Was there any point where the directions became unclear?

P4YPD - The following sentence should be dropped: "Please be aware that there is no

    minimum or maximum number of responses expected for any one question, just be

    sure to respond to each question to the best of your ability." Since they must answer

    the question, there obviously is a minimum number of responses—one. Also, why

    state that there isn't a maximum number of responses? Just ask them to thoroughly

    answer the questions.

IN - Was there any place that you needed more instruction or directions?

P4YPD - No

IN - Were the directions for the survey clear?

P4YPD - Yes—see exception above.

IN - Were there any questions that seemed too difficult? too easy?

P4YPD - Question number 2 refers to all users while question #4 refers to faculty. I

    would make it clear that question #2 applies to students only. Questions #3 and #4

pretty much cover the same area. If a community college supports its faculty involved in an online program, such support will also be evident in the areas of curriculum development and instructional design—both aimed specifically at faculty. Questions #2 and #5 seem to cover pretty much the same thing—they're redundant. Question #7 isn't needed if the approach used in this survey is what a community college should be doing rather than what is actually taking place. If the later point of view is used in the conducting of the survey, then I would go ahead and include question #7, but word it such that you want the person to state what they think would be provided in an idealized situation.

IN - Were any of the questions unclear or not relevant?

P4YPD - What do you mean by the term "indicators"? Are you looking for bulleted points or are you looking for essay-type answers?

IN - Did you feel the need for additional information before responding to any question?

P4YPD - Is the person who is answering the questions suppose to answer them in light of their own experiences (how it is) at their community college or should they answer the questions as to how it should be?

IN - Do you think that there were any criteria left out of this study?

P4YPD - You don't actually ask any questions that pertain specifically to quality—the term never shows up in any of the questions. You do use the words "support" and "effective" but they're not the same as "quality." You can have an effective and/or supportive program, but it may not really be a quality program. William Woods has effective and supportive programs but many people would contend that it's programs do not meet the standard of quality that should be expected in higher ed.

CHANGES RESULTING FROM THE FEEDBACK

THE FEEDBACK WAS USED TO MAKE REFINEMENTS TO THE

INSTRUCTIONS AND ALL SEVEN QUESTIONS. IN PARTICULAR, QUESTIONS

TWO AND SEVEN WERE RE-WRITTEN TO IMPROVE CLARITY. THE

REFERENCE TO SUPPORT SERVICES WAS REMOVED FROM QUESTION TWO,

AND THE "OTHER WAYS STATEMENT" WAS REPLACED WITH EXAMPLES

OF POSSIBLE SERVICES, SUPPORT OR POLICIES.THE INSTRUCTIONS WERE

REVISED INCLUDING REMOVING A STATEMENT ABOUT NO LIMIT TO THE

NUMBER OF RESPONSES. THE FINAL SURVEY FOLLOWS THIS SUMMARY OF

THE REVISIONS.

FINAL VERSION OF OPEN-ENDED DELPHI SURVEY – DELPHI I

Thank you again for agreeing to participate on the Delphi Panel. The goal for the panel is to identify a set of quality indicators for evaluating online programs at community colleges. Your current roles, experiences, and responsibilities identify you as an expert on distance education in the higher education environment. Your input is crucial to the success of this study, and you should be willing to draw on your personal experiences and perceptions with distance education.

For the purpose of this study, an online course is defined as one in which content, assessment activities, and communication between students and instructors takes place through a web-based interface. Digital media may be used to augment instruction, but not serve as the primary mode of content delivery to insure that students can access courses via low bandwidth systems such as a 28.8k modem. Activities and interactions are asynchronous, and students are not required to visit campus for activities directly related to the course. It is possible, if not likely, that some students in such a program may never visit the campus.

Quality indicators can take a number of forms from institutional policies to resources and

services provided to one or more constituencies. Call upon the experiences and training that

identify you as an expert when responding to each of these questions. While the study

focuses on the indicators for community college, these indicators should not be limited to

community college perceptions. Your task is to generate a list of indicators that you perceive

to be indicative of a quality program in response to each question.

Please submit your responses to Leo Hirner by May 4 via one of the following:

e-mail: lhirner@kc.rr.com
fax: 816-759-4673
mail: 1204 W 70th ST Kansas City, MO 64113

Thank you again for your participation in this project. You can expect to receive the next survey

after May 9, 2005.

Quality Indicators

The initial survey consists of seven (7) questions about general components that in

your opinion indicate the quality of an online program at a community college. Please

respond thoroughly to each question.

1. What are indicators that a community college's leadership supports the delivery of quality

   online programs?

-

2. How would a community college demonstrate support of quality online programs through the

   technology resources provided for all users?

-

3. What policies or activities must a community college promote to support curriculum,

   development, and effective instruction in its distance education program?

-

4. What are indicators that a community college supports faculty in a quality online program?

-

5. What are indicators that a community college supports students enrolled in a quality online

   program?

-

6. What evaluation and assessment activities indicate that a community college provides a

   quality online program?

-

7. In what other services, support, policies, or actions could a community college demonstrate its

   support for quality online programs?

-

APPENDIX B: DELPHI I PACKET

LETTER TO DELPHI PANEL

Dear "Delphi participant"

There seems to be a consistent stream of questions regarding the value and effectiveness of distance education programs. I am in the process of developing an evaluation method for looking at the performance of distance programs, and I will need input from a number of experts in the field in the creation of a set of measurable indicators. Your position identifies you as an expert in distance education and/or community colleges, therefore I asking you to participate in this study. Your role in the study is to serve on a Delphi panel, and you will be asked to identify possible ways to measure the quality of a distance program at a community college.

If you are willing to participate, then you will be asked to provide possible indicators then participate in a series of surveys. First you will be asked to recommend a measurable indicator for each of the quality criteria. After all of the participants have submitted indicators, the results will be compiled into a survey to be distributed to the members of the Delphi panel. At this point, you will be asked to review all indicators and reflect on your original submission before submitting a completed survey. The results of the survey will be analyzed, a revised survey generated and distributed to the panel. You will be asked to respond again, and depending upon the statistical results, a third survey may be distributed.

Before you can participate, you will need to complete the included consent form and return it to me at the indicated address. Returning the survey will serve as your

confirmation to participate in the study. Approximately two weeks later you can expect

to receive an e-mail message with the initial survey asking you to identify quality

indicators. It is anticipated that this project will take no more than a month to complete.

Once the indicators have been identified, a series of stakeholder surveys will be

sent to students, faculty and support staff at one community college. The results will be

used to both tailor the evaluation for an institution, and to provide validation for the

results.

What are the benefits of participation? The results of this study may impact how

distance education programs are evaluated in the future, support services are managed,

and student learning may be improved. Participation in this study could affect how the

quality of distance learning is viewed both within higher education and by the students

served, and all participants will have my personal gratitude.

Sincerely,

Leo Hirner

Enclosures:

- Consent Form

- Instructions for initial Delphi survey

Consent Form

Setting Indicators for Evaluating Distance Education Programs at Community Colleges:

Delphi Panel Consent Form

You are invited to be in a research study identifying indicators to be used in the

evaluation of Distance Education Programs at a Community College. The first phase of

this project consists of a Delphi study to identify a set of indicators for measuring

institutional performance on criteria identified as important to the quality of distance

education programs.

You are one of a group of distance education professionals have been invited to

participate on the Delphi panel.

We ask that you read this document and ask any questions you may have before agreeing

to be in the study.

The University of Missouri-Columbia and the Metropolitan Community Colleges.

Background Information:

The purpose of this study is to develop a set of measurable indicators for evaluating a

community college's performance on the eighteen quality criteria identified in the

literature. There are a number of needs for a set of measurable indicators; including the

need to compare institutions directly, promote institutional improvements, and provide

students with a measure by which competing programs may be compared.

Procedure:

If you agree to participate in this study, you will be asked to complete at least three

surveys used to develop the indicators.

197

1. Initially, participants will be asked to complete an open-ended survey. In this survey, you will be asked to submit a indicator for each of the criteria. It is anticipated that you will spend no more than an hour on this survey.

2. Once all members of the Delphi panel have submitted their indicator, the results will be compiled into a survey for re-distribution to the panel. Participants will be asked to review the full set of submissions and reflect upon their initial response. Participants will then complete the survey identifying the "best" indicator for each of the criteria. It is anticipated that you will spend no more than thirty minutes on this survey.

3. The results of the previous survey will be statistically analyzed, and a new survey will be generated. Participants will be asked to once again review the list of indicators and reflect upon their previous answer before completing and submitting their survey. It is anticipated that you will spend no more than twenty minutes on this survey.

4. The survey process may be repeated again, depending upon the statistical nature of the results. It is anticipated that you will spend no more than fifteen minutes on this survey.

The initial survey and subsequent permutations will be delivered and returned via e-mail. All submissions will be confidential, and no individuals involved in this study will be identified in any communication.

It is anticipated that participants should spend no more than two hours participating in this study.

To minimize bias, respondents are asked to not disclose their participation in the study. While care has been taken to choose panel members that are not at the same geographical

location, there is always the potential for accidental interaction with other members of the study.

Risks and Benefits of Being in the Study:

The only risks involved with this study are minimal and include short term stress, or some other emotional reaction caused by allowing us to use your responses, even anonymously. The benefits are that the results of these studies may lead to improved distance education programs and services for both you and the students served in these programs.

Confidentiality:

No information as to the authors of the indicators, survey responses or individual identifiers of any kind will be made available to anyone outside of the course. Statistical data will be used to refine the responses and provide feedback with the intended purpose of improving online programs and student learning. The statistical data will include the total numbers of participants in the Delphi study. In addition written comments from open-ended questions will be transcribed to eliminate any identifying information.

All data will be retained for three years after the completion of the study as required by Federal regulations.

Voluntary Nature of the Study

Your participation is purely voluntary. You may choose not to have your responses included in the study. Your decision to do so will not in any way affect your standing or relationship with the University of Missouri or the Metropolitan Community Colleges. If

you decide to participate, you are free to withdraw at any time without affecting those relationships.

<div align="center">Contacts and Questions</div>

The researcher conducting this study is Leo Hirner, in cooperation with Dr. Thomas Kochtanek, University of Missouri-Columbia.

You may reach Leo Hirner at the Metropolitan Community Colleges Distance Education office on the Penn Valley Campus, 3201 Southwest Trafficway, Kansas City, MO 64111, by e-mail at lhirner@kc.rr.com, or by phone at 816-759-4501.

If you have questions regarding your rights as a research participant, then please feel free to contact the University of Missouri Campus Institutional Review Board at 573-882-9585.

Please print a copy of this form to keep for your records. Also print a copy of this form, sign, and mail to Leo Hirner at the above address.

<div align="center">Statement of Consent:</div>

I have read the above information. I have asked questions and have received answers. I consent to participate in the study.

Signature _____ Date _____

Signature of Investigator _____ Date _____

APPENDIX C: DELPHI II, III, & IV SURVEY INSTRUMENTS

A total of three consensus surveys were distributed to the panel. Delphi Survey II is the

first consensus survey developed using the information collected through the open-ended

survey. Delphi III was developed after completing the analysis of Delphi II, and

respondents received a tailored document that included their individual responses in

addition to the group median and interquartile range. Delphi IV was similarly

individualized, and it included the responses for both II and III. The examples of Delphi

III and IV presented here do not include any individual data.

Delphi Survey II

This survey is a synthesis of the Quality Indicators identified by you and your

fellow panelists in the first survey. The purpose of this and any following surveys is

to refine these indicators and achieve some level of agreement across the panel. The

following survey consists of 130 indicators, and it is anticipated that you will spend

no more than 30 minutes responding to this survey.

Please submit your responses to Leo Hirner by June 20 via one of the following:

    e-mail: lhirner@kc.rr.com
    fax: 816-759-4673
    mail: 1204 W 70th ST, Kansas City, MO 64113

Thank you again for your participation in this project. You can expect to receive the next

survey after June 27, 2005.

Delphi II – Consensus Survey Instructions

Identify how strongly you agree or disagree with the potential utility of the following
Quality Indicators for measuring the Effectiveness of a Distance Education Program at a
Community College. The Agreement-Disagreement scale ranges from 1 – 7, where 1
represents strong agreement, 4 equates to neutrality, and 7 indicates strong disagreement.
Identify your response to each question by replacing the box to the right of the number
with an "X". Thank you again for participating in this study.

Agree – Disagree	Indicators (1 of 9)
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	1. The college's online program is overseen by a professional manager with sufficient institutional authority to organize and support the academic and support services necessary for student success.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	2. In all aspects of the distance education program, the college's administration promotes the use of best practices for online programs and instruction published by regional and national organizations.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	3. The online programs offered by the community college is consistent with the institution's mission and needs of the community served.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	4. The community college is committed to supporting the scheduling of online courses that meet the degree requirements of all students currently enrolled in an online program.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	5. The community college provides the financial resources necessary to support the technical infrastructure, training and support personnel, and full range of faculty and student support services required for online courses and programs.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	6. The college's marketing plan includes promotion of online courses and programs.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	7. The college promotes the successes of online courses and programs.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	8. Marketing of online programs emphasizes the skills needed for student success and clearly articulates that the academic expectations and time commitment in online courses are consistent with traditional classroom instruction.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	9. The college demonstrates its commitment to online programs by discontinuing delivery of courses and programs via other distance media such as ITV and videoconferencing.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	10. The community college communicates recognition of the value and academic equivalence of online programs to all stakeholders.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	11. The community college emphasizes the need for all departments to support online programs.

Agree – Disagree	Indicators
1□ 2□ 3□ 4□ 5□ 6□ 7□	12. The online program staff actively work with students services to insure awareness of online student needs and program requirements.
1□ 2□ 3□ 4□ 5□ 6□ 7□	13. The community college's leadership acknowledges their commitment to the needs of online and on-campus students, programs and employees.
1□ 2□ 3□ 4□ 5□ 6□ 7□	14. Articulation agreements are pursued with area four-year colleges to create seamless transfer opportunities for students in online programs.
1□ 2□ 3□ 4□ 5□ 6□ 7□	15. The community college has obtained the necessary accreditation for online programs.
1□ 2□ 3□ 4□ 5□ 6□ 7□	16. The community college's policies and procedures demonstrate consistency across all forms of instruction.
1□ 2□ 3□ 4□ 5□ 6□ 7□	17. The community college's leadership openly defends the quality and equivalence of online courses and programs.
1□ 2□ 3□ 4□ 5□ 6□ 7□	18. The college's leadership works with other higher education institutions to educate legislators about online education and its importance to the mission of the community college
1□ 2□ 3□ 4□ 5□ 6□ 7□	19. Community college representatives educate community leaders about the educational value of online education within the limitations of the technology, taking care to distance this discussion from the position that online education will solve the full range of academic and fiscal problems commonly assigned to education.
1□ 2□ 3□ 4□ 5□ 6□ 7□	20. The community college's leadership demands that online programs meet the same programmatic requirements of on-campus programs.
1□ 2□ 3□ 4□ 5□ 6□ 7□	21. The community college promotes regular internal communication of online services and programs.
1□ 2□ 3□ 4□ 5□ 6□ 7□	22. The online program is included in the institution's emergency communication protocols; including contingency plans for times when the technology fails.
1□ 2□ 3□ 4□ 5□ 6□ 7□	23. The institution provides online faculty with the technology needed to adequately develop and deliver their online courses.
1□ 2□ 3□ 4□ 5□ 6□ 7□	24. The college provides a technical support center with hardware, software and trained staff to provide technological support for all students, faculty and staff members.
1□ 2□ 3□ 4□ 5□ 6□ 7□	25. The institution provides online faculty with the technology needed to adequately develop and deliver their online courses.

Agree – Disagree	Indicators (3 of 9)
1□ 2□ 3□ 4□ 5□ 6□ 7□	26. The institution provides appropriate levels of technical support via a range of technologies and over a broad range of times.
1□ 2□ 3□ 4□ 5□ 6□ 7□	27. The institution provides a 24x7 help desk to assist those needing technological assistance.
1□ 2□ 3□ 4□ 5□ 6□ 7□	28. Money collected from any distance learning technology fee is used for services directly related to the online technology.
1□ 2□ 3□ 4□ 5□ 6□ 7□	29. The college uses a single sign-on system with secure technologies as appropriate to meeting both access and privacy needs.
1□ 2□ 3□ 4□ 5□ 6□ 7□	30. The institution provides integrated access to electronic resources in support of online education.
1□ 2□ 3□ 4□ 5□ 6□ 7□	31. The institution provides sufficient network infrastructure (backbone, bandwidth, servers) necessary to deliver online classes.
1□ 2□ 3□ 4□ 5□ 6□ 7□	32. The institution provides access to computers for students who wish to access courses from campus.
1□ 2□ 3□ 4□ 5□ 6□ 7□	33. The institution supports leading edge faculty gaining access to hardware/software that is new or cutting edge.
1□ 2□ 3□ 4□ 5□ 6□ 7□	34. The college invests in and support information management systems (student information, course management, e-mail, etc.) that interface smoothly across the institution.
1□ 2□ 3□ 4□ 5□ 6□ 7□	35. The institution invests in a user-friendly course management system for the delivery of on-line coursework.
1□ 2□ 3□ 4□ 5□ 6□ 7□	36. The college has developed an infrastructure for the efficient archiving and restoring of courses from semester-to-semester.
1□ 2□ 3□ 4□ 5□ 6□ 7□	37. Planning for new technology resources for the college includes and integrates online program needs into the budget and execution cycles.
1□ 2□ 3□ 4□ 5□ 6□ 7□	38. The community college promotes research and pilot projects using new technology.
1□ 2□ 3□ 4□ 5□ 6□ 7□	39. The college promotes the use of standardized Internet tools in the delivery of online courses.
1□ 2□ 3□ 4□ 5□ 6□ 7□	40. The community college supports the philosophy that faculty use each technology for what it does best in meeting the needs of the course or program, emphasizing effective teaching and learning over technology.
1□ 2□ 3□ 4□ 5□ 6□ 7□	41. The institution provides adequate online technical, design and pedagogical support for faculty in the development of their online courses.

Agree – Disagree	Indicators (4 of 9)
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	42. The community college follows an application process and training procedures for all faculty pursuing online teaching.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	43. The college provides online faculty training and support related to the legal rights and responsibilities of faculty and the institution (i.e. copyright and intellectual property rights, FERPA, ADA).
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	44. The college requires that online courses adhere to the same learning outcomes as traditional classes
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	45. The institution supports faculty with course development via a design team consisting of technical and pedagogical experts.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	46. The community college supports faculty with the assistance of instructional designers or through training that will help faculty to become instructional designers.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	47. The college supports project management leadership to encourage a team approach for adequate planning, design, development, and instruction techniques for online courses.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	48. A set of clearly defined expectations for the development and delivery of online courses has been compiled by the college and communicated to the faculty.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	49. Enrollment in online courses is limited so as to meet institutional needs and with regard to research on effective class size and the goals of the college and/or program.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	50. The institution promotes an incentive based system for compensating faculty for the development of online courses and programs.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	51. The college provides the same compensation for online and campus-based instruction.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	52. The college encourages faculty involvement in peer-to-peer organizations and conferences where issues related to online instruction are discussed.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	53. New online courses are reviewed by the department or program to insure quality of subject matter and verify that it meets program outcomes.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	54. The institution verifies that online courses are fully developed before the semester begins, and the course site is reviewed by a peer faculty or instructional designer before delivery to students.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	55. The community college supports new online faculty by providing instructional designers to assist with an instructor's initial experience teaching online and help solve teaching difficulties.

Agree – Disagree	Indicators (5 of 9)
1□ 2□ 3□ 4□ 5□ 6□ 7□	56. The college provides faculty sufficient time to develop an online course before it is delivered to students.
1□ 2□ 3□ 4□ 5□ 6□ 7□	57. The college has compiled a set of institutional best practices for online courses and encourages its use by new online faculty during course development
1□ 2□ 3□ 4□ 5□ 6□ 7□	58. The institution supports the use of Best Practices as developed by WCET.
1□ 2□ 3□ 4□ 5□ 6□ 7□	59. The college fosters collaboration across all institutional services that may impact instructional and learning success.
1□ 2□ 3□ 4□ 5□ 6□ 7□	60. The institution has a clear policy as to the ownership of the content of its online courses.
1□ 2□ 3□ 4□ 5□ 6□ 7□	61. The college supports online faculty in the development of their online classes through a design department equipped with the hardware, software, and technical staff to assist with the incorporation of audio and visual content.
1□ 2□ 3□ 4□ 5□ 6□ 7□	62. The college communicates a regular schedule of training courses focusing on the technical aspects of on-line courses for both faculty and students.
1□ 2□ 3□ 4□ 5□ 6□ 7□	63. The institution support online faculty participation in professional development courses addressing online methodology.
1□ 2□ 3□ 4□ 5□ 6□ 7□	64. Faculty are provided training on a variety of software programs to enhance student learning.
1□ 2□ 3□ 4□ 5□ 6□ 7□	65. Faculty training addresses the function of technologies available to the instructor, to the students, and addresses the need for contingency plans (for when the technology doesn't work).
1□ 2□ 3□ 4□ 5□ 6□ 7□	66. The college has a mentoring program for new online instructors.
1□ 2□ 3□ 4□ 5□ 6□ 7□	67. The institution acknowledges that online office hours are at least equivalent to on-campus office hours.
1□ 2□ 3□ 4□ 5□ 6□ 7□	68. Faculty "advancement" criteria recognize online instruction and reward faculty for innovation and risk-taking.
1□ 2□ 3□ 4□ 5□ 6□ 7□	69. The college recognizes work that instructors have done advancing their own degree (or other professional development activities) obtained through online programs.
1□ 2□ 3□ 4□ 5□ 6□ 7□	70. The institution provides online faculty with information about the target audience (online community college students); including awareness of student access, student understanding of the technology, educational and experiential background, range of ages or life-stages of the students in online programs.

Agree – Disagree	Indicators (6 of 9)
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	71. The college demonstrates respect for faculty member's academic freedom by allowing him or her to develop the course in a way that coincides with his or her teaching style.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	72. The college supports faculty in pilot projects investigating alternative scheduling, remote teaching, or other innovations.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	73. The college provides enrollment procedures that are easy and accessible to online students.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	74. Students are able to register and pay fees without having to visit the college.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	75. The college provides and advertises counselling and advisement specifically for online learners.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	76. Online students have the opportunity to complete a technical skills screening prior to enrollment in online classes.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	77. Potential students have access to training about the expectations, needed skills, guidelines, policies regarding testing, program requirements and prerequisites, and technical support available to students taking online classes.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	78. The accounting office regularly evaluates and acts when necessary to review deadlines, forms, procedures, etc. to meet the needs of online students; including different services than designed for on-campus students.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	79. Fees that are applicable specifically to "being on campus" are waived for on-line learners (i.e. parking, activity fees, etc.).
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	80. All pertinent information related to the college such as schedules, catalogue, policies and procedures, are available in a range of user-friendly formats on the college's web site.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	81. The college provides web-based information geared toward the needs of online and prospective online students, including expectations related to online courses, FAQs about the online program and common technical problems, explanations of online terminology, and easy-to-find information on support services and courses offered.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	82. The college provides students with multiple communication options (telephone, email, US mail, etc.) for obtaining assistance and contacting support services.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	83. Staff are located in every student service and academic support office whose primary responsibility is to serve the needs of online learners.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	84. Online tutoring services are available to distance students.

Agree – Disagree	Indicators (7 of 9)
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	85. Financial aid, registrar's office, and other student services invest in resources and technology to communicate with online students via desktop conferencing, instant messaging, and other web-based utilities.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	86. Access to traditional on-ground services for on-line students, including library, career services, and opportunities for professional development and networking are provided to students, both online and on-ground.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	87. Regular information concerning college activities, events and issues is sent to on-line students to assist them connecting with the collegiate student experience.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	88. Student academic honor and service programs accept online and traditional coursework.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	89. The mission statement of Student Services and the job descriptions of related Deans recognize online students as a key population to be served.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	90. An on-campus orientation program addressing technical requirements, basic skills and procedures, expectations of instructors and more is available to new online students.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	91. An effective, self-directed online orientation is available for new students.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	92. Students have the opportunities to attend short workshops, seminars, etc., addressing success strategies for online course work
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	93. Students have the opportunity for walk-in support and training at the campus.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	94. Online testing accommodates the range of student Internet access from dial-up to high-speed connectivity.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	95. The college provides on-site testing services or off-site proctored testing services to meet the needs of online students and faculty.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	96. Campus lab and library personnel are familiar with distance learning applications and trained to offer assistance.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	97. The college library provides electronic reserves in support of online programs and takes advantage of local and regional college partnerships to guarantee students the opportunity to access learning resources online.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	98. Student courseware is available and consistent from semester to semester.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	99. Faculty respond to online student inquiries and manage grading of assignments and testing in a timely fashion.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	100. The institution has adopted a flexible, non-traditional schedule, breaking out of the 8 and 16 week model.

Agree – Disagree	Indicators (8 of 9)
1□ 2□ 3□ 4□ 5□ 6□ 7□	101. The community college insures the accessibility of online course sand programs to students with special needs.
1□ 2□ 3□ 4□ 5□ 6□ 7□	102. Student leaning outcomes in online courses are assessed and compared with student outcomes achieved by other delivery methods.
1□ 2□ 3□ 4□ 5□ 6□ 7□	103. Regular evaluations of distance learning courseware, instructional philosophy, pedagogical methods, and faculty use of the technology take place.
1□ 2□ 3□ 4□ 5□ 6□ 7□	104. Periodic program evaluations are used for program improvement, to aid in institutional decision-making, to provide program outcomes for funding agencies, stakeholders access to technology, the range of services provided, course offerings, and barriers and challenges to online instruction.
1□ 2□ 3□ 4□ 5□ 6□ 7□	105. Evaluations of online programs are consistent with that used for on campus programs.
1□ 2□ 3□ 4□ 5□ 6□ 7□	106. Course evaluation include early (midterm) feedback for just-in-time course improvement and a final evaluation for instructional improvement.
1□ 2□ 3□ 4□ 5□ 6□ 7□	107. The college requires a mandatory evaluation of each course delivered on-line.
1□ 2□ 3□ 4□ 5□ 6□ 7□	108. The college requires periodic review of courses delivered online.
1□ 2□ 3□ 4□ 5□ 6□ 7□	109. Student persistence and attrition in on-line classes are monitored in comparison to institutional trends.
1□ 2□ 3□ 4□ 5□ 6□ 7□	110. Faculty evaluation criteria are adjusted to account for online delivery, instructional methods, and practices.
1□ 2□ 3□ 4□ 5□ 6□ 7□	111. Policies establishing the amount of "interaction" between instructor and student have been developed and communicated by the college.
1□ 2□ 3□ 4□ 5□ 6□ 7□	112. The institution monitors faculty participation in online courses.
1□ 2□ 3□ 4□ 5□ 6□ 7□	113. Student performance in online courses is regularly assessed and compared with performance in non-web based courses
1□ 2□ 3□ 4□ 5□ 6□ 7□	114. Faculty receive regular and objective feedback from students about their courses and instruction
1□ 2□ 3□ 4□ 5□ 6□ 7□	115. The college solicits input from online faculty regarding the range of services and policies supporting online learning.
1□ 2□ 3□ 4□ 5□ 6□ 7□	116. Student and faculty regularly complete satisfaction surveys about the online courses and programs.
1□ 2□ 3□ 4□ 5□ 6□ 7□	117. The college has a system that focuses on formative issues related to the improvement of online instruction.

Agree – Disagree	Indicators (9 of 9)
1□ 2□ 3□ 4□ 5□ 6□ 7□	118. The college has a record of responsiveness to suggestions conveyed in student satisfaction surveys.
1□ 2□ 3□ 4□ 5□ 6□ 7□	119. The college utilizes assessment methods recommended by accrediting bodies for distance courses (e.g. North Central Association, Higher Education Commission, Distance Education Standards).
1□ 2□ 3□ 4□ 5□ 6□ 7□	120. The college participates in consortia with other colleges, local agencies, support organizations, and/or the business community to expand services and manage costs.
1□ 2□ 3□ 4□ 5□ 6□ 7□	121. The tuition and fees of online courses and programs are comparable to those on campus.
1□ 2□ 3□ 4□ 5□ 6□ 7□	122. The costs of online programs (money, time, effort) are comparable to other programs at the college.
1□ 2□ 3□ 4□ 5□ 6□ 7□	123. The college monitors the potential for grade inflation in online classes.
1□ 2□ 3□ 4□ 5□ 6□ 7□	124. Classroom assessment includes projects and portfolio building assessments, not just multiple-choice tests.
1□ 2□ 3□ 4□ 5□ 6□ 7□	125. Online assessment and evaluation tools are password protected to insure the anonymity of respondents.
1□ 2□ 3□ 4□ 5□ 6□ 7□	126. Students and instructors are held to the same standards through strict policies that enforce deadlines for assignments and course completion.
1□ 2□ 3□ 4□ 5□ 6□ 7□	127. Program success is measured through ○ Increased enrollment in on-line courses ○ Increased interest by faculty in developing n-line courses ○ Increased interest by students in accessing on-line courses ○ Increased requests by non-traditional students for information about the college programs available on-line.
1□ 2□ 3□ 4□ 5□ 6□ 7□	128. Students participate in self-evaluation of their personal achievement and performance on learning outcomes.
1□ 2□ 3□ 4□ 5□ 6□ 7□	129. Faculty participate in a self-evaluation of instructional outcomes, program and course improvement.
1□ 2□ 3□ 4□ 5□ 6□ 7□	130. The college makes a concentrated effort to provide for the development of on-line peer group interaction.

Thank you again for participating in this study. Please return to Leo Hirner no later than

June 20, 2005, and you can expect to receive the next survey after June 27, 2005.

Delphi Survey III - Quality Indicators for Effective Distance Education Programs at Community Colleges

You will be asked to reconsider your responses to a number of items on Survey II after reviewing the additional information provided with each indicator.

Each question now includes a summary of the responses of all participants. Each question is displayed with the median and the interquartile range (IQR) statistics for all responses. The median represents the ranking below which 50% of all responses fell. The interquartile range examines the middle 50% of all responses, and the size of the IQR is an indication of the level of agreement by panelists. Finally, your responses from Survey II are included for your assistance.

Please submit your responses to Leo Hirner by July22 via one of the following:

e-mail: lhirner@kc.rr.com   fax: 816-759-4673   mail: 1204 W 70th ST, Kansas City, MO 64113

Agree - Disagree	Median	IQR	Previous Response	Quality Indicators
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	4	3.00		A. The institution provides online faculty with the technology needed to adequately develop and deliver their online courses.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	1	0.50		B. The community college emphasizes the need for all departments to support online programs.

- The median for A indicated that more than 50% of the panelists indicated Strong Agreement (1), and the small IQR further indicates the small difference between the responses of the middle 50% of participants.
- The median for B indicates that 50% of the responses were Neutral (4) to Strongly Agree (1), and the large IQR indicates a wide range of responses from the middle 50% of panelists.

Please reflect upon each indicator and the net responses of the panel. Remember to rate each indicator and to place an X in the box to the right of the appropriate number.

Quality Indicators	Previous Response	IQR	Median	Agree – Disagree
2. In all aspects of the distance education program, the college's administration promotes the use of best practices for online programs and instruction published by regional and national organizations.		2.00	2	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
3. The online programs offered by the community college is consistent with the institution's mission and needs of the community served.		1.50	2	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
7. The college promotes the successes of online courses and programs.		0.50	3	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
8. Marketing of online programs emphasizes the skills needed for student success and clearly articulates that the academic expectations and time commitment in online courses are consistent with traditional classroom instruction.		1.50	3	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
9. The college demonstrates its commitment to online programs by discontinuing delivery of courses and programs via other distance media such as ITV and videoconferencing		2.50	5	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
10. The community college communicates recognition of the value and academic equivalence of online programs to all stakeholders.		2.00	2	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐

Quality Indicators	Previous Response	IQR	Median	Agree – Disagree
11. The community college emphasizes the need for all departments to support online programs.		3.00	4	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
12. The online program staff actively work with students services to insure awareness of online student needs and program requirements.		2.50	2	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
17. The community college's leadership openly defends the quality and equivalence of online courses and programs.		3.00	2	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
18. The college's leadership works with other higher education institutions to educate legislators about online education and its importance to the mission of the community college.		0.75	3	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
19. Community college representatives educate community leaders about the educational value of online education within the limitations of the technology, taking care to distance this discussion from the position that online education will solve the full range of academic and fiscal problems commonly assigned to education.		1.50	3	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
21. The community college promotes regular internal communication of online services and programs.		1.50	3	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐

213

Agree – Disagree	Median	IQR	Previous Response	Quality Indicators
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	2	2.00		37. Planning for new technology resources for the college includes and integrates online program needs into the budget and execution cycles.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	3	1.50		38. The community college promotes research and pilot projects using new technology.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	2	3.50		45. The institution supports faculty with course development via a design team consisting of technical and pedagogical experts.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	2	2.00		46. The community college supports faculty with the assistance of instructional designers or through training that will help faculty to become instructional designers.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	3	2.00		47. The college supports project management leadership to encourage a team approach for adequate planning, design, development, and instruction techniques for online courses.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	4	4.00		48. A set of clearly defined expectations for the development and delivery of online courses has been compiled by the college and communicated to the faculty.

Quality Indicators	Previous Response	IQR	Median	Agree – Disagree
58. The institution supports the use of Best Practices as developed by Western Cooperative for Educational Telecommunications (WCET).		1.50	4	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
59. The college fosters collaboration across all institutional services that may impact instructional and learning success.		3.00	2	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
61. The college supports online faculty in the development of their online classes through a design department equipped with the hardware, software, and technical staff to assist with the incorporation of audio and visual content.		2.50	3	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
62. The college communicates a regular schedule of training courses focusing on the technical aspects of on-line courses for both faculty and students.		2.00	2	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
63. The institution support online faculty participation in professional development courses addressing online methodology.		2.00	2	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
64. Faculty are provided training on a variety of software programs to enhance student learning.		2.00	2	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐

Quality Indicators	Previous Response	IQR	Median	Agree – Disagree
66. The college has a mentoring program for new online instructors.		3.00	3	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
67. The institution acknowledges that online office hours are at least equivalent to on-campus office hours.		2.00	3	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
70. The institution provides online faculty with information about the target audience (online community college students); including awareness of student access, student understanding of the technology, educational and experiential background, range of ages or life-stages of the students in online programs.		2.50	3	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
75. The college provides and advertises counseling and advisement specifically for online learners.		3.50	4	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
76. Online students have the opportunity to complete a technical skills screening prior to enrollment in online classes.		1.50	3	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
77. Potential students have access to training about the expectations, needed skills, guidelines, policies regarding testing, program requirements and prerequisites, and technical support available to students taking online classes.		2.00	2	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐

216

Quality Indicators	Previous Response	IQR	Median	Agree – Disagree
78. The accounting office regularly evaluates and acts when necessary to review deadlines, forms, procedures, etc. to meet the needs of online students; including different services than designed for on-campus students.		3.50	3	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
79. Fees that are applicable specifically to "being on campus" are waived for on-line learners (i.e. parking, activity fees, etc.).		3.50	4	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
83. Staff are located in every student service and academic support office whose primary responsibility is to serve the needs of online learners.		3.00	4	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
84. Online tutoring services are available to distance students.		4.00	3	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
85. Financial aid, registrar's office, and other student services invest in resources and technology to communicate with online students via desktop conferencing, instant messaging, and other web-based utilities.		3.00	3	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
86. Access to traditional on-ground services for on-line students, including library, career services, and opportunities for professional development and networking are provided to students, both online and on-ground.		3.00	2	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐

217

Quality Indicators	Previous Response	IQR	Median	Agree – Disagree
87. Regular information concerning college activities, events and issues is sent to on-line students to assist them connecting with the collegiate student experience.		2.00	2	1□ 2□ 3□ 4□ 5□ 6□ 7□
89. The mission statement of Student Services and the job descriptions of related Deans recognize online students as a key population to be served.		3.00	3	1□ 2□ 3□ 4□ 5□ 6□ 7□
90. An on-campus orientation program addressing technical requirements, basic skills and procedures, expectations of instructors and more is available to new online students.		2.00	3	1□ 2□ 3□ 4□ 5□ 6□ 7□
91. An effective, self-directed online orientation is available for new students.		2.00	1	1□ 2□ 3□ 4□ 5□ 6□ 7□
92. Students have the opportunities to attend short workshops, seminars, etc., addressing success strategies for online course work.		2.00	3	1□ 2□ 3□ 4□ 5□ 6□ 7□
93. Students have the opportunity for walk-in support and training at the campus.		2.00	3	1□ 2□ 3□ 4□ 5□ 6□ 7□

Quality Indicators	Previous Response	IQR	Median	Agree – Disagree
98. Student courseware is available and consistent from semester to semester.		2.50	2	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
100. The institution has adopted a flexible, non-traditional schedule, breaking out of the 8 and 16 week model.		4.00	4	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
101. The community college insures the accessibility of online courses and programs to students with special needs.		2.50	2	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
102. Student leaning outcomes in online courses are assessed and compared with student outcomes achieved by other delivery methods.		3.00	2	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
103. Regular evaluations of distance learning courseware, instructional philosophy, pedagogical methods, and faculty use of the technology take place.		2.00	1	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
104. Periodic program evaluations are used for program improvement, to aid in institutional decision-making, to provide program outcomes for funding agencies, stakeholders access to technology, the range of services provided, course offerings, and barriers and challenges to online instruction.		2.00	1	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐

219

Quality Indicators	Previous Response	IQR	Median	Agree – Disagree
105. Evaluations of online programs are consistent with that used for on campus programs.		2.50	2	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
106. Course evaluation include early (midterm) feedback for just-in-time course improvement and a final evaluation for instructional improvement.		3.50	3	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
107. The college requires a mandatory evaluation of each course delivered on-line		2.50	3	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
108. The college requires periodic review of courses delivered online.		3.50	2	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
109. Student persistence and attrition in on-line classes are monitored in comparison to institutional trends.		2.00	1	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
110. Faculty evaluation criteria are adjusted to account for online delivery, instructional methods, and practices.		2.00	2	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
111. Policies establishing the amount of "interaction" between instructor and student have been developed and communicated by the college.		4.00	3	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐

220

Quality Indicators	Previous Response	IQR	Median	Agree – Disagree
112. The institution monitors faculty participation in online courses.		2.50	3	1□ 2□ 3□ 4□ 5□ 6□ 7□
113. Student performance in online courses is regularly assessed and compared with performance in non-web based courses.		2.50	3	1□ 2□ 3□ 4□ 5□ 6□ 7□
114. Faculty receive regular and objective feedback from students about their courses and instruction.		2.00	1	1□ 2□ 3□ 4□ 5□ 6□ 7□
115. The college solicits input from online faculty regarding the range of services and policies supporting online learning.		2.00	2	1□ 2□ 3□ 4□ 5□ 6□ 7□
116. Student and faculty regularly complete satisfaction surveys about the online courses and programs.		2.00	2	1□ 2□ 3□ 4□ 5□ 6□ 7□
117. The college has a system that focuses on formative issues related to the improvement of online instruction.		4.50	3	1□ 2□ 3□ 4□ 5□ 6□ 7□
118. The college has a record of responsiveness to suggestions conveyed in student satisfaction surveys.		1.00	3	1□ 2□ 3□ 4□ 5□ 6□ 7□

Quality Indicators	Previous Response	IQR	Median	Agree – Disagree
119. The college utilizes assessment methods recommended by accrediting bodies for distance courses (e.g. North Central Association, Higher Education Commission, Distance Education Standards).		2.00	2	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
120. The college participates in consortia with other colleges, local agencies, support organizations, and/or the business community to expand services and manage costs.		2.00	2	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
121. The tuition and fees of online courses and programs are comparable to those on campus.		2.50	2	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
122. The costs of online programs (money, time, effort) are comparable to other programs at the college.		3.00	3	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
123. The college monitors the potential for grade inflation in online classes.		3.00	4	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
124. Classroom assessment includes projects and portfolio building assessments, not just multiple-choice tests.		2.00	2	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
126. Students and instructors are held to the same standards through strict policies that enforce deadlines for assignments and course completion.		2.50	3	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐

222

Agree – Disagree	Median	IQR	Previous Response	Quality Indicators

1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	3	2.00		127. Program success is measured through
				   ○ Increased enrollment in on-line courses
				   ○ Increased interest by faculty in developing n-line courses
				   ○ Increased interest by students in accessing on-line courses
				   ○ Increased requests by non-traditional students for information about the college programs available on-line

1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	4	2.50		128. Students participate in self-evaluation of their personal achievement and performance on learning outcomes.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	3	2.50		129. Faculty participate in a self-evaluation of instructional outcomes, program and course improvement.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	3	2.50		130. The college makes a concentrated effort to provide for the

Thank you again for participating in this study. Please return to Leo Hirner no later than July 15, 2005, and you can expect to receive the next survey after July 25 , 2005.

223

Survey Delphi IV

You will be asked to reconsider your responses to remaining items on Surveys II & III in light of the additional information provided with each indicator.

As in Survey III, each question includes a summary of the responses of all participants. Each question is displayed with the median and the interquartile range (IQR) statistics for all responses. The median represents the ranking below which 50% of all responses fell. The interquarile range examines the middle 50% of all responses, and the size of the IQR is an indication of the level of agreement by panelists. Finally, your responses from Surveys II & III are included for your assistance.

Agree – Disagree	Median	IQR	Survey 2 Response	Survey 3 Response	Quality Indicators
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	4	3.00			A. The institution provides online faculty with the technology needed to adequately develop and deliver their online courses.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	1	0.50			B. The community college emphasizes the need for all departments to support online programs.

- The median for A indicated that more than 50% of the panelists indicated Strong Agreement (1), and the small IQR further indicates the small difference between the responses of the middle 50% of participants.
- The median for B indicates that 50% of the responses were Neutral (4) to Strongly Agree (1), and the large IQR indicates a wide range of responses from the middle 50% of panelists.

Please reflect upon each indicator and the net responses of the panel. Remember to rate each indicator and to place an X in the box to the right of the appropriate number.

Quality Indicators	Survey 3 Response	Survey 2 Response	IQR	Median	Agree – Disagree
9. The college demonstrates its commitment to online programs by discontinuing delivery of courses and programs via other distance media such as ITV and videoconferencing.			2.50	5	1□ 2□ 3□ 4□ 5□ 6□ 7□
10. The community college communicates recognition of the value and academic equivalence of online programs to all stakeholders.			2.00	2	1□ 2□ 3□ 4□ 5□ 6□ 7□
12. The online program staff actively work with students services to insure awareness of online student needs and program requirements			2.50	2	1□ 2□ 3□ 4□ 5□ 6□ 7□
17. The community college's leadership openly defends the quality and equivalence of online courses and programs.			3.00	2	1□ 2□ 3□ 4□ 5□ 6□ 7□
19. Community college representatives educate community leaders about the educational value of online education within the limitations of the technology, taking care to distance this discussion from the position that online education will solve the full range of academic and fiscal problems commonly assigned to education.			1.50	3	1□ 2□ 3□ 4□ 5□ 6□ 7□
21. The community college promotes regular internal communication of online services and programs.			1.50	3	1□ 2□ 3□ 4□ 5□ 6□ 7□

225

Quality Indicators	Survey 3 Response	Survey 2 Response	IQR	Median	Agree – Disagree
22. The online program is included in the institution's emergency communication protocols; including contingency plans for times when the technology fails.			2.50	2	1□ 2□ 3□ 4□ 5□ 6□ 7□
28. Money collected from any distance learning technology fee is used for services directly related to the online technology.			3.00	2.5	1□ 2□ 3□ 4□ 5□ 6□ 7□
29. The college uses a single sign-on system with secure technologies as appropriate to meeting both access and privacy needs.			2.50	3	1□ 2□ 3□ 4□ 5□ 6□ 7□
32. The institution provides access to computers for students who wish to access courses from campus.			2.00	2	1□ 2□ 3□ 4□ 5□ 6□ 7□
33. The institution supports leading edge faculty gaining access to hardware/software that is new or cutting edge.			2.50	3	1□ 2□ 3□ 4□ 5□ 6□ 7□
37. Planning for new technology resources for the college includes and integrates online program needs into the budget and execution cycles.			2.00	2	1□ 2□ 3□ 4□ 5□ 6□ 7□
38. The community college promotes research and pilot projects using new technology.			1.50	3	1□ 2□ 3□ 4□ 5□ 6□ 7□

226

Quality Indicators	Survey 3 Response	Survey 2 Response	IQR	Median	Agree – Disagree
45. The institution supports faculty with course development via a design team consisting of technical and pedagogical experts.			3.50	2	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
47. The college supports project management leadership to encourage a team approach for adequate planning, design, development, and instruction techniques for online courses.			2.00	3	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
48. A set of clearly defined expectations for the development and delivery of online courses has been compiled by the college and communicated to the faculty.			4.00	3	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
50. The institution promotes an incentive based system for compensating faculty for the development of online courses and programs.			2.00	3	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
51. The college provides the same compensation for online and campus-based instruction.			3.00	3	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
54. The institution verifies that online courses are fully developed before the semester begins, and the course site is reviewed by a peer faculty or instructional designer before delivery to students.			3.50	2	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐

Quality Indicators	Survey 3 Response	Survey 2 Response	IQR	Median	Agree – Disagree
59. The college fosters collaboration across all institutional services that may impact instructional and learning success.			3.00	2	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
61. The college supports online faculty in the development of their online classes through a design department equipped with the hardware, software, and technical staff to assist with the incorporation of audio and visual content.			2.50	3	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
66. The college has a mentoring program for new online instructors.			3.00	3	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
70. The institution provides online faculty with information about the target audience (online community college students); including awareness of student access, student understanding of the technology, educational and experiential background, range of ages or life-stages of the students in online programs.			2.00	3	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
75. The college provides and advertises counseling and advisement specifically for online learners.			3.50	4	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
77. Potential students have access to training about the expectations, needed skills, guidelines, policies regarding testing, program requirements and prerequisites, and technical support available to students taking online classes.			2.00	2	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐

Quality Indicators	Survey 3 Response	Survey 2 Response	IQR	Median	Agree – Disagree
78. The accounting office regularly evaluates and acts when necessary to review deadlines, forms, procedures, etc. to meet the needs of online students; including different services than designed for on-campus students.			3.50	3	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
79. Fees that are applicable specifically to "being on campus" are waived for on-line learners (i.e. parking, activity fees, etc.).			3.50	4	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
83. Staff are located in every student service and academic support office whose primary responsibility is to serve the needs of online learners			3.00	4	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
84. Online tutoring services are available to distance students.			4.00	3	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
85. Financial aid, registrar's office, and other student services invest in resources and technology to communicate with online students via desktop conferencing, instant messaging, and other web-based utilities.			3.00	3	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
87. Regular information concerning college activities, events and issues is sent to on-line students to assist them connecting with the collegiate student experience			2.00	2	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐

229

Quality Indicators	Survey 3 Response	Survey 2 Response	IQR	Median	Agree – Disagree
89. The mission statement of Student Services and the job descriptions of related Deans recognize online students as a key population to be served.			3.00	3	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
92. Students have the opportunities to attend short workshops, seminars, etc., addressing success strategies for online course work.			2.00	3	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
100. The institution has adopted a flexible, non-traditional schedule, breaking out of the 8 and 16 week model.			4.00	4	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
101. The community college insures the accessibility of online course sand programs to students with special needs.			2.50	2	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
102. Student leaning outcomes in online courses are assessed and compared with student outcomes achieved by other delivery methods.			3.00	2	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
104. Periodic program evaluations are used for program improvement, to aid in institutional decision-making, to provide program outcomes for funding agencies, stakeholders access to technology, the range of services provided, course offerings, and barriers and challenges to online instruction.			2.00	1	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐

230

Quality Indicators	Survey 3 Response	Survey 2 Response	IQR	Median	Agree – Disagree
107. The college requires a mandatory evaluation of each course delivered on-line.			2.50	3	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
108. The college requires periodic review of courses delivered online.			3.50	2	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
109. Student persistence and attrition in on-line classes are monitored in comparison to institutional trends			2.00	1	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
111. Policies establishing the amount of "interaction" between instructor and student have been developed and communicated by the college			4.00	3	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
112. The institution monitors faculty participation in online courses.			2.50	3	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
113. Student performance in online courses is regularly assessed and compared with performance in non-web based courses.			2.50	3	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐
117. The college has a system that focuses on formative issues related to the improvement of online instruction.			4.50	3	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐

231

Agree – Disagree	Median	IQR	Survey 2 Response	Survey 3 Response	Quality Indicators
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	2	2.00			119. The college utilizes assessment methods recommended by accrediting bodies for distance courses (e.g. North Central Association, Higher Education Commission, Distance Education Standards).
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	2	2.50			121. The tuition and fees of online courses and programs are comparable to those on campus.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	3	3.00			122. The costs of online programs (money, time, effort) are comparable to other programs at the college.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	4	3.00			123. The college monitors the potential for grade inflation in online classes.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	3	2.50			126. Students and instructors are held to the same standards through strict policies that enforce deadlines for assignments and course completion.
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐	4	2.50			128. Students participate in self-evaluation of their personal achievement and performance on learning outcomes.

Thank you again for participating in the final Delphi Survey. Please return to Leo Hirner no later than September 1, 2005.

You will receive copies of the preliminary results after the first of the year (January 2006).

232

DELPHI I – OPEN-ENDED SURVEY RESULTS

Indicators Found on Three or More Surveys

Indicator	Freq	Indicator	Freq
Tech Support Line/Help Desk	15	Online Department/Administrator	5
Instructional Designers or Training	15	Integrated Info Systems	5
Course and Faculty Evaluations	15	Online Enrolment services	5
Design Support and/or Design Teams	14	Orientation for online programs	5
Access to on-ground learning support services	14	College recognizes Online as equivalent to classroom	5
Faculty Training Program	13	Use of a Course Management System	5
Budget & Personnel	11	Equivalent Learning Outcomes	4
External Marketing of Programs and Services	11	Advising and Counselling services specifically for online programs	4
Tech Training Lab/Resource Center	11	Program Evaluation	4
Best Practices/Standards	11	Faculty receive student feedback	4
Program information available to potential students	9	Faculty are encouraged to participate in Online organizations	4
Assessment of student performance on learning outcomes	8	On-campus computer access for students	4
Internal Marketing	7	Monitoring of student retention	4
Incentives for course design	7	Guarantee Schedules for current students	4
Faculty Professional Dev. Support	7	Waiver of on-campus fees	3
Faculty Access to leading edge tech	7	Comparable fees	3
Limited Class Size	6	Online Tutoring	3
Faculty receive same compensation for online as in classroom	6	Student Services Personnel assigned to online programs	3
Mandatory review of all new courses	6	Faculty are rewarded for innovation	3
Faculty are provided "sufficient" time for course development	6	Potential students are pre-screened for technical skills	3
Testing Services to support online	6	Flexible Schedule	3
Sufficient Infrastructure	5	New faculty paired with mentors	3
Students and Faculty complete satisfaction surveys	5	Online work counts towards faculty advancement.	3

Indicators found on Two Surveys

- Program is consistent with college's mission
- Policies & procedures supporting consistency of instruction
- Policy outline intellectual property and owner ship of courses
- Participation in Consortia
- Institution seeks accreditation
- Tech Fee support Dist Ed program
- Varied classroom assessment methods
- Incentives other than financial for development
- ADA issues are addressed in training
- Modify evaluation criteria for online environment
- Faculty input solicited on services
- Formative Evaluations of courses
- Institution demonstrates responsiveness to student complaints/appeals
- Use of Self-evaluation instruments

Indicators Found on only One Open-ended Survey

Elimination of competing technologies		Tech Planning
Articulation agreements		Included in emergency communications
Institutional use of "best practices"		Single Sign-on
Commitment to needs on and off campus		Archiving plan
Institution defends quality of online		Pilot projects
Attention and interest devoted to the program		Allow faculty to determine what technologies meet their instructional needs
Approval of capital projects that benefit distance learning programs –		Applicability of the courses - relevance to personal or professional life; recent and accurate information
Stakeholders (internal and external to the institution) involved and supportive of program, faculty, and students		Flexibility of the courses - individualization of learning for learning preferences (visual, hearing, kinesthetic)
Standardized Internet tools		Audience analysis
Media Support		Business Office
Equivalence of online office hours		Designated support personnel in each office
Academic freedom		Communication about on-campus events
Training on academic dishonesty		Faculty interaction policy
Student honors		Faculty participation monitored
Student Activities		Monitor for grade inflation
Password secured surveys		Varied measures of program success

Median & IQR Results by Survey, Delphi II, III and IV

Indicators (1 of)	Survey 2		Survey 3		Survey 4	
	Median	IQR	Median	IQR	Median	IQR
The college's online program is overseen by a professional manager with sufficient institutional authority to organize and support the	2	1.50	X	X	X	X
In all aspects of the distance education program, the college's administration promotes the use of best practices for online programs and instruction published by regional and national organizations.	2	2.00	2	0.00	X	X
The online programs offered by the community college is consistent with the institution's mission and needs of the community served.	2	1.50	X	X	X	X
The community college is committed to supporting the scheduling of online courses that meet the degree requirements of all students currently enrolled in an online program.	2	1.50	X	X	X	X
The community college provides the financial resources necessary to support the technical infrastructure, training and support personnel, and full range of faculty and student support services required for online courses and programs.	1	1.50	X	X	X	X
The college's marketing plan includes promotion of online courses and programs.	2	1.00	X	X	X	X
The college promotes the successes of online courses and programs.	3	0.50	3	1.50	N	N

Median & IQR Results by Survey, Delphi II, III and IV

Indicators (2 of)	Survey 2		Survey 3		Survey 4	
	Median	IQR	Median	IQR	Median	IQR
Marketing of online programs emphasizes the skills needed for student success and clearly articulates that the academic expectations and time	3	1.50	2	1.00	X	X
The college demonstrates its commitment to online programs by discontinuing delivery of courses and programs via other distance media such as ITV and videoconferencing.	5	2.50	5	2.00	5	2.00
The community college communicates recognition of the value and academic equivalence of online programs to all stakeholders.	2	2.00	2	1.50	X	X
The community college emphasizes the need for all departments to support online programs.	4	3.00	4	2.00	4	2.00
The online program staff actively work with student services to insure	2	2.50	2	1.50	X	X
The community college's leadership acknowledges their commitment to the needs of online and on-campus students, programs and employees.	2	1.50	X	X	X	X
Articulation agreements are pursued with area four-year colleges to create seamless transfer opportunities for students in online programs.	1	1.00	X	X	X	X

236

Median & IQR Results by Survey, Delphi II, III and IV

Indicators (3 of)	Survey 2		Survey 3		Survey 4	
	Median	IQR	Median	IQR	Median	IQR
The community college has obtained the necessary accreditation for online programs.	1	1.00	X	X	X	X
The community college's policies and procedures demonstrate consistency across all forms of instruction.	2	1.50	X	X	X	X
The community college's leadership openly defends the quality and equivalence of online courses and programs.	2	3.00	2	1.50	X	X
The college's leadership works with other higher education institutions to educate legislators about online education and its importance to the mission of the community college.	3	0.75	3	1.00	N	N
Community college representatives educate community leaders about the educational value of online education within the limitations of the technology, taking care to distance this discussion from the position that online education will solve the full range of academic and fiscal problems commonly assigned to education.	3	1.50	3	1.50	3	0.00
The community college's leadership demands that online programs meet the same programmatic requirements of on-campus programs.	1	1.50	X	X	X	X

Median & IQR Results by Survey, Delphi II, III and IV

Indicators (4 of)	Survey 2		Survey 3		Survey 4	
	Median	IQR	Median	IQR	Median	IQR
The community college promotes regular internal communication of online services and programs.	3	1.50	3	1.50	3	1.00
The online program is included in the institution's emergency communication protocols; including contingency plans for times when the technology fails.	2	2.50	2	2.50	2	2.00
The institution provides online faculty with the technology needed to adequately develop and deliver their online courses.	1	0.50	X	X	X	X
The college provides a technical support center with hardware, software and trained staff to provide technological support for all students, faculty and staff members.	1	1.50	X	X	X	X
The institution provides online faculty with the technology needed to adequately develop and deliver their online courses	Dup 23		Dup 23		Dup 23	
The institution provides appropriate levels of technical support via a range of technologies and over a broad range of times.	2	2.00	2	1.00	X	X
The institution provides a 24x7 help desk to assist those needing technological assistance.	4	2.50	4	1.00	N	N
Money collected from any distance learning technology fee is used for services directly related to the online technology.	2.5	3.00	4	2.50	3	2.00

238

Median & IQR Results by Survey, Delphi II, III and IV

Indicators (5 of)	Survey 2		Survey 3		Survey 4	
	Median	IQR	Median	IQR	Median	IQR
The college uses a single sign-on system with secure technologies as appropriate to meeting both access and privacy needs.	3	2.50	3	1.50	3	1.50
The institution provides integrated access to electronic resources in support of online education.	2	1.50	X	X	X	X
The institution provides sufficient network infrastructure (backbone, bandwidth, servers) necessary to deliver online classes.	1	0.50	X	X	X	X
The institution provides access to computers for students who wish to access courses from campus	2	2.00	2	1.50	X	X
The institution supports leading edge faculty gaining access to hardware/software that is new or cutting edge.	3	2.50	3	2.50	3	1.00
The college invests in and support information management systems (student information, course management, e-mail, etc.) that interface smoothly across the institution.	2	1.00	X	X	X	X
The institution invests in a user-friendly course management system for the delivery of on-line coursework.	2	1.00	X	X	X	X
The college has developed an infrastructure for the efficient archiving and restoring of courses from semester-to-semester.	2	1.50	X	X	X	X

239

Median & IQR Results by Survey, Delphi II, III and IV

Indicators (6 of)	Survey 2		Survey 3		Survey 4	
	Median	IQR	Median	IQR	Median	IQR
Planning for new technology resources for the college includes and integrates online program needs into the budget and execution cycles.	2	2.00	2	1.50	X	X
The community college promotes research and pilot projects using new technology.	3	1.50	3	2.00	3	1.50
The college promotes the use of standardized Internet tools in the delivery of online courses.	1	1.00	X	X	X	X
The community college supports the philosophy that faculty use each technology for what it does best in meeting the needs of the course or program, emphasizing effective teaching and learning over technology.	2	1.00	X	X	X	X
The institution provides adequate online technical, design and pedagogical support for faculty in the development of their online courses.	1	1.50	X	X	X	X
The community college follows an application process and training procedure for all faculty pursuing online teaching.	2	1.50	X	X	X	X
The college provides online faculty training and support related to the legal rights and responsibilities of faculty and the institution (i.e. copyright and intellectual property rights, FERPA, ADA).	1	1.00	X	X	X	X

240

Median & IQR Results by Survey, Delphi II, III and IV

Indicators (7 of)	Survey 2		Survey 3		Survey 4	
	Median	IQR	Median	IQR	Median	IQR
The college requires that online courses adhere to the same learning outcomes as traditional classes.	1	1.00	X	X	X	X
The institution supports faculty with course development via a design team consisting of technical and pedagogical experts.	2	3.50	2	2.00	2	2.00
The community college supports faculty with the assistance of instructional designers or through training that will help faculty to become instructional designers.	2	2.00	2	1.50	X	X
The college supports project management leadership to encourage a team approach for adequate planning, design, development, and instruction techniques for online courses	3	2.00	3	2.00	3	2.00
A set of clearly defined expectations for the development and delivery of online courses has been compiled by the college and communicated to the faculty.	3	4.00	2	2.00	2	2.00
Enrollment in online courses is limited so as to meet institutional needs and with regard to research on effective class size and the goals of the	3	1.50	3	1.00	N	N
The institution promotes an incentive based system for compensating faculty for the development of online courses and programs.	3	2.00	3	1.50	3	1.50

241

Median & IQR Results by Survey, Delphi II, III and IV

Indicators (8 of)	Survey 2		Survey 3		Survey 4	
	Median	IQR	Median	IQR	Median	IQR
The college provides the same compensation for online and campus-based instruction.	3	3.00	3	3.00	3	1.50
The college encourages faculty involvement in peer-to-peer organizations and conferences where issues related to online instruction are discussed.	2	1.00	X	X	X	X
New online courses are reviewed by the department or program to insure quality of subject matter and verify that it meets program outcomes.	1.5	2.00	2	1.00	X	X
The institution verifies that online courses are fully developed before the semester begins, and the course site is reviewed by a peer faculty or instructional designer before delivery to students.	2	3.50	2	2.50	2	2.00
The community college supports new online faculty by providing instructional designers to assist with an instructor's initial experience teaching online and help solve teaching difficulties.	2	1.50	X	X	X	X
The college provides faculty sufficient time to develop an online course before it is delivered to students	2	1.50	X	X	X	X
The college has compiled a set of institutional best practices for online courses and encourages its use by new online faculty during course development.	2	2.00	2	1.00	X	X

242

Median & IQR Results by Survey, Delphi II, III and IV

Indicators (9 of)	Survey 2		Survey 3		Survey 4	
	Median	IQR	Median	IQR	Median	IQR
The institution supports the use of Best Practices as developed by WCET.	4	1.50	4	1.50	N	N
The college fosters collaboration across all institutional services that may impact instructional and learning success.	2	3.00	2	1.50	X	X
The institution has a clear policy as to the ownership of the content of its online courses.	1	1.50	X	X	X	X
The college supports online faculty in the development of their online classes through a design department equipped with the hardware, software, and technical staff to assist with the incorporation of audio and visual content.	3	2.50	3	2.00	2	1.50
The college communicates a regular schedule of training courses focusing on the technical aspects of on-line courses for both faculty and students.	2	2.00	2	1.00	X	X
The institution support online faculty participation in professional development courses addressing online pedagogy.	2	2.00	2	1.50	X	X
Faculty are provided training on a variety of software programs to enhance student learning.	2	2.00	2	1.00	X	X

243

Median & IQR Results by Survey, Delphi II, III and IV

Indicators (10 of)	Survey 2		Survey 3		Survey 4	
	Median	IQR	Median	IQR	Median	IQR
Faculty training addresses the function of technologies available to the instructor, to the students, and addresses the need for contingency plans (for when the technology doesn't work).	2	1.50	X	X	X	X
The college has a mentoring program for new online instructors.	3	3.00	3	2.50	3	3.00
The institution acknowledges that online office hours are at least equivalent to on-campus office hours.	3	2.00	3	1.00	N	N
Faculty "advancement" criteria recognize online instruction and reward faculty for innovation and risk-taking.	2	1.50	X	X	X	X
The college recognizes work that instructors have done advancing their own degree (or other professional development activities) obtained through online programs.	2	1.50	X	X	X	X
The institution provides online faculty with information about the target audience (online community college students); including awareness of student access, student understanding of the technology, educational and experiential background, range of ages or life-stages of	3	2.50	3	1.50	3	1.50
The college demonstrates respect for faculty member's academic freedom by allowing him or her to develop the course in a way that coincides with his or her teaching style.	2	1.50	X	X	X	X

244

Median & IQR Results by Survey, Delphi II, III and IV

Indicators (11 of)	Survey 2		Survey 3		Survey 4	
	Median	IQR	Median	IQR	Median	IQR
The college supports faculty in pilot projects investigating alternative scheduling, remote teaching, or other innovations.	2	1.00	X	X	X	X
The college provides enrollment procedures that are easy and accessible to online students.	1	1.50	X	X	X	X
Students are able to register and pay fees without having to visit the college.	1	1.00	X	X	X	X
The college provides and advertises ounseling and advisement specifically for online learners.	4	3.50	4	3.00	4	1.50
Online students have the opportunity to complete a technical skills screening prior to enrollment in online classes.	3	1.50	2	1.50	X	X
Potential students have access to training about the expectations, needed skills, guidelines, policies regarding testing, program requirements and prerequisites, and technical support available to students taking online classes.	2	2.00	2	1.50	X	X
The accounting office regularly evaluates and acts when necessary to review deadlines, forms, procedures, etc. to meet the needs of online students; including different services than designed for on-campus students.	3	3.50	3	2.00	3	2.00

Median & IQR Results by Survey, Delphi II, III and IV

Indicators (12 of)	Survey 2		Survey 3		Survey 4	
	Median	IQR	Median	IQR	Median	IQR
Fees that are applicable specifically to "being on campus" are waived for on-line learners (i.e. parking, activity fees, etc.).	4	5.00	4	4.00	3	2.00
All pertinent information related to the college such as schedules, catalogue, policies and procedures, are available in a range of user-friendly formats on the college's web site.	1	1.00	X	X	X	X
The college provides web-based information geared toward the needs of online and prospective online students, including expectations related to online courses, FAQs about the online program and common technical problems, explanations of online terminology, and easy-to-find information on support services and courses offered.	2	1.50	X	X	X	X
The college provides students with multiple communication options (telephone, email, US mail, etc.) for obtaining assistance and contacting support services.	1	1.00	X	X	X	X
Staff are located in every student service and academic support office whose primary responsibility is to serve the needs of online learners.	4	3.00	4	2.00	4	1.50
Online tutoring services are available to distance students.	3	4.00	3	2.50	3	2.50
Financial aid, registrar's office, and other student services invest in resources and technology to communicate with online students via desktop conferencing, instant messaging, and other web-based utilities.	3	3.00	3	2.50	3	2.50

Median & IQR Results by Survey, Delphi II, III and IV

Indicators (13 of)	Survey 2		Survey 3		Survey 4	
	Median	IQR	Median	IQR	Median	IQR
Access to traditional on-ground services for on-line students, including library, career services, and opportunities for professional development and networking are provided to students, both online and on-ground.	2	3.00	2	1.00	X	X
Regular information concerning college activities, events and issues is sent to on-line students to assist them connecting with the collegiate student experience.	2	2.00	2	2.00	2	2.00
Student academic honor and service programs accept online and traditional coursework.	2	1.00	X	X	X	X
The mission statement of Student Services and the job descriptions of related Deans recognize online students as a key population to be served.	3	3.00	3	2.00	3	2.00
An on-campus orientation program addressing technical requirements, basic skills and procedures, expectations of instructors and more is available to new online students.	3	2.00	3	1.50	N	N
An effective, self-directed online orientation is available for new students.	1	2.00	1	1.00	X	X
Students have the opportunities to attend short workshops, seminars, etc., addressing success strategies for online course work	3	2.00	3	1.50	3	1.00

Median & IQR Results by Survey, Delphi II, III and IV

Indicators (14 of)	Survey 2		Survey 3		Survey 4	
	Median	IQR	Median	IQR	Median	IQR
Students have the opportunity for walk-in support and training at the campus.	3	2.00	3	1.00	N	N
Online testing accommodates the range of student Internet access from dial up to high speed connectivity.	2	1.50	X	X	X	X
The college provides on-site testing services or off-site proctored testing services to meet the needs of online students and faculty.	1	1.00	X	X	X	X
Campus lab and library personnel are familiar with distance learning applications and trained to offer assistance.	2	1.00	X	X	X	X
The college library provides electronic reserves in support of online programs and takes advantage of local and regional college partnerships to guarantee students the opportunity to access learning resources online.	1	1.00	X	X	X	X
Student courseware is available and consistent from semester to semester.	2	2.50	2	1.00	X	X
Faculty respond to online student inquiries and manage grading of assignments and testing in a timely fashion.	1	1.50	X	X	X	X
The institution has adopted a flexible, non-traditional schedule, breaking out of the 8 and 16 week model.	4	4.00	4	2.00	4	1.50

248

Median & IQR Results by Survey, Delphi II, III and IV

Indicators (15 of)	Survey 2		Survey 3		Survey 4	
	Median	IQR	Median	IQR	Median	IQR
The community college insures the accessibility of online course sand programs to students with special needs.	2	2.50	2	1.50	X	X
Student leaning outcomes in online courses are assessed and compared with student outcomes achieved by other delivery methods.	2	3.00	2	2.00	2	1.50
Regular evaluations of distance learning courseware, instructional philosophy, pedagogical methods, and faculty use of the technology take place.	1	2.00	1	1.00	X	X
Periodic program evaluations are used for program improvement, to aid in institutional decision-making, to provide program outcomes for funding agencies, stakeholders access to technology, the range of services provided, course offerings, and barriers and challenges to online instruction.	2	2.00	1	1.50	X	X
Evaluations of online programs are consistent with that used for on campus programs.	2	2.50	1	1.50	X	X
Course evaluations include early (midterm) feedback for just-in-time course improvement and a final evaluation for instructional improvement.	3	3.50	2	1.00	X	X
The college requires a mandatory evaluation of each course delivered on-line.	3	2.50	3	2.00	3	2.00

Median & IQR Results by Survey, Delphi II, III and IV

Indicators (16 of)	Survey 2		Survey 3		Survey 4	
	Median	IQR	Median	IQR	Median	IQR
The college requires periodic review of courses delivered online.	2	3.50	2	2.50	2	1.50
Student persistence and attrition in on-line classes are monitored in comparison to institutional trends.	1	2.00	1	1.50	X	X
Faculty evaluation criteria are adjusted to account for online delivery, instructional methods, and practices.	2	2.00	2	0.50	X	X
Policies establishing the amount of "interaction" between instructor and student have been developed and communicated by the college.	3	4.00	3	2.00	3	1.50
The institution monitors faculty participation in online courses.	3	2.50	3	2.00	3	1.50
Student performance in online courses is regularly assessed and compared with performance in non-web based courses.	3	2.50	3	2.50	3	3.00
Faculty receive regular and objective feedback from students about their courses and instruction.	1	2.00	1	1.00	X	X
The college solicits input from online faculty regarding the range of services and policies supporting online learning.	2	2.00	2	1.50	X	X
Student and faculty regularly complete satisfaction surveys about the online courses and programs.	2	2.00	2	0.50	X	X

Median & IQR Results by Survey, Delphi II, III and IV

Indicators (17 of)	Survey 2		Survey 3		Survey 4	
	Median	IQR	Median	IQR	Median	IQR
The college has a system that focuses on formative issues related to the improvement of online instruction.	3	4.50	2	3.00	3	1.00
The college has a record of responsiveness to suggestions conveyed in student satisfaction surveys.	3	1.00	3	1.00	N	N
The college utilizes assessment methods recommended by accrediting bodies for distance courses (e.g. North Central Association, Higher Education Commission, Distance Education Standards).	2	2.00	2	1.50	X	X
The college participates in consortia with other colleges, local agencies, support organizations, and/or the business community to expand services and manage costs	2	2.00	3.00	1.00	X	X
The tuition and fees of online courses and programs are comparable to those on campus.	2	2.50	2	1.50	X	X
The costs of online programs (money, time, effort) are comparable to other programs at the college.	3	3.00	3	2.00	3	2.00
The college monitors the potential for grade inflation in online classes.	4	3.00	3	2.50	4	1.50
Classroom assessment includes projects and portfolio building assessments, not just multiple-choice tests	2	2.00	2	0.50	X	X

251

Median & IQR Results by Survey, Delphi II, III and IV

Indicators (1 of)	Survey 2		Survey 3		Survey 4	
	Median	IQR	Median	IQR	Median	IQR
Online assessment and evaluation tools are password protected to insure the anonymity of respondents.	2	1.00	X	X	X	X
Students and instructors are held to the same standards through strict policies that enforce deadlines for assignments and course completion.	3	2.50	3	2.00	3	1.00
Program success is measured through o Increased enrollment in on-line courses o Increased interest by faculty in developing n-line courses o Increased interest by students in accessing on-line courses o Increased requests by non-traditional students for information about the college programs available on-line	3	2.00	3	1.50	N	N
Students participate in self-evaluation of their personal achievement and performance on learning outcomes.	4	2.50	4	1.50	4	1.00
Faculty participate in a self-evaluation of instructional outcomes, program and course improvement.	3	2.50	3	1.50	N	N
The college makes a concentrated effort to provide for the development of on-line peer group interaction.	3	2.50	3	1.00	N	N

APPENDIX E: STAKEHOLDER INSTRUMENT

The Stakeholder Survey was delivered electronically via an ASP programmed web site. The following pages illustrate the information presented on successive pages of the web site as presented to all stakeholder groups.

STAKEHOLDER SURVEY

Introduction

Thank you for agreeing to participate in this survey. We are working to improve Online instruction, and your input will help us in this effort.

The survey consists of three sections, and it should take no more than 20 minutes to complete the full survey.

- o Section 1 – Quality Indicators

The primary goal of the survey is collect feedback about a set of Quality Indicators that were compiled in another study. The Indicators were developed for the purpose of evaluating Online Programs at Community Colleges. The purpose of this section of the survey is to collect the perspectives of different groups participating in Online Programs.

- o Section 2 – Missing Indicators

The second section asks you to identify any Quality Indicators you think are missing.

- o Section 3 – Demographic Information

In the final section you will be asked to indicate some information about your gender, race and experience with Online courses. This information will allow the researchers to identify any needs of a specific population using Online courses.

Your participation in this survey is completely voluntary, and in no instance will your name be connected to the information collected in this survey.

<div align="center">Instructions for Section 1 – Quality Indicators</div>

The Quality Indicators have been divided into six categories. You will be asked to compare the level of importance of each indicator to your experiences in Online courses and programs at this community college. The method to be used is known as Magnitude Estimation, and it is used to help gauge your perceived importance of each indicator.

The first indicator in each category has a value of 40 points. You will review the second indicator and determine if it is more or less important to you, and your Online experiences, than the **first** indicator. If the second indicator is half as important to you, then you indicate this by giving it a score of 20 points (1/2 of 40 points).

Next examine the third indicator, is it more or less important to you that the **first** indicator? Suppose it three times more important to you than the first indicator. You would indicate this perceived value with a score of 120 points (3 x 40 points).

<div align="center">Example of Magnitude Estimation</div>

Before proceeding to the indicators, here is a simple exercise to assist you with this scoring method.

You can see that there are five lines below. The first line is rated as 40 points. You need to indicate the size of the other four lines relative to the first line.

Score

40	Line 1	————————
___	Line 2	————
___	Line 3	————————————————
___	Line 4	————
___	Line 5	———————————

In the same way you will be asked to compare your perceived importance of the indicators within each group.

Category 1 – Institutional Support

The items listed below were identified as possible indicators of how well a Community College's Leadership supports its Online programs. Review the first indicator, and then identify how important you find each of the remaining indicators in comparison.

Score		Indicator
40	1	The college's online program is overseen by a professional manager with sufficient institutional authority to organize and support the academic and support services necessary for student success.
___	2	In all aspects of the distance education program, the college's administration promotes the use of best practices for online programs and instruction published by regional and national organizations.
___	3	The online programs offered by the community college is consistent with the institution's mission and needs of the community served.
___	4	The community college is committed to supporting the scheduling of online courses that meet the degree requirements of all students currently enrolled in an online program.
___	5	The community college's leadership acknowledges their commitment to the needs of online and on-campus students, programs and employees.
___	6	The community college provides the financial resources necessary to support the technical infrastructure, training and support personnel, and full range of faculty and student support services required for online courses and programs.
___	7	The college's marketing plan includes promotion of online courses and programs.
___	8	Marketing of online programs emphasizes the skills needed for student success and clearly articulates that the academic expectations and time commitment in online courses are consistent with traditional classroom instruction.
___	9	The community college communicates recognition of the value and academic equivalence of online programs to all stakeholders.
___	10	Articulation agreements are pursued with area four-year colleges to create seamless transfer opportunities for students in online programs.
___	11	The community college has obtained the necessary accreditation for online programs.
___	12	The online program staff actively works with student services to insure awareness of online student needs and program requirements.
___	13	The community college's policies and procedures demonstrate consistency across all forms of instruction.
___	14	The community college's leadership demands that online programs meet the same programmatic requirements of on-campus programs.
___	15	The community college's leadership openly defends the quality and equivalence of online courses and programs.
___	16	The college fosters collaboration across all institutional services that may impact instructional and learning success.
___	17	The tuition and fees of online courses and programs are comparable to those on campus.

Category 2 – Technology

Below are a number of Technical Support and Infrastructure indicators identified as important to the Quality of Online programs at a Community College. Review the first indicator, and then identify how important you find each of the remaining indicators in comparison.

Score		Indicator
40	1	The institution provides online faculty with the technology needed to adequately develop and deliver their online courses.
___	2	The institution provides integrated access to electronic resources in support of online education.
___	3	The institution provides sufficient network infrastructure (backbone, bandwidth, servers) necessary to deliver online classes.
___	4	The college has developed an infrastructure for the efficient archiving and restoring of courses from semester-to-semester.
___	5	The college provides a technical support center with hardware, software and trained staff to provide technological support for all students, faculty and staff members.
___	6	The institution provides appropriate levels of technical support via a range of technologies and over a broad range of times.
___	7	The college invests in and support information management systems (student information, course management, e-mail, etc.) that interface smoothly across the institution.
___	8	The institution invests in a user-friendly course management system for the delivery of on-line coursework.
___	9	Planning for new technology resources for the college includes and integrates online program needs into the budget and execution cycles.
___	10	The college promotes the use of standardized Internet tools in the delivery of online courses.

Category 3 – Curriculum & Instruction

The following indicators were identified as possible factors in the educational effectiveness and instructional quality of Online programs at Community Colleges. Review the first indicator, and then identify how important you find each of the remaining indicators in comparison.

Score		Indicator
40	1	The community college supports the philosophy that faculty use each technology for what it does best in meeting the needs of the course or program, emphasizing effective teaching and learning over technology.
___	2	The institution provides adequate online technical, design and pedagogical support for faculty in the development of their online courses.
___	3	The community college supports faculty with the assistance of instructional designers or through training that will help faculty to become instructional designers.
___	4	The community college supports new online faculty by providing instructional designers to assist with an instructor's initial experience teaching online and help solve teaching difficulties.
___	5	The community college follows an application process and training procedures for all faculty pursuing online teaching.
___	6	New online courses are reviewed by the department or program to insure quality of subject matter and verify that it meets program outcomes.
___	7	The college provides faculty sufficient time to develop an online course before it is delivered to students
___	8	The college provides online faculty training and support related to the legal rights and responsibilities of faculty and the institution (i.e. copyright and intellectual property rights, FERPA, ADA).
___	9	The college encourages faculty involvement in peer-to-peer organizations and conferences where issues related to online instruction are discussed.
___	10	The college communicates a regular schedule of training courses focusing on the technical aspects of on-line courses for both faculty and students.
___	11	The college requires that online courses adhere to the same learning outcomes as traditional classes.
___	12	The college has compiled a set of institutional best practices for online courses and encourages its use by new online faculty during course development.
___	13	Faculty respond to online student inquiries and manage grading of assignments and testing in a timely fashion.
___	14	The institution has a clear policy as to the ownership of the content of its online courses.

Category 4 – Faculty Support

The items listed below were identified as possible indicators of how well a Community College supports Faculty participating in its Online programs. Review the first indicator, and then identify how important you find each of the remaining indicators in comparison.

Score		Indicator
40	1	The institution support online faculty participation in professional development courses addressing online methodology.
___	2	Faculty are provided training on a variety of software programs to enhance student learning.
___	3	Faculty training addresses the function of technologies available to the instructor, to the students, and addresses the need for contingency plans (for when the technology doesn't work).
___	4	Faculty "advancement" criteria recognize online instruction and reward faculty for innovation and risk-taking.
___	5	The college recognizes work that instructors have done advancing their own degree (or other professional development activities) obtained through online programs.
___	6	The college demonstrates respect for faculty member's academic freedom by allowing him or her to develop the course in a way that coincides with his or her teaching style.
___	7	The college supports faculty in pilot projects investigating alternative scheduling, remote teaching, or other innovations.
___	8	The college supports online faculty in the development of their online classes through a design department equipped with the hardware, software, and technical staff to assist with the incorporation of audio and visual content.

Category 5 – Student Support

Below are a number of services ins support of learning identified as possible indicators of how well a Community College supports the Students taking courses in its Online programs. Review the first indicator, and then identify how important you find each of the remaining indicators in comparison.

Score		Indicator
40	1	The college provides enrollment procedures that are easy and accessible to online students.
___	2	Students are able to register and pay fees without having to visit the college.
___	3	Access to traditional on-ground services for on-line students, including library, career services, and opportunities for professional development and networking are provided to students, both online and on-ground.
___	4	Potential students have access to training about the expectations, needed skills, guidelines, policies regarding testing, program requirements and prerequisites, and technical support available to students taking online classes.
___	5	Online students have the opportunity to complete a technical skills screening prior to enrollment in online classes.
___	6	An effective, self-directed online orientation is available for new students.
___	7	All pertinent information related to the college such as schedules, catalogue, policies and procedures, are available in a range of user-friendly formats on the college's web site.
___	8	The college provides web-based information geared toward the needs of online and prospective online students, including expectations related to online courses, FAQs about the online program and common technical problems, explanations of online terminology, and easy-to-find information on support services and courses offered.
___	9	The college provides students with multiple communication options (telephone, email, US mail, etc.) for obtaining assistance and contacting support services.
___	10	Student academic honor and service programs accept online and traditional coursework.
___	11	Online testing accommodates the range of student Internet access from dial-up to high-speed connectivity.
___	12	The college provides on-site testing services or off-site proctored testing services to meet the needs of online students and faculty.
___	13	Campus lab and library personnel are familiar with distance learning applications and trained to offer assistance.
___	14	The college library provides electronic reserves in support of online programs and takes advantage of local and regional college partnerships to guarantee students the opportunity to access learning resources online.
___	15	Student courseware is available and consistent from semester to semester.

Category 6 – Evaluation & Assessment

The actions below were identified as important indicators of how well a Community College ensures the Quality of its Online programs. Review the first indicator, and then identify how important you find each of the remaining indicators in comparison.

Score		Indicator
40	1	Regular evaluations of distance learning courseware, instructional philosophy, pedagogical methods, and faculty use of the technology take place.
___	2	Evaluations of online programs are consistent with that used for on campus programs.
___	3	The college solicits input from online faculty regarding the range of services and policies supporting online learning.
___	4	Student and faculty regularly complete satisfaction surveys about the online courses and programs.
___	5	Faculty evaluation criteria are adjusted to account for online delivery, instructional methods, and practices.
___	6	Faculty receive regular and objective feedback from students about their courses and instruction.
___	7	The college utilizes assessment methods recommended by accrediting bodies for distance courses (e.g. North Central Association, Higher Education Commission, Distance Education Standards).
___	8	Classroom assessment includes projects and portfolio building assessments, not just multiple-choice tests.
___	9	Online assessment and evaluation tools are password protected to insure the anonymity of respondents.
___	10	Student learning outcomes in online courses are assessed and compared with student outcomes achieved by other delivery methods.
___	11	Periodic program evaluations are used for program improvement, to aid in institutional decision-making, to provide program outcomes for funding agencies, stakeholders access to technology, the range of services provided, course offerings, and barriers and challenges to online instruction.
___	12	The college requires periodic review of courses delivered online.
___	13	Student persistence and attrition in on-line classes are monitored in comparison to institutional trends.

SECTION 2 – MISSING INDICATORS

Now that you have reviewed the Quality Indicators identified in a previous study, are there any indicators that you believe need to be added? If so, then please submit missing Quality Indicators using the text box below.

Please type what you believe to be missing indicators here (your submission is limited to 1000 characters):

"Text Input box allowing 1000 characters"

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SECTION 3 – DEMOGRAPHIC INFORMATION

The following six (6) questions are solely to collect demographic information about the survey respondents. This information will be combined with responses to the previous sections to identify any particular interests or concerns in specific populations of respondents. Indicate your response by clicking on the appropriate box.

F. Gender of the respondent is
   ☐ female
   ☐ male

F. The race/ethnicity of the respondent is
   ☐White/Caucasion
   ☐Black/African-American
   ☐Hispanic/Latin
   ☐Asian/Pacific Islander
   ☐Alaskan or Native American

F. The age of the respondent is
   ☐18 – 22
   ☐ 23 – 28
   ☐ 29 – 34
   ☐ 35 – 40
   ☐ greater than 40

F. The respondent has completed a total number of credit hours in both classroom and online courses of

☐less than 12

☐ 13 – 24

☐ 25 – 36

☐ 37 – 48

☐ 49 – 60

☐ more than 60

E. The respondent has completed a total of credit hours online

☐less than 12

☐ 13 – 24

☐ 25 – 36

☐ 37 – 48

☐ 49 – 60

☐ more than 60

F. The respondents first online course was completed

☐Fall Term

☐Spring Term

☐ Summer Term

+ Year Drop Down Menu – beginning with 2000

STUDENT WAIVER OF CONSENT

Both the survey and the consent waiver were access online at a secure web site. The consent form

Setting Indicators for Evaluating Distance Education Programs at Community

Colleges: Student Survey Consent Waiver

You are invited to be in a research study identifying methods for the evaluation of Distance Education Programs at Community Colleges. A set of indicators for measuring institutional performance on eighteen criteria have been identified. Participants are asked to review the criteria and indicators and provide feedback on their relevance to you as a student in a distance education course.

Students enrolled in distance education courses at MCC have been invited to participate in the survey.

We ask that you read this document and ask any questions you may have before agreeing to be in the study.

The University of Missouri-Columbia and the Metropolitan Community Colleges.

Background Information:
   The purpose of this study is to test potential indicators for measuring a college's performance on the eighteen quality criteria. There are a number of needs for a set of measurable indicators; including the need to compare institutions, promote institutional improvements, and provide students with a measure by which competing programs may be compared.

Procedure:
   Participants are asked to complete an online survey. The survey will ask students to indicate their preference for indicators and how important they perceive a criterion is to their success. It is anticipated that the survey will take no more than twenty minutes to complete. All submissions will be confidential, and no individuals involved in this study will be identified in any communication.

Risks and Benefits of Being in the Study:
  The only risks involved with this study are minimal and include short term stress, or some other emotional reaction caused by allowing us to use your responses, even anonymously. The benefits are that the results of these studies may lead to improved distance education programs and services for both you and other students in distance education programs.

Confidentiality:

No information as to the authors of the indicators, survey responses or individual identifiers of any kind will be made available to anyone outside of the course. Statistical data will be used to refine the responses and provide feedback with the intended purpose of improving online programs and student learning. The statistical data will include the total numbers of participants in the survey.

All data will be retained for three years after the completion of the study as required by Federal regulations.

Voluntary Nature of the Study

Your participation is purely voluntary. You may choose not to have your responses included in the study. Your decision to do so will not in any way affect your standing or relationship with the University of Missouri or the Metropolitan Community Colleges. If you decide to participate, you are free to withdraw at any time without affecting those relationships.

Contacts and Questions

The researcher conducting this study is Leo Hirner, in cooperation with Dr. Thomas Kochtanek, University of Missouri-Columbia.

You may reach Leo Hirner at the Metropolitan Community Colleges Distance Education office on the Penn Valley Campus, 3201 Southwest Trafficway, Kansas City, MO 64111, by e-mail at lhirner@kc.rr.com, or by phone at 816-759-4501.

If you have questions regarding your rights as a research participant, then please feel free to contact the University of Missouri Campus Institutional Review Board at 573-882-9585.

Consent to Participate

If you agree to the terms of this research project, then please click the button labeled Agree/Consent to begin the survey. If you have any concerns about or objections to this research project, then click the Do Not Agree button to exit this web site.

Agree/Consent	Do Not Agree

EMPLOYEE (ADMINISTRATOR, FACULTY & SUPPORT STAFF) WAIVER OF

CONSENT

Setting Indicators for Evaluating Distance Education Programs at Community

You are invited to participate in a research study identifying criteria for the evaluation of Distance Education Programs at Community Colleges. A set of indicators for measuring institutional performance on eighteen criteria have been identified. Participants are asked to review the criteria and indicators and provide feedback on their relevance to you as a student in a distance education course.

Faculty teaching courses via a distance education technology, administrators that oversee programs that are delivered at a distance, and the personnel that support distance courses at MCC have been invited to participate in the survey.

We ask that you read this document and ask any questions you may have before agreeing to be in the study.

The University of Missouri-Columbia and the Metropolitan Community Colleges.

Background Information:
The purpose of this study is to test potential indicators for measuring a college's performance on the eighteen quality criteria. There are a number of needs for a set of measurable indicators; including the need to compare institutions, promote institutional improvements, and provide students with a measure by which competing programs may be compared.

Procedure:
Participants are asked to complete an online survey. The survey asks various employee groups that support distance education courses and programs to indicate their preference for indicators and how important they perceive a criterion is to their success. The survey consists of nearly fifty questions, and it should only take about twenty minutes to complete. All submissions will be confidential, and no individuals involved in this study will be identified in any communication.

Risks and Benefits of Being in the Study:
The only risks involved with this study are minimal and include short term stress, or some other emotional reaction caused by allowing us to use your responses, even anonymously. The benefits are that the results of these studies may lead to improved distance education programs and services for both those supporting those participating in distance education.

Confidentiality:
No information as to the authors of the indicators, survey responses or individual identifiers of any kind will be made available to anyone outside of the course. Statistical data will be used to refine the responses and provide feedback with the intended purpose of improving online programs and student learning. The statistical data will include the total numbers of participants in the survey.

All data will be retained for three years after the completion of the study as required by Federal regulations.

Voluntary Nature of the Study
Your participation is purely voluntary. You may choose not to have your responses included in the study. Your decision to do so will not in any way affect your standing or relationship with the University of Missouri or the Metropolitan Community Colleges. If you decide to participate, you are free to withdraw at any time without affecting those relationships.

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Consent to Participate

If you agree to the terms of this research project, then please click the button labeled Agree/Consent to begin the survey. If you have any concerns about or objections to this research project, then click the Do Not Agree button to exit this web site.

Agree/Consent	Do Not Agree

INVITATION TO PARTICIPATE IN STAKEHOLDER SURVEY

Student Recruitment:

To recruit students the following announcement was placed in each of the targeted courses:

Header – An Opportunity to Provide Feedback about Quality Online Programs

Announcement: Take this opportunity to provide feedback about what is important to you as an online student. As part of ongoing research to improve Online courses we are collecting information about what services and infrastructure are indicative of quality Online programs at community colleges. Your participation will help us to better understand the needs and perceptions of the Online students at community colleges, and it will you no more than twenty (20) minutes to complete the survey. If you are interested in participating, then please click on the following link; http://distance.kcmetro.edu/survey/student.asp

Recruitment of Community College Employees:

Faculty, Administrators and Technical Support Staff will be recruited via an e-mail message.

Faculty

Subject – An Opportunity to Provide Feedback about Quality Online Programs

The Quality of Online Programs in Higher Education has been generally studied; however, there has been little examination of program characteristics important for a successful Online Program at a Community College. Your position as Online Faculty at a Community College gives your valuable insight as to what services, infrastructure and support indicates a successful program. The following link opens a survey with the purpose of refining a possible set of such indicators. If you are interested in participating in this survey, then click on the following link; http://distance.kcmetro.edu/survey/empFaculty.asp . The survey will take no more than twenty (20) minutes to complete.

Thank you in advance for participating.

Leo Hirner

Administrators

Subject – An Opportunity to Provide Feedback about Quality Online Programs

The Quality of Online Programs in Higher Education has been generally studied; however, there has been little examination of program characteristics important for a successful Online Program at a Community College. Your position as a Community College Administrator provides you valuable insight as to what services, infrastructure and support indicates a successful program. The following link opens a survey with the purpose of refining a possible set of such indicators. If you are interested in participating in this survey, then click on the following link; http://distance.kcmetro.edu/survey/employee.asp .The survey will take no more than twenty (20) minutes to complete.

Thank you in advance for participating.

Leo Hirner

Technical Support Staff

Subject – An Opportunity to Provide Feedback about Quality Online Programs

The Quality of Online Programs in Higher Education has been generally studied; however, there has been little examination of program characteristics important for a successful Online Program at a Community College. Your role as a Technical Support Professional gives you unique insight as to what services, infrastructure and support indicates a successful program. The following link opens a survey with the purpose of refining a possible set of such indicators. If you are interested in participating in this survey, then click on the following link; http://distance.kcmetro.edu/survey/emptechsupport.asp. The survey will take no more than twenty (20) minutes to complete.

Thank you in advance for participating.

Leo Hirner

Delphi Transition Evaluation

A team of three to five Delphi panelists will be asked to review the Stakeholder survey instrument to insure that the indicators developed through the Delphi method are accurately represented in this instrument. The panelists will be asked to review the draft survey before the User Evaluations and after any editing resulting from the User Evaluations. The Delphi reviewers will be asked to review the eighteen criteria questions to insure the continuity and integrity of their work.

User Evaluations for the Stakeholder Survey

Evaluees- A group of eight potential participants representing each of the stakeholder

groups will be invited to participate in review of the instrument. The ideal participants

follow:

- Student A- first and only online course (low ability),
- Student B- has taken online courses for at least two semesters (high ability),
- Tech Line A – full-time employee,
- Tech Line B – part-time employee,
- Faculty A – tenured/tenure-track faculty member,
- Faculty B – adjunct faculty,
- Administrator A – academic, and
- Administrator B – student development.

Data Collection

The evaluation of the survey instrument will take place online, and the

participants will complete the survey prior to the interview. The interviews will take

place in a campus meeting room, via phone or videoconferencing at the convenience of

the evaluator. All interactions between the interviewer and the student evaluator will be

recorded.

Preparing the Evaluators
-Thank the individual for participating

-Explain that the interview is being recorded to insure that their input is properly

incorporated into the survey, and that they may choose to decline the opportunity to

participate at this time.

-Explain that the purpose of this interview is to develop better ways to evaluate distance

programs, and that the current survey is still in draft form

-Clearly state that the individual's participation will assist in improving courses &

services in the future, and that all comments are confidential and, for students, will not

affect their grade

Evaluation Questions

Goal 1-Navigation and Usability

1. Was the layout of the survey clear and were the guides to successive pages easy to

follow?

2. Was there any point where the path or guides became unclear?

Goal 2-Directions

3. Were the instructions on how to rate your response clear?

4. Was there any place that you needed more instruction or directions?

5. Were the directions for the survey clear?

Goal 3-Content

6. Were there any questions that seemed too difficult? too easy?

7. Were any of the questions unclear or not relevant?

8. Did you feel the need for additional information before responding to any question?

Closing the Evaluation
Debriefing Questions

Do you think that there were any criteria left out of this study?

Ask follow-ups to earlier responses.

Thank the individual for participating once again. Remind them that their participation is

appreciated, and that it will help improve future classes.

Feedback from Preliminary Review of Draft Stakeholder Survey

Student A (experienced online student) and B (new online student) were provided a handout on how to access the course and what questions would be asked. Both students then met with the investigator to review their responses.

Faculty A (full-time) and B (part-time) received the URL and evaluation information via e-mail and responded electronically. The investigator reviewed their feedback with a telephone conversation.

Tech Line A (full-time employee) was sent an electronic version of the handout with information about how to access the survey. The investigator followed up with an interview.

Administrator A (Academic Administrator) received the URL and evaluation information via e-mail and responded electronically. The investigator reviewed their feedback, but did not follow up with a telephone conversation.

Goal 1-Navigation and Usability

1. Was the layout of the survey clear and were the guides to successive pages easy to follow?

Student A	Student B	Faculty A	Faculty B	Tech Line A	Administrator A
Yes, it was easy to follow and the buttons all worked.	Yes.	Was very clear to me.	Yes.	It was clear.	Yes. The web site was clear and the path was easy to follow.

2. Was there any point where the path or guides became unclear?

Student A	Student B	Faculty A	Faculty B	Tech Line A	Administrator A
No.	No.	No.	No.	No problems.	No.

Goal 2-Directions

3. Were the instructions on how to rate your response clear?

Student A	Student B	Faculty A	Faculty B	Tech Line A	Administrator A
Yes, and the example with the lines really made it easy.	Somewhat. It was hard to figure out what to do with less important numbers. The use of numbers made it hard.	The only problem I has was with the first page, trying to understand the use of 40, its multipliers and the length of the lines.	I was unsure how to compare to the indicator already scored. If I agreed or didn't, that affected how I scored the rest. I think I did it.	I was not sure if you could score above 100.	It made sense, but this is not a very easy method to use. I would worry about how well students would understand this.

4. Was there any place that you needed more instruction or directions?

Student A	Student B	Faculty A	Faculty B	Tech Line A	Administrator A
No, I think it is clear.	No, just how the numbers work.	No.	An example of one of the responses in addition to the line example would have helped.	No.	Nothing leaps out at me.

5. Were the directions for the survey clear?

Student A	Student B	Faculty A	Faculty B	Tech Line A	Administrator A
Yes	Yes	Yes	Yes	Yes, just wanted to be sure about the scoring limits.	Clear enough.

Goal 3-Content

6. Were there any questions that seemed too difficult? too easy?

Student A	Student B	Faculty A	Faculty B	Tech Line A	Administrator A
No, it was pretty straightforward.	No, but I didn't understand some of the terms.	No	No	No	Not to me, but I would expect some to be a little specialized for others.

274

7. Were any of the questions unclear or not relevant?

Student A	Student B	Faculty A	Faculty B	Tech Line A	Administrator A
No	No	Not really – but I've seen many of these in different iterations.	No	No, just needed clarification on the scoring.	No

8. Did you feel the need for additional information before responding to any question?

Student A	Student B	Faculty A	Faculty B	Tech Line A	Administrator A
No	Yes, some of the terms are new or confusing to me.	No	No	No	Not really.

Debriefing Questions

Do you think that there were any criteria left out of this study?

Student A	Student B	Faculty A	Faculty B	Tech Line A	Administrator A
I don't think so.	No	No	No	No	Not sure, this is a pretty extensive list, but it is possible.

275

Is there anything else you wish to add?

Student A	Student B	Faculty A	Faculty B	Tech Line A	Administrator A
No	No	The survey is daunting, but appropriate for its intended audience, and becomes complex, if you start to rate the responses against each other as well as the "40" standard.	No	No	Good luck!

Follow up Questions

Student A	Student B	Faculty A	Faculty B	Tech Line A	Administrator A
None.	None.	None.	None.	None.	None.

APPENDIX F: STAKEHOLDER MES DATA AND HISTOGRAMS

All Histograms were generated using SPSS v 11.5. Histograms are clustered by

categories, where "I" equals Institutional Support, "T" equates to Technology, "C" to

Curriculum & Instruction, "F" equals Faculty Support, "S" is Student Support, and "E" to

Evaluation & Assessment.

Stakeholder Results, MES Statistics for Indicator I2 by Stakeholder Group

	n	Median	Mean	STD
Student	51	40	43.73	27.438
Faculty	15	40	49.00	25.565
Technical Support	5	40	52.00	41.473
Administration	5	40	42.00	22.804

Students

Faculty

Administration

Technical Support

Stakeholder Results, MES Statistics for Indicator I3 by Stakeholder Group

	n	Median	Mean	STD
Student	51	40	51.76	26.454
Faculty	15	40	45.33	19.591
Technical Support	5	40	54.00	37.148
Administration	5	50	60.00	18.708

Students

I3

Std. Dev = 26.45
Mean = 51.8
N = 51.00

I3

Faculty

I3

Std. Dev = 19.59
Mean = 45.3
N = 15.00

I3

Administration

Institution 3

Institution 3

Technical Support

Institution 3

Institution 3

Stakeholder Results, MES Statistics for Indicator I4 by Stakeholder Group

	n	Median	Mean	STD
Student	51	50	61.57	37.262
Faculty	15	40	48.33	24.177
Technical Support	5	40	50.00	40.00
Administration	5	55	63.00	38.013

Students

I4

Std. Dev = 37.26
Mean = 61.6
N = 51.00

I4

Faculty

I4

Std. Dev = 24.18
Mean = 48.3
N = 15.00

I4

Administration

Institution 4

Institution 4

Technical Support

Institution 4

Institution 4

Stakeholder Results, MES Statistics for Indicator I5 by Stakeholder Group

	n	Median	Mean	STD
Student	51	40	58.14	30.016
Faculty	15	40	48.00	27.568
Technical Support	5	40	48.00	21.679
Administration	5	40	40.00	27.386

Students

Faculty

Administration

Technical Support

Stakeholder Results, MES Statistics for Indicator I6 by Group

	n	Median	Mean	STD
Student	51	40	56.67	30.735
Faculty	15	40	50.00	22.991
Technical Support	5	50	58.00	43.243
Administration	5	60	60.00	20.00

Students

Faculty

Administration

Technical Support

Stakeholder Results, MES Statistics for Indicator I7 by Group

	N	Median	Mean	STD
Student	51	40	45.49	29.039
Faculty	15	35	34.33	14.984
Technical Support	5	20	20.00	0.000
Administration	5	30	30.00	10.00

Students

Faculty

Administration

Technical Support

Stakeholder Results, MES Statistics for Indicator I8 by Group

	N	Median	Mean	STD
Student	51	40	55.98	33.720
Faculty	15	30	47.87	30.326
Technical Support	5	40	40.00	24.495
Administration	5	30	36.00	27.019

Students

Faculty

Administration

Technical Support

	N	Median	Mean	STD
Student	51	40	50.88	33.720
Faculty	15	30	32.00	13.732
Technical Support	5	40	50.00	40.000
Administration	5	30	33.00	14.832

Students

Faculty

Administration

Technical Support

Stakeholder Results, MES Statistics for Indicator I10 by Group

	n	Median	Mean	STD
Student	51	60	69.20	59.336
Faculty	15	40	41.00	15.142
Technical Support	5	40	58.00	36.332
Administration	5	50	62.00	38.987

Students

Faculty

Administration

Technical Support

<u>Stakeholder Results, MES Statistics for Indicator I11 by Group</u>

	N	Median	Mean	STD
Student	51	80	78.33	57.460
Faculty	15	40	46.67	28.200
Technical Support	5	40	60.00	40.000
Administration	5	40	50.00	43.589

Students

I11

Std. Dev = 57.46
Mean = 78.3
N = 51.00

I11

Faculty

I11

Std. Dev = 28.20
Mean = 46.7
N = 15.00

I11

Administration

Institution 11

Institution 11

Technical Support

Institution 11

Institution 11

287

Stakeholder Results, MES Statistics for Indicator I12 by Group

	N	Median	Mean	STD
Student	50	42.5	57.60	32.938
Faculty	15	40	37.67	15.453
Technical Support	5	60	70.00	31.623
Administration	5	40	52.00	42.071

Students

I12

Std. Dev = 32.94
Mean = 57.6
N = 50.00

I12

Faculty

I12

Std. Dev = 15.45
Mean = 37.7
N = 15.00

I12

Administration

Institution 12

Institution 12

Technical Support

Institution 12

Institution 12

Stakeholder Results, MES Statistics for Indicator I13 by Group

	N	Median	Mean	STD
Student	50	45	60.70	34.286
Faculty	15	40	51.33	33.138
Technical Support	5	40	52.00	42.071
Administration	5	40	52.00	26.833

Students

I13

Std. Dev = 34.29
Mean = 60.7
N = 50.00

Faculty

I13

Std. Dev = 33.14
Mean = 51.3
N = 15.00

Administration

Institution 13

Technical Support

Institution 13

Stakeholder Results, MES Statistics for Indicator I14 by Group

	n	Median	Mean	STD
Student	50	45	62.62	32.729
Faculty	15	40	42.00	16.562
Technical Support	5	40	42.00	25.884
Administration	5	70	70.00	33.166

Students

I14

Std. Dev = 32.73
Mean = 62.6
N = 50.00

I14

Faculty

I14

Std. Dev = 16.56
Mean = 42.0
N = 15.00

I14

Administration

Institution 14

Institution 14

Technical Support

Institution 14

Institution 14

Stakeholder Results, MES Statistics for Indicator I15 by Group

	N	Median	Mean	STD
Student	50	60	67.60	57.270
Faculty	15	40	34.33	12.938
Technical Support	5	40	44.00	33.615
Administration	5	65	68.00	30.322

Students

Faculty

Administration

Technical Support

Stakeholder Results, MES Statistics for Indicator I16 by Group

	N	Median	Mean	STD
Student	50	40	57.20	30.841
Faculty	15	40	37.00	13.862
Technical Support	5	40	46.00	26.077
Administration	5	65	67.00	35.673

Students

Faculty

Administration

Technical Support

Stakeholder Results, MES Statistics for Indicator I17 by Group

	N	Median	Mean	STD
Student	50	55	68.60	58.362
Faculty	15	40	38.80	20.533
Technical Support	5	40	60.00	40.000
Administration	5	40	36.00	11.402

Students

Faculty

Administration

Technical Support

Stakeholder Results, MES Statistics for Indicator T2 by Group

	N	Median	Mean	STD
Student	47	40	56.60	27.899
Faculty	15	50	58.67	24.162
Technical Support	5	50	64.00	36.469
Administration	5	60	53.00	22.249

Students

Faculty

Administration

Technical Support

Stakeholder Results, MES Statistics for Indicator T3 by Group

	N	Median	Mean	STD
Student	47	60	63.72	33.710
Faculty	15	50	59.33	24.339
Technical Support	5	50	64.00	36.469
Administration	5	60	70.00	31.623

Students

Faculty

Administration

Technical Support

Stakeholder Results, MES Statistics for Indicator T4 by Group

	N	Median	Mean	STD
Student	47	40	57.45	29.375
Faculty	15	40	48.00	17.300
Technical Support	5	50	62.00	38.987
Administration	5	50	54.00	16.733

Students

Faculty

Administration

Technical Support

Stakeholder Results, MES Statistics for Indicator T5 by Group

	N	Median	Mean	STD
Student	47	60	60.96	30.156
Faculty	15	45	48.67	16.088
Technical Support	5	50	64.00	32.094
Administration	5	60	64.00	32.863

Students

Faculty

Administration

Technical Support

Stakeholder Results, MES Statistics for Indicator T6 by Group

	N	Median	Mean	STD
Student	47	40	58.30	31.645
Faculty	15	50	52.00	17.403
Technical Support	5	50	62.00	33.466
Administration	5	40	66.00	52.726

Students

Faculty

Administration

Technical Support

Stakeholder Results, MES Statistics for Indicator T7 by Group

	N	Median	Mean	STD
Student	47	70	64.79	34.214
Faculty	15	40	47.00	19.982
Technical Support	5	50	64.00	36.469
Administration	5	40	50.00	23.452

Students

Faculty

Administration

Technical Support

Stakeholder Results, MES Statistics for Indicator T8 by Group

	n	Median	Mean	STD
Student	47	60	64.79	34.309
Faculty	15	40	48.67	19.500
Technical Support	5	50	66.00	34.351
Administration	5	80	76.00	29.665

Students

T8

Faculty

T8

Administration

Technology 8

Technical Support

Technology 8

Stakeholder Results, MES Statistics for Indicator T9 by Group

	N	Median	Mean	STD
Student	48	40	57.83	30.233
Faculty	15	40	50.20	19.065
Technical Support	5	40	58.00	26.833
Administration	5	50	60.00	35.355

Students

Faculty

Administration

Technical Support

Stakeholder Results, MES Statistics for Indicator T10 by Group

	N	Median	Mean	STD
Student	47	60	60.53	28.632
Faculty	15	40	46.67	21.602
Technical Support	5	40	64.00	35.777
Administration	5	70	65.00	17.808

Students

T10

Std. Dev = 28.63
Mean = 60.5
N = 47.00

Faculty

T10

Std. Dev = 21.60
Mean = 46.7
N = 15.00

Administration

Technology 10

Technical Support

Technology 10

Stakeholder Results, MES Statistics for Indicator C&I 2 by Group

	n	Median	Mean	STD
Student	45	40	52.56	32.589
Faculty	15	40	46.00	15.024
Technical Support	5	60	72.00	36.332
Administration	5	40	42.00	17.889

Students

C&I2

Std. Dev = 32.59
Mean = 52.6
N = 45.00

C&I2

Faculty

C&I2

Std. Dev = 15.02
Mean = 46.0
N = 15.00

C&I2

Administration

C&I 2

C&I 2

Technical Support

C&I 2

C&I 2

Stakeholder Results, MES Statistics for Indicator C&I 3 by Group

	N	Median	Mean	STD
Student	45	40	55.22	33.183
Faculty	15	40	46.33	20.042
Technical Support	5	50	68.00	32.711
Administration	5	50	50.00	21.213

Students

Faculty

Administration

Technical Support

Stakeholder Results, MES Statistics for Indicator C&I4 by Group

	N	Median	Mean	STD
Student	45	60	61.56	33.521
Faculty	15	40	42.67	24.631
Technical Support	5	60	68.00	34.205
Administration	5	60	64.00	33.615

Students

C&I4

Faculty

C&I4

Administration

C&I 4

Technical Support

C&I 4

Stakeholder Results, MES Statistics for Indicator C&I 5 by Group

	n	Median	Mean	STD
Student	45	60	57.67	32.901
Faculty	15	40	52.67	22.190
Technical Support	5	50	54.00	43.359
Administration	5	40	52.00	17.889

Students

Faculty

Administration

Technical Support

Stakeholder Results, MES Statistics for Indicator C&I 6 by Group

	n	Median	Mean	STD
Student	45	60	61.33	36.172
Faculty	15	40	46.67	24.103
Technical Support	5	40	36.00	20.736
Administration	5	80	63.00	23.875

Students

C&I6

Faculty

C&I6

Administration

C&I 6

Technical Support

C&I 6

Stakeholder Results, MES Statistics for Indicator C&I 7 by Group

	n	Median	Mean	STD
Student	45	60	61.22	35.502
Faculty	15	40	54.00	23.770
Technical Support	5	40	60.00	34.641
Administration	5	50	56.00	15.166

Students — C&I7

Std. Dev = 35.50
Mean = 61.2
N = 45.00

Faculty — C&I7

Std. Dev = 23.77
Mean = 54.0
N = 15.00

Administration — C&I 7

Technical Support — C&I 7

Stakeholder Results, MES Statistics for Indicator C&I 8 by Group

	N	Median	Mean	STD
Student	45	40	50.11	32.272
Faculty	15	40	48.80	30.964
Technical Support	5	40	58.00	34.928
Administration	5	40	41.00	14.318

Students

C&I8

Faculty

C&I8

Administration

C&I 8

Technical Support

C&I 8

Stakeholder Results, MES Statistics for Indicator C&I 9 by Group

	N	Median	Mean	STD
Student	45	40	55.67	32.988
Faculty	15	40	40.33	25.387
Technical Support	5	40	50.00	29.284
Administration	5	40	41.00	2.236

Students

C&I9

Faculty

C&I9

Administration

C&I 9

Technical Support

C&I 9

Stakeholder Results, MES Statistics for Indicator C&I 10 by Group

	N	Median	Mean	STD
Student	45	40	55.33	34.002
Faculty	15	40	44.07	19.110
Technical Support	5	50	64.00	32.094
Administration	5	40	54.00	16.733

Students

C&I10

Std. Dev = 34.00
Mean = 55.3
N = 45.00

C&I10

Faculty

C&I10

Std. Dev = 19.11
Mean = 44.1
N = 15.00

C&I10

Administration

C&I 10

C&I 10

Technical Support

C&I 10

C&I 10

311

Stakeholder Results, MES Statistics for Indicator C&I 11 by Group

	n	Median	Mean	STD
Student	45	70	66.89	35.648
Faculty	15	40	54.67	27.740
Technical Support	5	50	52.00	32.711
Administration	5	60	58.40	14.588

Students

C&I11

Std. Dev = 35.65
Mean = 66.9
N = 45.00

C&I11

Faculty

C&I11

Std. Dev = 27.74
Mean = 54.7
N = 15.00

C&I11

Administration

C&I 11

C&I 11

Technical Support

C&I 11

C&I 11

Stakeholder Results, MES Statistics for Indicator C&I 12 by Group

	N	Median	Mean	STD
Student	45	40	57.11	31.793
Faculty	15	40	53.13	25.942
Technical Support	5	40	36.00	16.733
Administration	5	40	51.00	30.749

Students

C&I12

Std. Dev = 31.79
Mean = 57.1
N = 45.00

C&I12

Faculty

C&I12

Std. Dev = 25.94
Mean = 53.1
N = 15.00

C&I12

Administration

C&I 12

C&I 12

Technical Support

C&I 12

C&I 12

Stakeholder Results, MES Statistics for Indicator C&I 13 by Group

	n	Median	Mean	STD
Student	45	60	73.33	63.951
Faculty	15	40	57.13	33.515
Technical Support	5	40	52.00	26.833
Administration	5	50	58.00	21.679

Students

C&I13

Std. Dev = 63.95
Mean = 73.3
N = 45.00

C&I13

Faculty

C&I13

Std. Dev = 33.52
Mean = 57.1
N = 15.00

C&I13

Administration

C&I 13

C&I 13

Technical Support

C&I 13

C&I 13

Stakeholder Results, MES Statistics for Indicator C&I 14 by Group

	N	Median	Mean	STD
Student	44	40	60.23	47.921
Faculty	15	40	41.07	23.723
Technical Support	5	40	38.00	4.472
Administration	5	40	43.00	22.804

Students

C&I14

Std. Dev = 47.92
Mean = 60.2
N = 44.00

C&I14

Faculty

C&I14

Std. Dev = 23.72
Mean = 41.1
N = 15.00

C&I14

Administration

C&I 14

C&I 14

Technical Support

C&I 14

C&I 14

	N	Median	Mean	STD
Student	43	40	53.26	30.509
Faculty	15	40	41.13	20.788
Technical Support	5	40	52.00	26.833
Administration	5	40	34.00	8.944

Students

Faculty

Administration

Technical Support

Stakeholder Results, MES Statistics for Indicator F3 by Group

	n	Median	Mean	STD
Student	43	40	60.58	50.641
Faculty	15	40	43.47	21.520
Technical Support	5	50	58.00	20.494
Administration	5	60	46.00	19.494

Students

F3

Std. Dev = 50.64
Mean = 60.6
N = 43.00

F3

Faculty

F3

Std. Dev = 21.52
Mean = 43.5
N = 15.00

F3

Administration

Faculty 3

Faculty 3

Technical Support

Faculty 3

Faculty 3

Stakeholder Results, MES Statistics for Indicator F4 by Group

	N	Median	Mean	STD
Student	43	40	51.28	32.988
Faculty	15	20	28.07	25.050
Technical Support	5	40	34.00	8.944
Administration	5	30	30.00	10.00

Students

F4

Std. Dev = 32.99
Mean = 51.3
N = 43.00

F4

Faculty

F4

Std. Dev = 25.05
Mean = 28.1
N = 15.00

F4

Administration

Faculty 4

Faculty 4

Technical Support

Faculty 4

Faculty 4

Stakeholder Results, MES Statistics for Indicator F5 by Group

	N	Median	Mean	STD
Student	43	40	56.74	49.025
Faculty	15	20	31.53	26.718
Technical Support	5	40	34.00	8.944
Administration	5	40	36.00	15.166

Students

F5

Std. Dev = 49.02
Mean = 56.7
N = 43.00

F5

Faculty

F5

Std. Dev = 26.72
Mean = 31.5
N = 15.00

F5

Administration

Faculty 5

Faculty 5

Technical Support

Faculty 5

Faculty 5

Stakeholder Results, MES Statistics for Indicator F6 by Group

	N	Median	Mean	STD
Student	43	60	59.19	34.398
Faculty	15	40	49.53	19.975
Technical Support	5	50	55.00	28.284
Administration	5	70	72.00	8.637

Students

F6

Std. Dev = 34.40
Mean = 59.2
N = 43.00

F6

Faculty

F6

Std. Dev = 19.97
Mean = 49.5
N = 15.00

F6

Administration

Faculty 6

Faculty 6

Technical Support

Faculty 6

Faculty 6

Stakeholder Results, MES Statistics for Indicator F7 by Group

	n	Median	Mean	STD
Student	43	40	53.37	31.599
Faculty	15	40	44.53	23.046
Technical Support	5	50	66.00	34.351
Administration	4	70	75.00	34.157

Students

F7

Faculty

F7

Administration

Faculty 7

Technical Support

Faculty 7

Stakeholder Results, MES Statistics for Indicator F8 by Group

	n	Median	Mean	STD
Student	42	55	59.17	32.814
Faculty	15	40	50.67	23.212
Technical Support	5	50	52.00	29.496
Administration	4	60	67.50	41.130

Students

F8

Faculty

F8

Administration

Faculty 8

Technical Support

Faculty 8

Stakeholder Results, MES Statistics for Indicator S2 by Group

	n	Median	Mean	STD
Student	43	80	68.02	35.492
Faculty	15	40	50.00	21.381
Technical Support	5	50	64.00	36.469
Administration	4	50	55.00	19.149

Students

S2

S2

Std. Dev = 35.49
Mean = 68.0
N = 43.00

Faculty

S2

S2

Std. Dev = 21.38
Mean = 50.0
N = 15.00

Administration

Student 2

Student 2

Technical Support

Student 2

Student 2

Stakeholder Results, MES Statistics for Indicator S3 by Group

	n	Median	Mean	STD
Student	43	60	61.51	31.633
Faculty	15	40	59.33	29.633
Technical Support	5	40	50.00	20.000
Administration	4	60	52.50	34.034

Students

Faculty

Administration

Technical Support

Stakeholder Results, MES Statistics for Indicator S4 by Group

	n	Median	Mean	STD
Student	43	60	83.23	147.524
Faculty	15	40	47.67	27.830
Technical Support	5	80	82.00	37.683
Administration	4	40	47.50	22.174

Students

S4

Std. Dev = 147.52
Mean = 83.2
N = 43.00

S4

Faculty

S4

Std. Dev = 27.83
Mean = 47.7
N = 15.00

S4

Administration

Student 4

Student 4

Technical Support

Student 4

Student 4

Stakeholder Results, MES Statistics for Indicator S5 by Group

	n	Median	Mean	STD
Student	43	40	54.19	31.966
Faculty	15	40	53.33	32.660
Technical Support	5	80	70.00	37.417
Administration	4	40	40.00	32.660

Students

Faculty

Administration

Technical Support

Stakeholder Results, MES Statistics for Indicator S6 by Group

	N	Median	Mean	STD
Student	43	40	54.19	34.086
Faculty	15	50	53.00	28.896
Technical Support	5	50	60.00	33.912
Administration	4	40	57.50	41.920

Students

Faculty

Administration

Technical Support

Stakeholder Results, MES Statistics for Indicator S7 by Group

	n	Median	Mean	STD
Student	43	60	66.74	32.930
Faculty	15	40	50.60	2.136
Technical Support	5	40	58.00	34.928
Administration	4	60	60.00	16.330

Students

Faculty

Administration

Technical Support

Stakeholder Results, MES Statistics for Indicator S8 by Group

	n	Median	Mean	STD
Student	43	50	64.07	36.876
Faculty	15	40	48.67	20.999
Technical Support	5	60	70.00	31.623
Administration	4	50	52.50	22.174

Students

S8

Std. Dev = 36.88
Mean = 64.1
N = 43.00

Faculty

S8

Std. Dev = 21.00
Mean = 48.7
N = 15.00

Administration

Student 8

Technical Support

Student 8

Stakeholder Results, MES Statistics for Indicator S9 by Group

	n	Median	Mean	STD
Student	43	60	61.86	28.744
Faculty	15	40	51.33	28.251
Technical Support	5	60	70.00	31.623
Administration	4	60	70.00	24.641

Students

S9

Std. Dev = 28.74
Mean = 61.9
N = 43.00

S9

Faculty

S9

Std. Dev = 28.25
Mean = 51.3
N = 15.00

S9

Administration

Student 9

Student 9

Technical Support

Student 9

Student 9

Stakeholder Results, MES Statistics for Indicator S10 by Group

	N	Median	Mean	STD
Student	42	45	68.69	62.226
Faculty	15	40	40.07	23.484
Technical Support	5	50	60.00	33.192
Administration	4	40	40.00	16.330

Students

S10

Std. Dev = 62.23
Mean = 68.7
N = 42.00

S10

Faculty

S10

Std. Dev = 23.48
Mean = 40.1
N = 15.00

S10

Administration

Student 10

Student 10

Technical Support

Student 10

Student 10

Stakeholder Results, MES Statistics for Indicator S11 by Group

	N	Median	Mean	STD
Student	42	50	60.70	33.141
Faculty	15	40	50.67	28.900
Technical Support	5	50	74.00	42.190
Administration	4	40	42.50	12.583

Students

S11

Faculty

S11

Administration

Student 11

Technical Support

Student 11

	n	Median	Mean	STD
Student	43	60	60.81	30.471
Faculty	15	40	49.93	27.099
Technical Support	5	50	62.00	33.466
Administration	4	30	35.00	19.148

Students

Faculty

Administration

Technical Support

Stakeholder Results, MES Statistics for Indicator S13 by Group

	n	Median	Mean	STD
Student	43	60	61.55	29.847
Faculty	15	40	55.13	31.229
Technical Support	5	40	38.00	26.833
Administration	4	54	62.50	17.078

Students

S13

Std. Dev = 29.85
Mean = 61.5
N = 42.00

Faculty

S13

Std. Dev = 31.23
Mean = 55.1
N = 15.00

Administration

Student 13

Technical Support

Student 13

Stakeholder Results, MES Statistics for Indicator S14 by Group

	n	Median	Mean	STD
Student	42	60	62.86	31.257
Faculty	15	40	55.00	32.678
Technical Support	5	50	62.00	33.466
Administration	4	40	50.00	20.000

Students

S14

Std. Dev = 31.26
Mean = 62.9
N = 42.00

Faculty

S14

Std. Dev = 32.68
Mean = 55.0
N = 15.00

Administration

Student 14

Technical Support

Student 14

Stakeholder Results, MES Statistics for Indicator S15 by Group

	N	Median	Mean	STD
Student	42	55	63.40	36.493
Faculty	15	40	47.73	24.855
Technical Support	5	60	66.00	24.083
Administration	4	55	57.50	17.078

Students

S15

Std. Dev = 36.49
Mean = 63.4
N = 42.00

S15

Faculty

S15

Std. Dev = 24.86
Mean = 47.7
N = 15.00

S15

+Administration

Student 15

Student 15

Technical Support

Student 15

Student 15

Stakeholder Results, MES Statistics for Indicator E2 by Group

	n	Median	Mean	STD
Student	42	40	52.02	27.960
Faculty	14	40	43.57	27.346
Technical Support	5	40	46.00	35.777
Administration	4	25	27.50	9.574

Students

E&A2

Std. Dev = 27.96
Mean = 52.0
N = 42.00

E&A2

Faculty

E&A2

Std. Dev = 27.35
Mean = 43.6
N = 14.00

E&A2

Administration

E & A 2

E & A 2

Technical Support

E & A 2

E & A 2

Stakeholder Results, MES Statistics for Indicator E&A 3 by Group

	N	Median	Mean	STD
Student	42	40	52.74	28.653
Faculty	14	40	53.57	19.848
Technical Support	5	40	46.00	31.305
Administration	4	40	42.50	12.583

Students

Faculty

Administration

Technical Support

	N	Median	Mean	STD
Student	41	40	49.64	30.028
Faculty	14	40	32.21	15.621
Technical Support	5	40	32.00	22.804
Administration	4	35	45.00	23.805

Students

E&A4

Std. Dev = 30.03
Mean = 49.6
N = 42.00

E&A4

Faculty

E&A4

Std. Dev = 15.62
Mean = 32.2
N = 14.00

E&A4

Administration

E & A 4

E & A 4

Technical Support

E & A 4

E & A 4

Stakeholder Results, MES Statistics for Indicator E&A 5 by Group

	N	Median	Mean	STD
Student	42	40	50.48	29.213
Faculty	14	40	42.14	25.774
Technical Support	5	40	34.00	13.146
Administration	4	35	40.00	31.623

Students

Faculty

Administration

Technical Support

Stakeholder Results, MES Statistics for Indicator E6 by Group

	n	Median	Mean	STD
Student	42	60	59.17	33.676
Faculty	14	40	52.93	38.009
Technical Support	5	40	36.00	39.665
Administration	4	45	57.50	45.00

Students

E&A6

Std. Dev = 33.68
Mean = 59.2
N = 42.00

E&A6

Faculty

E&A6

Std. Dev = 38.01
Mean = 52.9
N = 14.00

E&A6

Administration

E & A 6

E & A 6

Technical Support

E & A 6

E & A 6

Stakeholder Results, MES Statistics for Indicator E&A 7 by Group

	N	Median	Mean	STD
Student	42	40	57.64	32.959
Faculty	14	40	44.71	30.552
Technical Support	5	40	54.00	35.777
Administration	4	35	43.75	21.360

Students

E&A7

Faculty

E&A7

Administration

E & A 7

Technical Support

E & A 7

Stakeholder Results, MES Statistics for Indicator E&A 8 by Group

	N	Median	Mean	STD
Student	42	40	54.05	36.009
Faculty	14	30	42.93	32.345
Technical Support	5	40	50.00	30.000
Administration	4	40	45.00	25.166

Students

E&A8

Std. Dev = 36.01
Mean = 54.0
N = 42.00

E&A8

Faculty

E&A8

Std. Dev = 32.35
Mean = 42.9
N = 14.00

E&A8

Administration

E & A 8

E & A 8

Technical Support

E & A 8

E & A 8

Stakeholder Results, MES Statistics for Indicator E&A 9 by Group

	N	Median	Mean	STD
Student	42	50	61.79	32.494
Faculty	14	40	43.57	16.458
Technical Support	5	50	74.00	42.190
Administration	4	40	35.00	10.000

Students

E&A9

Std. Dev = 32.49
Mean = 61.8
N = 42.00

E&A9

Faculty

E&A9

Std. Dev = 16.46
Mean = 43.6
N = 14.00

E&A9

Administration

E & A 9

E & A 9

Technical Support

E & A 9

E & A 9

Stakeholder Results, MES Statistics for Indicator E&A 10 by Group

	N	Median	Mean	STD
Student	42	40	48.57	29.286
Faculty	14	40	57.86	34.681
Technical Support	5	40	58.00	49.193
Administration	4	55	45.00	35.590

Students

E&A10

Std. Dev = 29.29
Mean = 48.6
N = 42.00

E&A10

Faculty

E&A10

Std. Dev = 34.68
Mean = 57.9
N = 14.00

E&A10

Administration

E & A 10

E & A 10

Technical Support

E & A 10

E & A 10

Stakeholder Results, MES Statistics for Indicator E&A 11 by Group

	N	Median	Mean	STD
Student	42	40	56.19	32.737
Faculty	14	40	45.86	32.774
Technical Support	5	40	58.00	49.193
Administration	4	40	45.00	17.321

Students

E&A11

Faculty

E&A11

Administration

E & A 11

Technical Support

E & A 11

Stakeholder Results, MES Statistics for Indicator E&A 12 by Group

	N	Median	Mean	STD
Student	42	40	52.14	31.490
Faculty	14	40	42.50	22.596
Technical Support	5	40	38.00	26.833
Administration	4	50	50.00	34.641

Students

E&A12

Std. Dev = 31.49
Mean = 52.1
N = 42.00

E&A12

Faculty

E&A12

Std. Dev = 22.60
Mean = 42.5
N = 14.00

E&A12

Administration

E & A 12

E & A 12

Technical Support

E & A 12

E & A 12

Stakeholder Results, MES Statistics for Indicator E&A 13 by Group

	N	Median	Mean	STD
Student	42	40	51.90	32.252
Faculty	14	40	38.29	27.463
Technical Support	5	40	46.00	24.083
Administration	4	40	47.50	22.174

Students

E&A13

Std. Dev = 32.25
Mean = 51.9
N = 42.00

E&A13

Faculty

E&A13

Std. Dev = 27.46
Mean = 38.3
N = 14.00

E&A13

Administration

E & A 13

E & A 13

Technical Support

E & A 13

E & A 13

APPENDIX G: ANOVA STATISTICS, STAKEHOLDER SURVEYS

The stakeholder data was analyzed using SPSS v 11.5, and the following tables were

generated using a non-directional ANOVA and selected Post Hoc tests. The data within

the following categories utilized the following numerical coding:

Gender: 1 = male and 2 = female.

Ethnicity Codes

  1 = White/Caucasian
  2 = Black/African American
  3 = Hispanic/Latin
  4 = Asian/Pacific Islander
  5 = Alaskan or Native American

Age Range Codes

  2 = "18 – 22"
  3 = "23 – 28"
  4 = "29 – 34"
  5 = "35 – 40"
  6 = "over 40"

Tests of Between-Subjects Effects

Dependent Variable: I2

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	23535.092(b)	30	784.503	1.132	.361	.500	33.965	.704
Intercept	44060.105	1	44060.105	63.585	.000	.652	63.585	1.000
STKHD_GR	1685.874	3	561.958	.811	.497	.067	2.433	.206
GENDER	110.022	1	110.022	.159	.693	.005	.159	.067
ETHNICIT	4146.211	3	1382.070	1.995	.133	.150	5.984	.467
AGE	2541.220	4	635.305	.917	.465	.097	3.667	.259
STKHD_GR * GENDER	293.962	3	97.987	.141	.934	.012	.424	.073
STKHD_GR * ETHNICIT	3980.407	2	1990.204	2.872	.070	.145	5.744	.525
GENDER * ETHNICIT	576.190	1	576.190	.832	.368	.024	.832	.144
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	713.707	2	356.854	.515	.602	.029	1.030	.128
GENDER * AGE	2062.617	4	515.654	.744	.569	.081	2.977	.215
STKHD_GR * GENDER * AGE	1.378	1	1.378	.002	.965	.000	.002	.050
ETHNICIT * AGE	3901.759	3	1300.586	1.877	.152	.142	5.631	.442
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	23559.524	34	692.927					
Total	173375.000	65						
Corrected Total	47094.615	64						

a Computed using alpha = .05
b R Squared = .500 (Adjusted R Squared = .058)

Tests of Between-Subjects Effects

Dependent Variable: I3

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	21752.557(b)	30	725.085	1.155	.341	.505	34.636	.715
Intercept	43919.454	1	43919.454	69.933	.000	.673	69.933	1.000
STKHD_GR	471.661	3	157.220	.250	.861	.022	.751	.093
GENDER	95.863	1	95.863	.153	.698	.004	.153	.067
ETHNICIT	1601.873	3	533.958	.850	.476	.070	2.551	.215
AGE	2745.889	4	686.472	1.093	.376	.114	4.372	.306
STKHD_GR * GENDER	1633.485	3	544.495	.867	.468	.071	2.601	.218
STKHD_GR * ETHNICIT	2316.122	2	1158.061	1.844	.174	.098	3.688	.357
GENDER * ETHNICIT	76.190	1	76.190	.121	.730	.004	.121	.063
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	186.514	2	93.257	.148	.863	.009	.297	.071
GENDER * AGE	357.007	4	89.252	.142	.965	.016	.568	.076
STKHD_GR * GENDER * AGE	678.241	1	678.241	1.080	.306	.031	1.080	.173
ETHNICIT * AGE	1448.045	3	482.682	.769	.520	.064	2.306	.197
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	21352.827	34	628.024					
Total	223050.000	65						
Corrected Total	43105.385	64						

a Computed using alpha = .05
b R Squared = .505 (Adjusted R Squared = .068)

Tests of Between-Subjects Effects

Dependent Variable: I4

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	49102.747(b)	30	1636.758	1.604	.091	.586	48.132	.883
Intercept	56035.620	1	56035.620	54.928	.000	.618	54.928	1.000
STKHD_GR	243.465	3	81.155	.080	.971	.007	.239	.063
GENDER	195.510	1	195.510	.192	.664	.006	.192	.071
ETHNICIT	1225.061	3	408.354	.400	.754	.034	1.201	.121
AGE	10708.567	4	2677.142	2.624	.052	.236	10.497	.672
STKHD_GR * GENDER	7979.598	3	2659.866	2.607	.068	.187	7.822	.588
STKHD_GR * ETHNICIT	4275.645	2	2137.823	2.096	.139	.110	4.191	.400
GENDER * ETHNICIT	.000	1	.000	.000	1.000	.000	.000	.050
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	1356.911	2	678.456	.665	.521	.038	1.330	.152
GENDER * AGE	6570.916	4	1642.729	1.610	.194	.159	6.441	.442
STKHD_GR * GENDER * AGE	925.325	1	925.325	.907	.348	.026	.907	.152
ETHNICIT * AGE	3731.450	3	1243.817	1.219	.318	.097	3.658	.297
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	34685.714	34	1020.168					
Total	326875.000	65						
Corrected Total	83788.462	64						

a Computed using alpha = .05
b R Squared = .586 (Adjusted R Squared = .221)

Tests of Between-Subjects Effects

Dependent Variable: I5

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	39053.086(b)	30	1301.770	2.384	.008	.678	71.509	.983
Intercept	53270.134	1	53270.134	97.541	.000	.742	97.541	1.000
STKHD_GR	1261.159	3	420.386	.770	.519	.064	2.309	.197
GENDER	789.763	1	789.763	1.446	.237	.041	1.446	.215
ETHNICIT	4311.378	3	1437.126	2.631	.066	.188	7.894	.592
AGE	9880.650	4	2470.162	4.523	.005	.347	18.092	.907
STKHD_GR * GENDER	2620.833	3	873.611	1.600	.208	.124	4.799	.382
STKHD_GR * ETHNICIT	5347.103	2	2673.551	4.895	.014	.224	9.791	.768
GENDER * ETHNICIT	4004.762	1	4004.762	7.333	.011	.177	7.333	.749
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	2386.355	2	1193.177	2.185	.128	.114	4.370	.415
GENDER * AGE	3142.744	4	785.686	1.439	.243	.145	5.755	.398
STKHD_GR * GENDER * AGE	1371.713	1	1371.713	2.512	.122	.069	2.512	.338
ETHNICIT * AGE	11575.743	3	3858.581	7.065	.001	.384	21.196	.967
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	18568.452	34	546.131					
Total	252600.000	65						
Corrected Total	57621.538	64						

a Computed using alpha = .05
b R Squared = .678 (Adjusted R Squared = .393)

353

Tests of Between-Subjects Effects

Dependent Variable: I6

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	29156.422(b)	30	971.881	1.279	.243	.530	38.364	.773
Intercept	63406.487	1	63406.487	83.430	.000	.710	83.430	1.000
STKHD_GR	935.380	3	311.793	.410	.747	.035	1.231	.123
GENDER	6.248	1	6.248	.008	.928	.000	.008	.051
ETHNICIT	3299.906	3	1099.969	1.447	.246	.113	4.342	.348
AGE	13247.706	4	3311.927	4.358	.006	.339	17.431	.895
STKHD_GR * GENDER	331.566	3	110.522	.145	.932	.013	.436	.074
STKHD_GR * ETHNICIT	3033.993	2	1516.997	1.996	.151	.105	3.992	.384
GENDER * ETHNICIT	267.857	1	267.857	.352	.557	.010	.352	.089
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	2147.717	2	1073.858	1.413	.257	.077	2.826	.282
GENDER * AGE	6108.931	4	1527.233	2.010	.115	.191	8.038	.541
STKHD_GR * GENDER * AGE	125.598	1	125.598	.165	.687	.005	.165	.068
ETHNICIT * AGE	1698.139	3	566.046	.745	.533	.062	2.234	.192
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	25839.732	34	759.992					
Total	262775.000	65						
Corrected Total	54996.154	64						

a Computed using alpha = .05
b R Squared = .530 (Adjusted R Squared = .116)

354

Tests of Between-Subjects Effects

Dependent Variable: I7

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	23793.956(b)	30	793.132	1.241	.270	.523	37.244	.757
Intercept	27915.138	1	27915.138	43.695	.000	.562	43.695	1.000
STKHD_GR	1174.981	3	391.660	.613	.611	.051	1.839	.164
GENDER	249.448	1	249.448	.390	.536	.011	.390	.093
ETHNICIT	7005.961	3	2335.320	3.655	.022	.244	10.966	.750
AGE	721.303	4	180.326	.282	.887	.032	1.129	.105
STKHD_GR * GENDER	149.730	3	49.910	.078	.971	.007	.234	.063
STKHD_GR * ETHNICIT	1987.866	2	993.933	1.556	.226	.084	3.112	.307
GENDER * ETHNICIT	171.429	1	171.429	.268	.608	.008	.268	.080
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	50.892	2	25.446	.040	.961	.002	.080	.056
GENDER * AGE	959.623	4	239.906	.376	.824	.042	1.502	.125
STKHD_GR * GENDER * AGE	406.938	1	406.938	.637	.430	.018	.637	.121
ETHNICIT * AGE	5393.059	3	1797.686	2.814	.054	.199	8.442	.625
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	21721.429	34	638.866					
Total	147525.000	65						
Corrected Total	45515.385	64						

a Computed using alpha = .05
b R Squared = .523 (Adjusted R Squared = .102)

Tests of Between-Subjects Effects

Dependent Variable: I8

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	32311.987(b)	30	1077.066	1.072	.419	.486	32.173	.673
Intercept	45799.415	1	45799.415	45.602	.000	.573	45.602	1.000
STKHD_GR	246.201	3	82.067	.082	.970	.007	.245	.063
GENDER	2504.834	1	2504.834	2.494	.124	.068	2.494	.336
ETHNICIT	6525.014	3	2175.005	2.166	.110	.160	6.497	.503
AGE	4792.554	4	1198.139	1.193	.332	.123	4.772	.333
STKHD_GR * GENDER	304.559	3	101.520	.101	.959	.009	.303	.066
STKHD_GR * ETHNICIT	2588.898	2	1294.449	1.289	.289	.070	2.578	.260
GENDER * ETHNICIT	1296.429	1	1296.429	1.291	.264	.037	1.291	.197
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	291.813	2	145.906	.145	.865	.008	.291	.071
GENDER * AGE	1261.605	4	315.401	.314	.867	.036	1.256	.112
STKHD_GR * GENDER * AGE	93.511	1	93.511	.093	.762	.003	.093	.060
ETHNICIT * AGE	2019.913	3	673.304	.670	.576	.056	2.011	.176
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	34146.875	34	1004.320					
Total	244619.000	65						
Corrected Total	66458.862	64						

a Computed using alpha = .05

b R Squared = .486 (Adjusted R Squared = .033)

Tests of Between-Subjects Effects

Dependent Variable: I9

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	29666.822(b)	30	988.894	1.048	.445	.480	31.426	.659
Intercept	33938.131	1	33938.131	35.950	.000	.514	35.950	1.000
STKHD_GR	800.587	3	266.862	.283	.838	.024	.848	.099
GENDER	419.181	1	419.181	.444	.510	.013	.444	.099
ETHNICIT	1367.946	3	455.982	.483	.696	.041	1.449	.137
AGE	3940.389	4	985.097	1.044	.399	.109	4.174	.293
STKHD_GR * GENDER	180.882	3	60.294	.064	.979	.006	.192	.060
STKHD_GR * ETHNICIT	2562.937	2	1281.469	1.357	.271	.074	2.715	.272
GENDER * ETHNICIT	304.762	1	304.762	.323	.574	.009	.323	.086
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	353.036	2	176.518	.187	.830	.011	.374	.077
GENDER * AGE	1165.379	4	291.345	.309	.870	.035	1.234	.110
STKHD_GR * GENDER * AGE	28.480	1	28.480	.030	.863	.001	.030	.053
ETHNICIT * AGE	5754.270	3	1918.090	2.032	.128	.152	6.095	.475
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	32097.024	34	944.030					
Total	203475.000	65						
Corrected Total	61763.846	64						

a Computed using alpha = .05
b R Squared = .480 (Adjusted R Squared = .022)

Tests of Between-Subjects Effects

Dependent Variable: I10

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	94806.250(b)	30	3160.208	1.134	.361	.508	34.011	.698
Intercept	37536.272	1	37536.272	13.466	.001	.290	13.466	.945
STKHD_GR	2399.998	3	799.999	.287	.834	.025	.861	.099
GENDER	981.738	1	981.738	.352	.557	.011	.352	.089
ETHNICIT	3123.894	3	1041.298	.374	.773	.033	1.121	.116
AGE	15299.801	4	3824.950	1.372	.265	.143	5.489	.379
STKHD_GR * GENDER	18142.429	3	6047.476	2.169	.110	.165	6.508	.502
STKHD_GR * ETHNICIT	2646.041	2	1323.021	.475	.626	.028	.949	.121
GENDER * ETHNICIT	6696.429	1	6696.429	2.402	.131	.068	2.402	.325
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	8265.363	2	4132.681	1.483	.242	.082	2.965	.294
GENDER * AGE	15337.645	4	3834.411	1.376	.264	.143	5.502	.380
STKHD_GR * GENDER * AGE	3471.224	1	3471.224	1.245	.273	.036	1.245	.192
ETHNICIT * AGE	4480.321	3	1493.440	.536	.661	.046	1.607	.148
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	91987.500	33	2787.500					
Total	449450.000	64						
Corrected Total	186793.750	63						

a Computed using alpha = .05
b R Squared = .508 (Adjusted R Squared = .060)

Tests of Between-Subjects Effects

Dependent Variable: I11

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	95491.312(b)	30	3183.044	1.183	.316	.511	35.486	.729
Intercept	71845.789	1	71845.789	26.699	.000	.440	26.699	.999
STKHD_GR	1649.305	3	549.768	.204	.893	.018	.613	.084
GENDER	2396.742	1	2396.742	.891	.352	.026	.891	.151
ETHNICIT	7057.836	3	2352.612	.874	.464	.072	2.623	.220
AGE	12333.508	4	3083.377	1.146	.352	.119	4.583	.320
STKHD_GR * GENDER	10016.737	3	3338.912	1.241	.310	.099	3.722	.302
STKHD_GR * ETHNICIT	1379.346	2	689.673	.256	.775	.015	.513	.087
GENDER * ETHNICIT	8400.000	1	8400.000	3.122	.086	.084	3.122	.404
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	14775.822	2	7387.911	2.745	.078	.139	5.491	.506
GENDER * AGE	24215.956	4	6053.989	2.250	.084	.209	8.999	.595
STKHD_GR * GENDER * AGE	2657.656	1	2657.656	.988	.327	.028	.988	.162
ETHNICIT * AGE	5029.120	3	1676.373	.623	.605	.052	1.869	.166
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	91493.304	34	2690.980					
Total	523225.000	65						
Corrected Total	186984.615	64						

a Computed using alpha = .05
b R Squared = .511 (Adjusted R Squared = .079)

Tests of Between-Subjects Effects

Dependent Variable: I12

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	34925.353(b)	30	1164.178	1.405	.171	.561	42.137	.816
Intercept	58562.338	1	58562.338	70.654	.000	.682	70.654	1.000
STKHD_GR	4706.268	3	1568.756	1.893	.150	.147	5.678	.444
GENDER	357.166	1	357.166	.431	.516	.013	.431	.098
ETHNICIT	2645.520	3	881.840	1.064	.378	.088	3.192	.261
AGE	7981.956	4	1995.489	2.408	.069	.226	9.630	.626
STKHD_GR * GENDER	707.860	3	235.953	.285	.836	.025	.854	.099
STKHD_GR * ETHNICIT	1997.619	2	998.810	1.205	.313	.068	2.410	.245
GENDER * ETHNICIT	2201.190	1	2201.190	2.656	.113	.074	2.656	.353
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	28.940	2	14.470	.017	.983	.001	.035	.052
GENDER * AGE	2518.923	4	629.731	.760	.559	.084	3.039	.218
STKHD_GR * GENDER * AGE	84.256	1	84.256	.102	.752	.003	.102	.061
ETHNICIT * AGE	5342.588	3	1780.863	2.149	.113	.163	6.446	.498
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	27352.381	33	828.860					
Total	261975.000	64						
Corrected Total	62277.734	63						

a Computed using alpha = .05

b R Squared = .561 (Adjusted R Squared = .162)

360

Tests of Between-Subjects Effects

Dependent Variable: I13

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	42314.639(b)	30	1410.488	1.620	.089	.596	48.590	.882
Intercept	60806.563	1	60806.563	69.824	.000	.679	69.824	1.000
STKHD_GR	817.854	3	272.618	.313	.816	.028	.939	.104
GENDER	5.735	1	5.735	.007	.936	.000	.007	.051
ETHNICIT	4071.073	3	1357.024	1.558	.218	.124	4.675	.372
AGE	5575.014	4	1393.753	1.600	.197	.162	6.402	.438
STKHD_GR * GENDER	6435.905	3	2145.302	2.463	.080	.183	7.390	.560
STKHD_GR * ETHNICIT	3202.869	2	1601.434	1.839	.175	.100	3.678	.356
GENDER * ETHNICIT	76.190	1	76.190	.087	.769	.003	.087	.060
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	2005.373	2	1002.687	1.151	.329	.065	2.303	.235
GENDER * AGE	4381.309	4	1095.327	1.258	.306	.132	5.031	.349
STKHD_GR * GENDER * AGE	566.519	1	566.519	.651	.426	.019	.651	.123
ETHNICIT * AGE	7036.105	3	2345.368	2.693	.062	.197	8.080	.602
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	28738.095	33	870.851					
Total	289025.000	64						
Corrected Total	71052.734	63						

a Computed using alpha = .05
b R Squared = .596 (Adjusted R Squared = .228)

361

Tests of Between-Subjects Effects

Dependent Variable: I14

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	33033.208(b)	30	1101.107	1.391	.178	.558	41.730	.811
Intercept	57438.265	1	57438.265	72.560	.000	.687	72.560	1.000
STKHD_GR	3274.783	3	1091.594	1.379	.266	.111	4.137	.332
GENDER	582.776	1	582.776	.736	.397	.022	.736	.133
ETHNICIT	2385.263	3	795.088	1.004	.403	.084	3.013	.248
AGE	6423.115	4	1605.779	2.029	.113	.197	8.114	.543
STKHD_GR * GENDER	1332.981	3	444.327	.561	.644	.049	1.684	.153
STKHD_GR * ETHNICIT	2617.326	2	1308.663	1.653	.207	.091	3.306	.323
GENDER * ETHNICIT	1219.048	1	1219.048	1.540	.223	.045	1.540	.226
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	338.187	2	169.093	.214	.809	.013	.427	.081
GENDER * AGE	2575.578	4	643.895	.813	.526	.090	3.254	.232
STKHD_GR * GENDER * AGE	88.221	1	88.221	.111	.741	.003	.111	.062
ETHNICIT * AGE	5178.390	3	1726.130	2.181	.109	.165	6.542	.504
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	26122.542	33	791.592					
Total	265726.000	64						
Corrected Total	59155.750	63						

a Computed using alpha = .05

b R Squared = .558 (Adjusted R Squared = .157)

Tests of Between-Subjects Effects

Dependent Variable: I15

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	85974.461(b)	30	2865.815	1.089	.404	.497	32.668	.675
Intercept	48089.120	1	48089.120	18.273	.000	.356	18.273	.986
STKHD_GR	2490.319	3	830.106	.315	.814	.028	.946	.105
GENDER	20.991	1	20.991	.008	.929	.000	.008	.051
ETHNICIT	7993.953	3	2664.651	1.013	.400	.084	3.038	.250
AGE	7299.184	4	1824.796	.693	.602	.078	2.774	.201
STKHD_GR * GENDER	6456.882	3	2152.294	.818	.493	.069	2.453	.207
STKHD_GR * ETHNICIT	4861.733	2	2430.866	.924	.407	.053	1.847	.196
GENDER * ETHNICIT	1904.762	1	1904.762	.724	.401	.021	.724	.131
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	10109.098	2	5054.549	1.921	.163	.104	3.841	.370
GENDER * AGE	17503.287	4	4375.822	1.663	.182	.168	6.651	.454
STKHD_GR * GENDER * AGE	2939.895	1	2939.895	1.117	.298	.033	1.117	.177
ETHNICIT * AGE	1121.999	3	374.000	.142	.934	.013	.426	.073
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	86847.024	33	2631.728					
Total	405025.000	64						
Corrected Total	172821.484	63						

a Computed using alpha = .05

b R Squared = .497 (Adjusted R Squared = .041)

Tests of Between-Subjects Effects

Dependent Variable: I16

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	34271.875(b)	30	1142.396	1.700	.070	.607	51.009	.901
Intercept	55718.378	1	55718.378	82.930	.000	.715	82.930	1.000
STKHD_GR	5399.302	3	1799.767	2.679	.063	.196	8.036	.599
GENDER	384.431	1	384.431	.572	.455	.017	.572	.114
ETHNICIT	6234.931	3	2078.310	3.093	.040	.219	9.280	.669
AGE	3054.982	4	763.745	1.137	.356	.121	4.547	.317
STKHD_GR * GENDER	1435.648	3	478.549	.712	.552	.061	2.137	.184
STKHD_GR * ETHNICIT	2779.174	2	1389.587	2.068	.142	.111	4.136	.395
GENDER * ETHNICIT	1296.429	1	1296.429	1.930	.174	.055	1.930	.271
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	816.173	2	408.087	.607	.551	.036	1.215	.143
GENDER * AGE	2932.687	4	733.172	1.091	.377	.117	4.365	.304
STKHD_GR * GENDER * AGE	118.524	1	118.524	.176	.677	.005	.176	.069
ETHNICIT * AGE	8251.388	3	2750.463	4.094	.014	.271	12.281	.800
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	22171.875	33	671.875					
Total	243500.000	64						
Corrected Total	56443.750	63						

a Computed using alpha = .05

b R Squared = .607 (Adjusted R Squared = .250)

Tests of Between-Subjects Effects

Dependent Variable: I17

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	59788.056(b)	30	1992.935	.544	.952	.331	16.334	.328
Intercept	59331.301	1	59331.301	16.209	.000	.329	16.209	.974
STKHD_GR	5104.167	3	1701.389	.465	.709	.041	1.394	.133
GENDER	2221.622	1	2221.622	.607	.441	.018	.607	.118
ETHNICIT	4052.153	3	1350.718	.369	.776	.032	1.107	.115
AGE	8681.371	4	2170.343	.593	.670	.067	2.372	.176
STKHD_GR * GENDER	4618.341	3	1539.447	.421	.739	.037	1.262	.125
STKHD_GR * ETHNICIT	3193.804	2	1596.902	.436	.650	.026	.873	.115
GENDER * ETHNICIT	1542.857	1	1542.857	.421	.521	.013	.421	.097
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	2519.372	2	1259.686	.344	.711	.020	.688	.100
GENDER * AGE	9871.727	4	2467.932	.674	.615	.076	2.697	.196
STKHD_GR * GENDER * AGE	2520.804	1	2520.804	.689	.413	.020	.689	.127
ETHNICIT * AGE	7945.550	3	2648.517	.724	.545	.062	2.171	.187
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	120793.304	33	3660.403					
Total	428959.000	64						
Corrected Total	180581.359	63						

a Computed using alpha = .05
b R Squared = .331 (Adjusted R Squared = -.277)

Tests of Between-Subjects Effects

Dependent Variable: T2

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	24598.107(b)	30	819.937	1.165	.332	.507	34.940	.721
Intercept	52917.498	1	52917.498	75.165	.000	.689	75.165	1.000
STKHD_GR	1810.812	3	603.604	.857	.473	.070	2.572	.216
GENDER	28.120	1	28.120	.040	.843	.001	.040	.054
ETHNICIT	2962.968	3	987.656	1.403	.259	.110	4.209	.338
AGE	3906.066	4	976.517	1.387	.259	.140	5.548	.384
STKHD_GR * GENDER	447.608	3	149.203	.212	.887	.018	.636	.086
STKHD_GR * ETHNICIT	4039.931	2	2019.966	2.869	.071	.144	5.738	.525
GENDER * ETHNICIT	2742.857	1	2742.857	3.896	.057	.103	3.896	.483
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	409.432	2	204.716	.291	.750	.017	.582	.092
GENDER * AGE	2766.341	4	691.585	.982	.430	.104	3.929	.277
STKHD_GR * GENDER * AGE	656.186	1	656.186	.932	.341	.027	.932	.155
ETHNICIT * AGE	5901.143	3	1967.048	2.794	.055	.198	8.382	.621
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	23936.508	34	704.015					
Total	259150.000	65						
Corrected Total	48534.615	64						

a Computed using alpha = .05
b R Squared = .507 (Adjusted R Squared = .072)

Tests of Between-Subjects Effects

Dependent Variable: T3

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	41771.477(b)	30	1392.383	1.877	.039	.623	56.298	.938
Intercept	60540.841	1	60540.841	81.595	.000	.706	81.595	1.000
STKHD_GR	2705.187	3	901.729	1.215	.319	.097	3.646	.296
GENDER	149.580	1	149.580	.202	.656	.006	.202	.072
ETHNICIT	17.424	3	5.808	.008	.999	.001	.023	.051
AGE	14211.964	4	3552.991	4.789	.004	.360	19.154	.923
STKHD_GR * GENDER	672.870	3	224.290	.302	.824	.026	.907	.102
STKHD_GR * ETHNICIT	8226.965	2	4113.483	5.544	.008	.246	11.088	.821
GENDER * ETHNICIT	8004.762	1	8004.762	10.789	.002	.241	10.789	.891
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	1267.840	2	633.920	.854	.434	.048	1.709	.184
GENDER * AGE	5817.436	4	1454.359	1.960	.123	.187	7.841	.529
STKHD_GR * GENDER * AGE	1225.609	1	1225.609	1.652	.207	.046	1.652	.239
ETHNICIT * AGE	4689.939	3	1563.313	2.107	.118	.157	6.321	.491
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	25226.984	34	741.970					
Total	340325.000	65						
Corrected Total	66998.462	64						

a Computed using alpha = .05
b R Squared = .623 (Adjusted R Squared = .291)

Tests of Between-Subjects Effects

Dependent Variable: T4

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	28706.716(b)	30	956.891	1.628	.085	.590	48.846	.889
Intercept	49023.920	1	49023.920	83.417	.000	.710	83.417	1.000
STKHD_GR	2453.549	3	817.850	1.392	.262	.109	4.175	.336
GENDER	658.998	1	658.998	1.121	.297	.032	1.121	.177
ETHNICIT	247.367	3	82.456	.140	.935	.012	.421	.073
AGE	8586.742	4	2146.685	3.653	.014	.301	14.611	.828
STKHD_GR * GENDER	2021.850	3	673.950	1.147	.344	.092	3.440	.281
STKHD_GR * ETHNICIT	4933.592	2	2466.796	4.197	.023	.198	8.395	.699
GENDER * ETHNICIT	5504.762	1	5504.762	9.367	.004	.216	9.367	.844
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	1044.387	2	522.193	.889	.421	.050	1.777	.190
GENDER * AGE	1968.090	4	492.023	.837	.511	.090	3.349	.239
STKHD_GR * GENDER * AGE	683.812	1	683.812	1.164	.288	.033	1.164	.182
ETHNICIT * AGE	4402.753	3	1467.584	2.497	.076	.181	7.492	.568
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	19981.746	34	587.698					
Total	253650.000	65						
Corrected Total	48688.462	64						

a Computed using alpha = .05
b R Squared = .590 (Adjusted R Squared = .227)

Tests of Between-Subjects Effects

Dependent Variable: T5

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	28882.430(b)	30	962.748	1.353	.196	.544	40.585	.803
Intercept	57603.254	1	57603.254	80.943	.000	.704	80.943	1.000
STKHD_GR	1754.124	3	584.708	.822	.491	.068	2.465	.209
GENDER	187.988	1	187.988	.264	.611	.008	.264	.079
ETHNICIT	4440.558	3	1480.186	2.080	.121	.155	6.240	.485
AGE	4992.357	4	1248.089	1.754	.161	.171	7.015	.479
STKHD_GR * GENDER	852.905	3	284.302	.399	.754	.034	1.198	.121
STKHD_GR * ETHNICIT	4207.946	2	2103.973	2.956	.065	.148	5.913	.538
GENDER * ETHNICIT	3219.048	1	3219.048	4.523	.041	.117	4.523	.542
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	955.041	2	477.521	.671	.518	.038	1.342	.153
GENDER * AGE	2859.635	4	714.909	1.005	.419	.106	4.018	.283
STKHD_GR * GENDER * AGE	348.884	1	348.884	.490	.489	.014	.490	.105
ETHNICIT * AGE	5535.683	3	1845.228	2.593	.069	.186	7.779	.585
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	24196.032	34	711.648					
Total	280525.000	65						
Corrected Total	53078.462	64						

a Computed using alpha = .05
b R Squared = .544 (Adjusted R Squared = .142)

369

Tests of Between-Subjects Effects

Dependent Variable: T6

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	36254.652(b)	30	1208.488	1.504	.125	.570	45.113	.855
Intercept	54618.228	1	54618.228	67.963	.000	.667	67.963	1.000
STKHD_GR	1801.240	3	600.413	.747	.532	.062	2.241	.192
GENDER	162.446	1	162.446	.202	.656	.006	.202	.072
ETHNICIT	4705.996	3	1568.665	1.952	.140	.147	5.856	.458
AGE	6654.244	4	1663.561	2.070	.106	.196	8.280	.555
STKHD_GR * GENDER	1141.393	3	380.464	.473	.703	.040	1.420	.135
STKHD_GR * ETHNICIT	5831.440	2	2915.720	3.628	.037	.176	7.256	.631
GENDER * ETHNICIT	4876.190	1	4876.190	6.068	.019	.151	6.068	.668
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	998.834	2	499.417	.621	.543	.035	1.243	.145
GENDER * AGE	4375.776	4	1093.944	1.361	.268	.138	5.445	.377
STKHD_GR * GENDER * AGE	1509.410	1	1509.410	1.878	.180	.052	1.878	.265
ETHNICIT * AGE	7831.392	3	2610.464	3.248	.034	.223	9.745	.694
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	27323.810	34	803.641					
Total	283400.000	65						
Corrected Total	63578.462	64						

a Computed using alpha = .05
b R Squared = .570 (Adjusted R Squared = .191)

Tests of Between-Subjects Effects

Dependent Variable: T7

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	34729.170(b)	30	1157.639	1.197	.304	.514	35.915	.736
Intercept	50356.547	1	50356.547	52.077	.000	.605	52.077	1.000
STKHD_GR	1739.631	3	579.877	.600	.620	.050	1.799	.161
GENDER	43.841	1	43.841	.045	.833	.001	.045	.055
ETHNICIT	4312.063	3	1437.354	1.486	.236	.116	4.459	.357
AGE	7120.654	4	1780.164	1.841	.144	.178	7.364	.500
STKHD_GR * GENDER	2890.241	3	963.414	.996	.406	.081	2.989	.247
STKHD_GR * ETHNICIT	1455.536	2	727.768	.753	.479	.042	1.505	.167
GENDER * ETHNICIT	804.762	1	804.762	.832	.368	.024	.832	.144
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	742.946	2	371.473	.384	.684	.022	.768	.107
GENDER * AGE	4451.119	4	1112.780	1.151	.350	.119	4.603	.321
STKHD_GR * GENDER * AGE	306.402	1	306.402	.317	.577	.009	.317	.085
ETHNICIT * AGE	2861.070	3	953.690	.986	.411	.080	2.959	.245
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	32876.984	34	966.970					
Total	305825.000	65						
Corrected Total	67606.154	64						

a Computed using alpha = .05
b R Squared = .514 (Adjusted R Squared = .085)

Tests of Between-Subjects Effects

Dependent Variable: T8

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	34234.115(b)	30	1141.137	1.183	.316	.511	35.496	.730
Intercept	52493.430	1	52493.430	54.428	.000	.616	54.428	1.000
STKHD_GR	2101.643	3	700.548	.726	.543	.060	2.179	.188
GENDER	5.756	1	5.756	.006	.939	.000	.006	.051
ETHNICIT	1393.083	3	464.361	.481	.697	.041	1.444	.137
AGE	7427.939	4	1856.985	1.925	.129	.185	7.702	.521
STKHD_GR * GENDER	1629.484	3	543.161	.563	.643	.047	1.690	.154
STKHD_GR * ETHNICIT	2835.829	2	1417.915	1.470	.244	.080	2.940	.292
GENDER * ETHNICIT	2304.762	1	2304.762	2.390	.131	.066	2.390	.324
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	2457.823	2	1228.911	1.274	.293	.070	2.548	.258
GENDER * AGE	2273.372	4	568.343	.589	.673	.065	2.357	.176
STKHD_GR * GENDER * AGE	1123.217	1	1123.217	1.165	.288	.033	1.165	.182
ETHNICIT * AGE	7731.128	3	2577.043	2.672	.063	.191	8.016	.600
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	32791.270	34	964.449					
Total	330075.000	65						
Corrected Total	67025.385	64						

a Computed using alpha = .05
b R Squared = .511 (Adjusted R Squared = .079)

372

Tests of Between-Subjects Effects

Dependent Variable: T9

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	22211.488(b)	29	765.913	.916	.592	.439	26.562	.575
Intercept	44666.406	1	44666.406	53.414	.000	.611	53.414	1.000
STKHD_GR	1824.145	3	608.048	.727	.543	.060	2.181	.188
GENDER	4.937	1	4.937	.006	.939	.000	.006	.051
ETHNICIT	2386.289	3	795.430	.951	.427	.077	2.854	.237
AGE	4931.413	4	1232.853	1.474	.232	.148	5.897	.407
STKHD_GR * GENDER	259.042	3	86.347	.103	.958	.009	.310	.067
STKHD_GR * ETHNICIT	2621.027	2	1310.513	1.567	.223	.084	3.134	.309
GENDER * ETHNICIT	2629.762	1	2629.762	3.145	.085	.085	3.145	.407
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	52.923	2	26.462	.032	.969	.002	.063	.054
GENDER * AGE	4676.344	4	1169.086	1.398	.256	.141	5.592	.387
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	4005.557	3	1335.186	1.597	.208	.123	4.790	.381
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	28431.746	34	836.228					
Total	261439.000	64						
Corrected Total	50643.234	63						

a Computed using alpha = .05
b R Squared = .439 (Adjusted R Squared = -.040)

373

Tests of Between-Subjects Effects

Dependent Variable: T10

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	24826.816(b)	30	827.561	1.203	.299	.515	36.097	.739
Intercept	50851.318	1	50851.318	73.935	.000	.685	73.935	1.000
STKHD_GR	741.369	3	247.123	.359	.783	.031	1.078	.113
GENDER	87.055	1	87.055	.127	.724	.004	.127	.064
ETHNICIT	1339.679	3	446.560	.649	.589	.054	1.948	.172
AGE	4105.104	4	1026.276	1.492	.226	.149	5.969	.412
STKHD_GR * GENDER	609.030	3	203.010	.295	.829	.025	.885	.101
STKHD_GR * ETHNICIT	1670.912	2	835.456	1.215	.309	.067	2.429	.247
GENDER * ETHNICIT	685.714	1	685.714	.997	.325	.028	.997	.163
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	649.409	2	324.704	.472	.628	.027	.944	.121
GENDER * AGE	3299.570	4	824.893	1.199	.329	.124	4.797	.334
STKHD_GR * GENDER * AGE	288.004	1	288.004	.419	.522	.012	.419	.096
ETHNICIT * AGE	6973.960	3	2324.653	3.380	.029	.230	10.140	.713
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	23384.722	34	687.786					
Total	276250.000	65						
Corrected Total	48211.538	64						

a Computed using alpha = .05
b R Squared = .515 (Adjusted R Squared = .087)

374

Tests of Between-Subjects Effects

Dependent Variable: C&I2

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	38144.054(b)	29	1315.312	2.391	.008	.671	69.332	.982
Intercept	68438.324	1	68438.324	124.396	.000	.785	124.396	1.000
STKHD_GR	4453.574	3	1484.525	2.698	.061	.192	8.095	.604
GENDER	159.974	1	159.974	.291	.593	.008	.291	.082
ETHNICIT	6769.768	3	2256.589	4.102	.014	.266	12.305	.802
AGE	8099.483	4	2024.871	3.680	.014	.302	14.722	.831
STKHD_GR * GENDER	1699.549	3	566.516	1.030	.392	.083	3.089	.254
STKHD_GR * ETHNICIT	2474.469	2	1237.235	2.249	.121	.117	4.498	.426
GENDER * ETHNICIT	576.190	1	576.190	1.047	.313	.030	1.047	.169
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	713.155	2	356.577	.648	.529	.037	1.296	.150
GENDER * AGE	4763.034	4	1190.758	2.164	.094	.203	8.657	.576
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	3183.125	3	1061.042	1.929	.144	.145	5.786	.453
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	18705.556	34	550.163					
Total	232725.000	64						
Corrected Total	56849.609	63						

a Computed using alpha = .05
b R Squared = .671 (Adjusted R Squared = .390)

375

Tests of Between-Subjects Effects

Dependent Variable: C&I3

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	32869.668(b)	29	1133.437	1.428	.159	.549	41.405	.825
Intercept	70274.223	1	70274.223	88.522	.000	.722	88.522	1.000
STKHD_GR	4333.897	3	1444.632	1.820	.162	.138	5.459	.430
GENDER	478.599	1	478.599	.603	.443	.017	.603	.117
ETHNICIT	8928.150	3	2976.050	3.749	.020	.249	11.246	.762
AGE	7622.456	4	1905.614	2.400	.069	.220	9.602	.627
STKHD_GR * GENDER	1121.149	3	373.716	.471	.705	.040	1.412	.135
STKHD_GR * ETHNICIT	2595.095	2	1297.547	1.634	.210	.088	3.269	.321
GENDER * ETHNICIT	1542.857	1	1542.857	1.943	.172	.054	1.943	.273
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	138.011	2	69.005	.087	.917	.005	.174	.062
GENDER * AGE	3863.056	4	965.764	1.217	.322	.125	4.866	.339
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	2318.600	3	772.867	.974	.417	.079	2.921	.242
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	26991.270	34	793.861					
Total	248000.000	64						
Corrected Total	59860.938	63						

a Computed using alpha = .05
b R Squared = .549 (Adjusted R Squared = .165)

376

Tests of Between-Subjects Effects

Dependent Variable: C&I4

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	38500.397(b)	29	1327.600	1.479	.136	.558	42.884	.842
Intercept	68976.856	1	68976.856	76.830	.000	.693	76.830	1.000
STKHD_GR	3762.694	3	1254.231	1.397	.260	.110	4.191	.337
GENDER	120.457	1	120.457	.134	.716	.004	.134	.065
ETHNICIT	5997.000	3	1999.000	2.227	.103	.164	6.680	.515
AGE	10600.268	4	2650.067	2.952	.034	.258	11.807	.730
STKHD_GR * GENDER	3570.263	3	1190.088	1.326	.282	.105	3.977	.321
STKHD_GR * ETHNICIT	2686.059	2	1343.029	1.496	.238	.081	2.992	.297
GENDER * ETHNICIT	385.714	1	385.714	.430	.517	.012	.430	.098
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	714.448	2	357.224	.398	.675	.023	.796	.109
GENDER * AGE	3477.807	4	869.452	.968	.437	.102	3.874	.273
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	3162.334	3	1054.111	1.174	.334	.094	3.522	.287
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	30524.603	34	897.782					
Total	294650.000	64						
Corrected Total	69025.000	63						

a Computed using alpha = .05
b R Squared = .558 (Adjusted R Squared = .181)

377

Tests of Between-Subjects Effects

Dependent Variable: C&I5

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	30754.861(b)	29	1060.512	1.227	.282	.511	35.580	.744
Intercept	73450.250	1	73450.250	84.975	.000	.714	84.975	1.000
STKHD_GR	1851.005	3	617.002	.714	.551	.059	2.141	.185
GENDER	.448	1	.448	.001	.982	.000	.001	.050
ETHNICIT	6883.622	3	2294.541	2.655	.064	.190	7.964	.597
AGE	4990.978	4	1247.744	1.444	.241	.145	5.774	.399
STKHD_GR * GENDER	2450.099	3	816.700	.945	.430	.077	2.835	.236
STKHD_GR * ETHNICIT	4732.215	2	2366.107	2.737	.079	.139	5.475	.505
GENDER * ETHNICIT	201.190	1	201.190	.233	.633	.007	.233	.076
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	67.209	2	33.604	.039	.962	.002	.078	.055
GENDER * AGE	5996.713	4	1499.178	1.734	.165	.169	6.938	.474
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	2431.708	3	810.569	.938	.433	.076	2.813	.234
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	29388.889	34	864.379					
Total	269450.000	64						
Corrected Total	60143.750	63						

a Computed using alpha = .05
b R Squared = .511 (Adjusted R Squared = .095)

Tests of Between-Subjects Effects

Dependent Variable: C&I6

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	37343.254(b)	29	1287.698	1.308	.225	.527	37.921	.780
Intercept	58680.526	1	58680.526	59.589	.000	.637	59.589	1.000
STKHD_GR	4652.316	3	1550.772	1.575	.213	.122	4.724	.377
GENDER	83.779	1	83.779	.085	.772	.002	.085	.059
ETHNICIT	2989.304	3	996.435	1.012	.399	.082	3.036	.251
AGE	4165.248	4	1041.312	1.057	.393	.111	4.230	.297
STKHD_GR * GENDER	3973.085	3	1324.362	1.345	.276	.106	4.035	.325
STKHD_GR * ETHNICIT	1446.500	2	723.250	.734	.487	.041	1.469	.164
GENDER * ETHNICIT	29.762	1	29.762	.030	.863	.001	.030	.053
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	420.511	2	210.255	.214	.809	.012	.427	.081
GENDER * AGE	6806.905	4	1701.726	1.728	.167	.169	6.912	.472
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	2408.136	3	802.712	.815	.494	.067	2.445	.207
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	33481.746	34	984.757					
Total	277850.000	64						
Corrected Total	70825.000	63						

a Computed using alpha = .05
b R Squared = .527 (Adjusted R Squared = .124)

379

Tests of Between-Subjects Effects

Dependent Variable: C&I7

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	34016.822(b)	29	1172.994	1.237	.274	.513	35.864	.749
Intercept	69044.826	1	69044.826	72.795	.000	.682	72.795	1.000
STKHD_GR	532.082	3	177.361	.187	.905	.016	.561	.081
GENDER	583.963	1	583.963	.616	.438	.018	.616	.119
ETHNICIT	3367.112	3	1122.371	1.183	.331	.095	3.550	.289
AGE	6826.062	4	1706.515	1.799	.152	.175	7.197	.490
STKHD_GR * GENDER	6567.080	3	2189.027	2.308	.094	.169	6.924	.531
STKHD_GR * ETHNICIT	772.146	2	386.073	.407	.669	.023	.814	.110
GENDER * ETHNICIT	576.190	1	576.190	.607	.441	.018	.607	.118
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	1221.720	2	610.860	.644	.531	.037	1.288	.149
GENDER * AGE	9476.276	4	2369.069	2.498	.061	.227	9.991	.647
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	1444.162	3	481.387	.508	.680	.043	1.523	.142
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	32248.413	34	948.483					
Total	293675.000	64						
Corrected Total	66265.234	63						

a Computed using alpha = .05
b R Squared = .513 (Adjusted R Squared = .098)

Tests of Between-Subjects Effects

Dependent Variable: C&I8

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	27520.268(b)	29	948.975	.960	.542	.450	27.831	.602
Intercept	59777.507	1	59777.507	60.453	.000	.640	60.453	1.000
STKHD_GR	2937.752	3	979.251	.990	.409	.080	2.971	.246
GENDER	25.069	1	25.069	.025	.874	.001	.025	.053
ETHNICIT	5767.900	3	1922.633	1.944	.141	.146	5.833	.457
AGE	4236.857	4	1059.214	1.071	.386	.112	4.285	.300
STKHD_GR * GENDER	86.858	3	28.953	.029	.993	.003	.088	.055
STKHD_GR * ETHNICIT	2303.643	2	1151.822	1.165	.324	.064	2.330	.238
GENDER * ETHNICIT	144.048	1	144.048	.146	.705	.004	.146	.066
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	709.845	2	354.922	.359	.701	.021	.718	.103
GENDER * AGE	7688.630	4	1922.157	1.944	.126	.186	7.776	.525
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	1553.307	3	517.769	.524	.669	.044	1.571	.146
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	33619.841	34	988.819					
Total	216869.000	64						
Corrected Total	61140.109	63						

a Computed using alpha = .05

b R Squared = .450 (Adjusted R Squared = -.019)

Tests of Between-Subjects Effects

Dependent Variable: C&I9

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	30359.921(b)	29	1046.894	1.192	.309	.504	34.563	.728
Intercept	55775.365	1	55775.365	63.498	.000	.651	63.498	1.000
STKHD_GR	1832.866	3	610.955	.696	.561	.058	2.087	.181
GENDER	31.949	1	31.949	.036	.850	.001	.036	.054
ETHNICIT	4989.001	3	1663.000	1.893	.149	.143	5.680	.446
AGE	6226.777	4	1556.694	1.772	.157	.173	7.089	.483
STKHD_GR * GENDER	666.082	3	222.027	.253	.859	.022	.758	.093
STKHD_GR * ETHNICIT	1635.829	2	817.915	.931	.404	.052	1.862	.198
GENDER * ETHNICIT	629.762	1	629.762	.717	.403	.021	.717	.130
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	99.946	2	49.973	.057	.945	.003	.114	.058
GENDER * AGE	5465.083	4	1366.271	1.555	.209	.155	6.222	.428
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	1829.008	3	609.669	.694	.562	.058	2.082	.181
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	29865.079	34	878.385					
Total	232450.000	64						
Corrected Total	60225.000	63						

a Computed using alpha = .05

b R Squared = .504 (Adjusted R Squared = .081)

Tests of Between-Subjects Effects

Dependent Variable: C&I10

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	33968.375(b)	29	1171.323	1.468	.141	.556	42.575	.839
Intercept	67083.763	1	67083.763	84.080	.000	.712	84.080	1.000
STKHD_GR	4638.657	3	1546.219	1.938	.142	.146	5.814	.455
GENDER	1.787	1	1.787	.002	.963	.000	.002	.050
ETHNICIT	6537.003	3	2179.001	2.731	.059	.194	8.193	.610
AGE	3716.830	4	929.208	1.165	.344	.121	4.659	.325
STKHD_GR * GENDER	2507.535	3	835.845	1.048	.384	.085	3.143	.258
STKHD_GR * ETHNICIT	1562.392	2	781.196	.979	.386	.054	1.958	.206
GENDER * ETHNICIT	525.000	1	525.000	.658	.423	.019	.658	.124
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	33.454	2	16.727	.021	.979	.001	.042	.053
GENDER * AGE	7070.199	4	1767.550	2.215	.088	.207	8.862	.587
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	2007.263	3	669.088	.839	.482	.069	2.516	.212
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	27126.984	34	797.852					
Total	242891.000	64						
Corrected Total	61095.359	63						

a Computed using alpha = .05
b R Squared = .556 (Adjusted R Squared = .177)

383

Tests of Between-Subjects Effects

Dependent Variable: C&I11

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	44886.334(b)	29	1547.805	2.003	.026	.631	58.084	.952
Intercept	67842.064	1	67842.064	87.789	.000	.721	87.789	1.000
STKHD_GR	124.697	3	41.566	.054	.983	.005	.161	.059
GENDER	155.337	1	155.337	.201	.657	.006	.201	.072
ETHNICIT	5552.279	3	1850.760	2.395	.085	.174	7.185	.548
AGE	10485.613	4	2621.403	3.392	.019	.285	13.569	.795
STKHD_GR * GENDER	12685.553	3	4228.518	5.472	.004	.326	16.415	.909
STKHD_GR * ETHNICIT	3479.633	2	1739.816	2.251	.121	.117	4.503	.427
GENDER * ETHNICIT	304.762	1	304.762	.394	.534	.011	.394	.094
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	3479.919	2	1739.960	2.252	.121	.117	4.503	.427
GENDER * AGE	7138.490	4	1784.623	2.309	.078	.214	9.237	.608
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	1670.244	3	556.748	.720	.547	.060	2.161	.187
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	26274.603	34	772.782					
Total	327450.000	64						
Corrected Total	71160.937	63						

a Computed using alpha = .05
b R Squared = .631 (Adjusted R Squared = .316)

Tests of Between-Subjects Effects

Dependent Variable: C&I12

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	26510.586(b)	29	914.158	.917	.592	.439	26.581	.576
Intercept	59989.816	1	59989.816	60.150	.000	.639	60.150	1.000
STKHD_GR	482.039	3	160.680	.161	.922	.014	.483	.077
GENDER	152.020	1	152.020	.152	.699	.004	.152	.067
ETHNICIT	3296.823	3	1098.941	1.102	.362	.089	3.306	.271
AGE	6150.301	4	1537.575	1.542	.212	.154	6.167	.425
STKHD_GR * GENDER	3095.073	3	1031.691	1.034	.390	.084	3.103	.256
STKHD_GR * ETHNICIT	1772.146	2	886.073	.888	.421	.050	1.777	.190
GENDER * ETHNICIT	429.762	1	429.762	.431	.516	.013	.431	.098
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	25.772	2	12.886	.013	.987	.001	.026	.052
GENDER * AGE	6731.153	4	1682.788	1.687	.176	.166	6.749	.462
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	2308.446	3	769.482	.772	.518	.064	2.315	.198
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	33909.524	34	997.339					
Total	249319.000	64						
Corrected Total	60420.109	63						

a Computed using alpha = .05
b R Squared = .439 (Adjusted R Squared = -.040)

385

Tests of Between-Subjects Effects

Dependent Variable: C&I13

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	85075.764(b)	30	2835.859	.798	.732	.420	23.939	.499
Intercept	69318.979	1	69318.979	19.506	.000	.371	19.506	.990
STKHD_GR	777.729	3	259.243	.073	.974	.007	.219	.062
GENDER	2415.662	1	2415.662	.680	.416	.020	.680	.126
ETHNICIT	6204.535	3	2068.178	.582	.631	.050	1.746	.157
AGE	19530.385	4	4882.596	1.374	.264	.143	5.496	.379
STKHD_GR * GENDER	19829.260	3	6609.753	1.860	.156	.145	5.580	.437
STKHD_GR * ETHNICIT	740.820	2	370.410	.104	.901	.006	.208	.065
GENDER * ETHNICIT	2629.762	1	2629.762	.740	.396	.022	.740	.133
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	8946.803	2	4473.402	1.259	.297	.071	2.518	.254
GENDER * AGE	24203.574	4	6050.894	1.703	.173	.171	6.811	.464
STKHD_GR * GENDER * AGE	2022.989	1	2022.989	.569	.456	.017	.569	.113
ETHNICIT * AGE	5655.698	3	1885.233	.530	.665	.046	1.591	.147
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	117275.595	33	3553.806					
Total	504439.000	64						
Corrected Total	202351.359	63						

a Computed using alpha = .05
b R Squared = .420 (Adjusted R Squared = -.106)

Tests of Between-Subjects Effects

Dependent Variable: C&I14

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	46921.252(b)	29	1617.974	.816	.709	.418	23.668	.506
Intercept	49497.325	1	49497.325	24.968	.000	.431	24.968	.998
STKHD_GR	2360.535	3	786.845	.397	.756	.035	1.191	.120
GENDER	92.051	1	92.051	.046	.831	.001	.046	.055
ETHNICIT	5298.983	3	1766.328	.891	.456	.075	2.673	.223
AGE	7878.778	4	1969.695	.994	.425	.107	3.974	.279
STKHD_GR * GENDER	6073.663	3	2024.554	1.021	.396	.085	3.064	.252
STKHD_GR * ETHNICIT	128.170	2	64.085	.032	.968	.002	.065	.054
GENDER * ETHNICIT	304.762	1	304.762	.154	.698	.005	.154	.067
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	5052.977	2	2526.489	1.274	.293	.072	2.549	.257
GENDER * AGE	13489.971	4	3372.493	1.701	.173	.171	6.805	.464
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	2512.069	3	837.356	.422	.738	.037	1.267	.125
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	65420.685	33	1982.445					
Total	294326.000	63						
Corrected Total	112341.937	62						

a Computed using alpha = .05
b R Squared = .418 (Adjusted R Squared = -.094)

Tests of Between-Subjects Effects

Dependent Variable: F2

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	28427.905(b)	29	980.273	1.574	.104	.580	45.654	.866
Intercept	51485.721	1	51485.721	82.684	.000	.715	82.684	1.000
STKHD_GR	1871.991	3	623.997	1.002	.404	.083	3.006	.248
GENDER	50.298	1	50.298	.081	.778	.002	.081	.059
ETHNICIT	7938.509	3	2646.170	4.250	.012	.279	12.749	.816
AGE	2057.429	4	514.357	.826	.518	.091	3.304	.235
STKHD_GR * GENDER	1417.671	3	472.557	.759	.525	.065	2.277	.194
STKHD_GR * ETHNICIT	2955.508	2	1477.754	2.373	.109	.126	4.746	.446
GENDER * ETHNICIT	867.857	1	867.857	1.394	.246	.041	1.394	.209
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	71.030	2	35.515	.057	.945	.003	.114	.058
GENDER * AGE	4063.260	4	1015.815	1.631	.190	.165	6.525	.446
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	5386.496	3	1795.499	2.884	.050	.208	8.651	.635
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	20548.413	33	622.679					
Total	205179.000	63						
Corrected Total	48976.317	62						

a Computed using alpha = .05
b R Squared = .580 (Adjusted R Squared = .212)

Tests of Between-Subjects Effects

Dependent Variable: F3

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	45296.000(b)	29	1561.931	.693	.841	.378	20.093	.424
Intercept	57039.922	1	57039.922	25.302	.000	.434	25.302	.998
STKHD_GR	1426.194	3	475.398	.211	.888	.019	.633	.085
GENDER	296.127	1	296.127	.131	.719	.004	.131	.064
ETHNICIT	8851.890	3	2950.630	1.309	.288	.106	3.927	.316
AGE	5321.113	4	1330.278	.590	.672	.067	2.360	.175
STKHD_GR * GENDER	10830.073	3	3610.024	1.601	.208	.127	4.804	.381
STKHD_GR * ETHNICIT	187.866	2	93.933	.042	.959	.003	.083	.056
GENDER * ETHNICIT	267.857	1	267.857	.119	.733	.004	.119	.063
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	4114.472	2	2057.236	.913	.411	.052	1.825	.194
GENDER * AGE	15249.237	4	3812.309	1.691	.176	.170	6.764	.461
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	1154.079	3	384.693	.171	.915	.015	.512	.078
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	74392.857	33	2254.329					
Total	321649.000	63						
Corrected Total	119688.857	62						

a Computed using alpha = .05
b R Squared = .378 (Adjusted R Squared = -.168)

389

Tests of Between-Subjects Effects

Dependent Variable: F4

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	38097.968(b)	29	1313.723	1.862	.043	.621	53.984	.928
Intercept	41461.738	1	41461.738	58.751	.000	.640	58.751	1.000
STKHD_GR	3188.486	3	1062.829	1.506	.231	.120	4.518	.360
GENDER	354.040	1	354.040	.502	.484	.015	.502	.106
ETHNICIT	4607.804	3	1535.935	2.176	.109	.165	6.529	.503
AGE	4367.503	4	1091.876	1.547	.212	.158	6.189	.424
STKHD_GR * GENDER	1116.157	3	372.052	.527	.667	.046	1.582	.146
STKHD_GR * ETHNICIT	3146.328	2	1573.164	2.229	.124	.119	4.458	.422
GENDER * ETHNICIT	29.762	1	29.762	.042	.839	.001	.042	.055
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	126.907	2	63.453	.090	.914	.005	.180	.063
GENDER * AGE	6402.352	4	1600.588	2.268	.083	.216	9.072	.597
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	6884.926	3	2294.975	3.252	.034	.228	9.756	.693
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	23288.889	33	705.724					
Total	185476.000	63						
Corrected Total	61386.857	62						

a Computed using alpha = .05
b R Squared = .621 (Adjusted R Squared = .287)

Tests of Between-Subjects Effects

Dependent Variable: F5

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	48592.032(b)	29	1675.587	.784	.745	.408	22.747	.485
Intercept	34847.860	1	34847.860	16.313	.000	.331	16.313	.975
STKHD_GR	4467.693	3	1489.231	.697	.560	.060	2.091	.181
GENDER	1192.360	1	1192.360	.558	.460	.017	.558	.112
ETHNICIT	1795.454	3	598.485	.280	.839	.025	.840	.098
AGE	5423.751	4	1355.938	.635	.641	.071	2.539	.186
STKHD_GR * GENDER	6038.481	3	2012.827	.942	.431	.079	2.827	.234
STKHD_GR * ETHNICIT	767.413	2	383.706	.180	.836	.011	.359	.076
GENDER * ETHNICIT	2976.190	1	2976.190	1.393	.246	.041	1.393	.209
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	1826.100	2	913.050	.427	.656	.025	.855	.113
GENDER * AGE	17987.266	4	4496.816	2.105	.102	.203	8.420	.561
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	319.296	3	106.432	.050	.985	.005	.149	.058
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	70495.238	33	2136.219					
Total	272909.000	63						
Corrected Total	119087.270	62						

a Computed using alpha = .05
b R Squared = .408 (Adjusted R Squared = -.112)

Tests of Between-Subjects Effects

Dependent Variable: F6

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	34212.190(b)	29	1179.731	1.550	.112	.577	44.949	.859
Intercept	52631.506	1	52631.506	69.149	.000	.677	69.149	1.000
STKHD_GR	3474.035	3	1158.012	1.521	.227	.122	4.564	.364
GENDER	30.082	1	30.082	.040	.844	.001	.040	.054
ETHNICIT	1926.873	3	642.291	.844	.480	.071	2.532	.213
AGE	6822.505	4	1705.626	2.241	.086	.214	8.964	.591
STKHD_GR * GENDER	111.784	3	37.261	.049	.985	.004	.147	.058
STKHD_GR * ETHNICIT	2978.772	2	1489.386	1.957	.157	.106	3.914	.376
GENDER * ETHNICIT	933.333	1	933.333	1.226	.276	.036	1.226	.189
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	988.853	2	494.426	.650	.529	.038	1.299	.150
GENDER * AGE	4848.677	4	1212.169	1.593	.199	.162	6.370	.436
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	12662.696	3	4220.899	5.546	.003	.335	16.637	.912
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	25117.460	33	761.135					
Total	274639.000	63						
Corrected Total	59329.651	62						

a Computed using alpha = .05
b R Squared = .577 (Adjusted R Squared = .205)

Tests of Between-Subjects Effects

Dependent Variable: F7

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	33901.079(b)	29	1169.003	1.464	.145	.563	42.464	.832
Intercept	64308.446	1	64308.446	80.553	.000	.709	80.553	1.000
STKHD_GR	5852.633	3	1950.878	2.444	.081	.182	7.331	.556
GENDER	1048.384	1	1048.384	1.313	.260	.038	1.313	.200
ETHNICIT	2302.518	3	767.506	.961	.423	.080	2.884	.239
AGE	2743.354	4	685.838	.859	.499	.094	3.436	.243
STKHD_GR * GENDER	856.925	3	285.642	.358	.784	.032	1.073	.113
STKHD_GR * ETHNICIT	1821.457	2	910.729	1.141	.332	.065	2.282	.234
GENDER * ETHNICIT	304.762	1	304.762	.382	.541	.011	.382	.092
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	257.400	2	128.700	.161	.852	.010	.322	.073
GENDER * AGE	8329.979	4	2082.495	2.609	.053	.240	10.434	.666
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	7221.144	3	2407.048	3.015	.044	.215	9.045	.656
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	26345.238	33	798.341					
Total	248409.000	63						
Corrected Total	60246.317	62						

a Computed using alpha = .05

b R Squared = .563 (Adjusted R Squared = .178)

393

Tests of Between-Subjects Effects

Dependent Variable: F8

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	33451.376(b)	29	1153.496	1.379	.188	.556	40.001	.795
Intercept	66007.018	1	66007.018	78.931	.000	.712	78.931	1.000
STKHD_GR	2126.458	3	708.819	.848	.478	.074	2.543	.213
GENDER	.034	1	.034	.000	.995	.000	.000	.050
ETHNICIT	8052.178	3	2684.059	3.210	.036	.231	9.629	.685
AGE	3698.015	4	924.504	1.106	.371	.121	4.422	.307
STKHD_GR * GENDER	2871.966	3	957.322	1.145	.346	.097	3.434	.278
STKHD_GR * ETHNICIT	2460.700	2	1230.350	1.471	.245	.084	2.943	.291
GENDER * ETHNICIT	4.762	1	4.762	.006	.940	.000	.006	.051
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	194.221	2	97.111	.116	.891	.007	.232	.066
GENDER * AGE	6223.301	4	1555.825	1.860	.142	.189	7.442	.501
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	4420.885	3	1473.628	1.762	.174	.142	5.286	.415
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	26760.317	32	836.260					
Total	269825.000	62						
Corrected Total	60211.694	61						

a Computed using alpha = .05
b R Squared = .556 (Adjusted R Squared = .153)

Tests of Between-Subjects Effects

Dependent Variable: S2

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	36995.250(b)	30	1233.175	1.389	.176	.551	41.679	.817
Intercept	57116.578	1	57116.578	64.347	.000	.654	64.347	1.000
STKHD_GR	3619.365	3	1206.455	1.359	.272	.107	4.078	.328
GENDER	118.360	1	118.360	.133	.717	.004	.133	.065
ETHNICIT	571.966	3	190.655	.215	.885	.019	.644	.086
AGE	5706.907	4	1426.727	1.607	.195	.159	6.429	.442
STKHD_GR * GENDER	164.146	3	54.715	.062	.980	.005	.185	.060
STKHD_GR * ETHNICIT	5613.884	2	2806.942	3.162	.055	.157	6.325	.568
GENDER * ETHNICIT	6876.190	1	6876.190	7.747	.009	.186	7.747	.772
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	626.524	2	313.262	.353	.705	.020	.706	.102
GENDER * AGE	4369.259	4	1092.315	1.231	.316	.126	4.922	.343
STKHD_GR * GENDER * AGE	71.098	1	71.098	.080	.779	.002	.080	.059
ETHNICIT * AGE	6219.551	3	2073.184	2.336	.091	.171	7.007	.537
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	30179.365	34	887.628					
Total	332775.000	65						
Corrected Total	67174.615	64						

a Computed using alpha = .05
b R Squared = .551 (Adjusted R Squared = .154)

Tests of Between-Subjects Effects

Dependent Variable: S3

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	28497.924(b)	30	949.931	1.045	.448	.480	31.339	.657
Intercept	44278.028	1	44278.028	48.693	.000	.589	48.693	1.000
STKHD_GR	1161.789	3	387.263	.426	.736	.036	1.278	.126
GENDER	41.721	1	41.721	.046	.832	.001	.046	.055
ETHNICIT	1721.093	3	573.698	.631	.600	.053	1.893	.168
AGE	2646.073	4	661.518	.727	.579	.079	2.910	.210
STKHD_GR * GENDER	467.702	3	155.901	.171	.915	.015	.514	.078
STKHD_GR * ETHNICIT	2732.215	2	1366.107	1.502	.237	.081	3.005	.298
GENDER * ETHNICIT	744.048	1	744.048	.818	.372	.024	.818	.142
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	1874.667	2	937.333	1.031	.368	.057	2.062	.215
GENDER * AGE	5203.786	4	1300.947	1.431	.245	.144	5.723	.396
STKHD_GR * GENDER * AGE	613.169	1	613.169	.674	.417	.019	.674	.126
ETHNICIT * AGE	6285.269	3	2095.090	2.304	.094	.169	6.912	.530
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	30917.460	34	909.337					
Total	290425.000	65						
Corrected Total	59415.385	64						

a Computed using alpha = .05

b R Squared = .480 (Adjusted R Squared = .020)

Tests of Between-Subjects Effects

Dependent Variable: S4

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	107787.944(b)	30	3592.931	.146	1.000	.114	4.367	.102
Intercept	65563.193	1	65563.193	2.656	.112	.072	2.656	.354
STKHD_GR	6323.325	3	2107.775	.085	.968	.007	.256	.064
GENDER	1578.574	1	1578.574	.064	.802	.002	.064	.057
ETHNICIT	1982.074	3	660.691	.027	.994	.002	.080	.054
AGE	13994.326	4	3498.582	.142	.965	.016	.567	.076
STKHD_GR * GENDER	1176.101	3	392.034	.016	.997	.001	.048	.053
STKHD_GR * ETHNICIT	3657.258	2	1828.629	.074	.929	.004	.148	.060
GENDER * ETHNICIT	1904.762	1	1904.762	.077	.783	.002	.077	.058
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	486.703	2	243.352	.010	.990	.001	.020	.051
GENDER * AGE	3085.821	4	771.455	.031	.998	.004	.125	.055
STKHD_GR * GENDER * AGE	836.648	1	836.648	.034	.855	.001	.034	.054
ETHNICIT * AGE	6090.095	3	2030.032	.082	.969	.007	.247	.063
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	839155.810	34	24681.053					
Total	1303476.000	65						
Corrected Total	946943.754	64						

a Computed using alpha = .05

b R Squared = .114 (Adjusted R Squared = -.668)

Tests of Between-Subjects Effects

Dependent Variable: S5

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	33833.443(b)	30	1127.781	1.110	.382	.495	33.306	.693
Intercept	60802.306	1	60802.306	59.855	.000	.638	59.855	1.000
STKHD_GR	4769.246	3	1589.749	1.565	.216	.121	4.695	.374
GENDER	301.375	1	301.375	.297	.590	.009	.297	.083
ETHNICIT	2544.383	3	848.128	.835	.484	.069	2.505	.211
AGE	6414.559	4	1603.640	1.579	.202	.157	6.315	.434
STKHD_GR * GENDER	1977.215	3	659.072	.649	.589	.054	1.946	.172
STKHD_GR * ETHNICIT	3679.633	2	1839.816	1.811	.179	.096	3.622	.352
GENDER * ETHNICIT	3219.048	1	3219.048	3.169	.084	.085	3.169	.409
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	412.611	2	206.306	.203	.817	.012	.406	.079
GENDER * AGE	5420.320	4	1355.080	1.334	.277	.136	5.336	.370
STKHD_GR * GENDER * AGE	782.000	1	782.000	.770	.386	.022	.770	.137
ETHNICIT * AGE	3519.163	3	1173.054	1.155	.341	.092	3.464	.282
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	34538.095	34	1015.826					
Total	263350.000	65						
Corrected Total	68371.538	64						

a Computed using alpha = .05
b R Squared = .495 (Adjusted R Squared = .049)

398

Tests of Between-Subjects Effects

Dependent Variable: S6

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	32454.762(b)	30	1081.825	.997	.500	.468	29.908	.630
Intercept	55151.847	1	55151.847	50.824	.000	.599	50.824	1.000
STKHD_GR	1763.038	3	587.679	.542	.657	.046	1.625	.149
GENDER	367.020	1	367.020	.338	.565	.010	.338	.087
ETHNICIT	5476.098	3	1825.366	1.682	.189	.129	5.046	.400
AGE	4565.045	4	1141.261	1.052	.395	.110	4.207	.295
STKHD_GR * GENDER	3070.750	3	1023.583	.943	.431	.077	2.830	.235
STKHD_GR * ETHNICIT	4337.464	2	2168.732	1.999	.151	.105	3.997	.384
GENDER * ETHNICIT	1219.048	1	1219.048	1.123	.297	.032	1.123	.178
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	46.862	2	23.431	.022	.979	.001	.043	.053
GENDER * AGE	5298.199	4	1324.550	1.221	.320	.126	4.882	.340
STKHD_GR * GENDER * AGE	52.677	1	52.677	.049	.827	.001	.049	.055
ETHNICIT * AGE	5805.098	3	1935.033	1.783	.169	.136	5.350	.422
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	36895.238	34	1085.154					
Total	265975.000	65						
Corrected Total	69350.000	64						

a Computed using alpha = .05

b R Squared = .468 (Adjusted R Squared = -.001)

Tests of Between-Subjects Effects

Dependent Variable: S7

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	33654.462(b)	30	1121.815	1.403	.169	.553	42.104	.822
Intercept	63117.266	1	63117.266	78.963	.000	.699	78.963	1.000
STKHD_GR	917.787	3	305.929	.383	.766	.033	1.148	.118
GENDER	82.806	1	82.806	.104	.750	.003	.104	.061
ETHNICIT	2519.393	3	839.798	1.051	.383	.085	3.152	.259
AGE	7272.610	4	1818.153	2.275	.081	.211	9.098	.600
STKHD_GR * GENDER	2322.820	3	774.273	.969	.419	.079	2.906	.241
STKHD_GR * ETHNICIT	2311.991	2	1155.995	1.446	.250	.078	2.892	.288
GENDER * ETHNICIT	233.333	1	233.333	.292	.593	.009	.292	.082
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	221.541	2	110.771	.139	.871	.008	.277	.070
GENDER * AGE	5135.637	4	1283.909	1.606	.195	.159	6.425	.441
STKHD_GR * GENDER * AGE	63.739	1	63.739	.080	.779	.002	.080	.059
ETHNICIT * AGE	4396.408	3	1465.469	1.833	.160	.139	5.500	.433
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	27176.984	34	799.323					
Total	318061.000	65						
Corrected Total	60831.446	64						

a Computed using alpha = .05

b R Squared = .553 (Adjusted R Squared = .159)

400

Tests of Between-Subjects Effects

Dependent Variable: S8

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	36213.968(b)	30	1207.132	1.198	.303	.514	35.954	.737
Intercept	72513.135	1	72513.135	71.992	.000	.679	71.992	1.000
STKHD_GR	1432.168	3	477.389	.474	.702	.040	1.422	.136
GENDER	219.111	1	219.111	.218	.644	.006	.218	.074
ETHNICIT	4333.778	3	1444.593	1.434	.250	.112	4.303	.345
AGE	5891.240	4	1472.810	1.462	.235	.147	5.849	.404
STKHD_GR * GENDER	435.315	3	145.105	.144	.933	.013	.432	.074
STKHD_GR * ETHNICIT	2943.201	2	1471.601	1.461	.246	.079	2.922	.290
GENDER * ETHNICIT	.000	1	.000	.000	1.000	.000	.000	.050
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	512.820	2	256.410	.255	.777	.015	.509	.087
GENDER * AGE	3421.737	4	855.434	.849	.504	.091	3.397	.242
STKHD_GR * GENDER * AGE	.923	1	.923	.001	.976	.000	.001	.050
ETHNICIT * AGE	4808.968	3	1602.989	1.591	.209	.123	4.774	.380
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	34246.032	34	1007.236					
Total	312325.000	65						
Corrected Total	70460.000	64						

a Computed using alpha = .05
b R Squared = .514 (Adjusted R Squared = .085)

Tests of Between-Subjects Effects

Dependent Variable: S9

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	31376.972(b)	30	1045.899	1.556	.106	.579	46.691	.871
Intercept	73170.232	1	73170.232	108.882	.000	.762	108.882	1.000
STKHD_GR	3783.155	3	1261.052	1.877	.152	.142	5.630	.442
GENDER	.024	1	.024	.000	.995	.000	.000	.050
ETHNICIT	2368.847	3	789.616	1.175	.334	.094	3.525	.287
AGE	2973.562	4	743.390	1.106	.370	.115	4.425	.310
STKHD_GR * GENDER	1340.096	3	446.699	.665	.580	.055	1.994	.175
STKHD_GR * ETHNICIT	2623.752	2	1311.876	1.952	.158	.103	3.904	.376
GENDER * ETHNICIT	2100.000	1	2100.000	3.125	.086	.084	3.125	.404
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	208.201	2	104.100	.155	.857	.009	.310	.072
GENDER * AGE	4272.041	4	1068.010	1.589	.200	.158	6.357	.437
STKHD_GR * GENDER * AGE	37.013	1	37.013	.055	.816	.002	.055	.056
ETHNICIT * AGE	3816.059	3	1272.020	1.893	.149	.143	5.679	.446
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	22848.413	34	672.012					
Total	299150.000	65						
Corrected Total	54225.385	64						

a Computed using alpha = .05
b R Squared = .579 (Adjusted R Squared = .207)

402

Tests of Between-Subjects Effects

Dependent Variable: S10

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	84815.730(b)	29	2924.680	1.044	.449	.471	30.278	.651
Intercept	40834.549	1	40834.549	14.577	.001	.300	14.577	.960
STKHD_GR	3759.594	3	1253.198	.447	.721	.038	1.342	.130
GENDER	3656.924	1	3656.924	1.305	.261	.037	1.305	.199
ETHNICIT	4149.602	3	1383.201	.494	.689	.042	1.481	.140
AGE	6464.831	4	1616.208	.577	.681	.064	2.308	.173
STKHD_GR * GENDER	18829.641	3	6276.547	2.241	.101	.165	6.722	.518
STKHD_GR * ETHNICIT	4600.115	2	2300.057	.821	.448	.046	1.642	.179
GENDER * ETHNICIT	3219.048	1	3219.048	1.149	.291	.033	1.149	.181
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	8876.237	2	4438.118	1.584	.220	.085	3.169	.312
GENDER * AGE	32197.798	4	8049.449	2.874	.037	.253	11.494	.717
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	4907.355	3	1635.785	.584	.630	.049	1.752	.158
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	95241.270	34	2801.214					
Total	417226.000	64						
Corrected Total	180057.000	63						

a Computed using alpha = .05
b R Squared = .471 (Adjusted R Squared = .020)

Tests of Between-Subjects Effects

Dependent Variable: S11

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	38032.894(b)	30	1267.763	1.440	.151	.560	43.203	.835
Intercept	58572.879	1	58572.879	66.536	.000	.662	66.536	1.000
STKHD_GR	2339.942	3	779.981	.886	.458	.073	2.658	.223
GENDER	4.845	1	4.845	.006	.941	.000	.006	.051
ETHNICIT	1158.664	3	386.221	.439	.727	.037	1.316	.129
AGE	8761.427	4	2190.357	2.488	.062	.226	9.953	.645
STKHD_GR * GENDER	586.930	3	195.643	.222	.880	.019	.667	.088
STKHD_GR * ETHNICIT	1974.900	2	987.450	1.122	.337	.062	2.243	.231
GENDER * ETHNICIT	1.190	1	1.190	.001	.971	.000	.001	.050
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	2654.369	2	1327.185	1.508	.236	.081	3.015	.299
GENDER * AGE	9114.148	4	2278.537	2.588	.054	.233	10.353	.665
STKHD_GR * GENDER * AGE	571.611	1	571.611	.649	.426	.019	.649	.123
ETHNICIT * AGE	5055.895	3	1685.298	1.914	.146	.145	5.743	.450
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	29930.952	34	880.322					
Total	288950.000	65						
Corrected Total	67963.846	64						

a Computed using alpha = .05
b R Squared = .560 (Adjusted R Squared = .171)

Tests of Between-Subjects Effects

Dependent Variable: S12

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	36761.554(b)	30	1225.385	2.079	.020	.647	62.381	.962
Intercept	52854.634	1	52854.634	89.689	.000	.725	89.689	1.000
STKHD_GR	3023.543	3	1007.848	1.710	.183	.131	5.131	.406
GENDER	516.879	1	516.879	.877	.356	.025	.877	.149
ETHNICIT	3967.849	3	1322.616	2.244	.101	.165	6.733	.519
AGE	5974.032	4	1493.508	2.534	.058	.230	10.137	.654
STKHD_GR * GENDER	4531.501	3	1510.500	2.563	.071	.184	7.690	.580
STKHD_GR * ETHNICIT	6466.122	2	3233.061	5.486	.009	.244	10.972	.817
GENDER * ETHNICIT	6344.048	1	6344.048	10.765	.002	.240	10.765	.890
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	33.332	2	16.666	.028	.972	.002	.057	.054
GENDER * AGE	3118.887	4	779.722	1.323	.281	.135	5.292	.367
STKHD_GR * GENDER * AGE	542.393	1	542.393	.920	.344	.026	.920	.154
ETHNICIT * AGE	9256.276	3	3085.425	5.236	.004	.316	15.707	.896
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	20036.508	34	589.309					
Total	273606.000	65						
Corrected Total	56798.062	64						

a Computed using alpha = .05
b R Squared = .647 (Adjusted R Squared = .336)

Tests of Between-Subjects Effects

Dependent Variable: S13

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	25726.492(b)	29	887.120	.986	.512	.457	28.598	.618
Intercept	59279.438	1	59279.438	65.895	.000	.660	65.895	1.000
STKHD_GR	1966.644	3	655.548	.729	.542	.060	2.186	.188
GENDER	59.476	1	59.476	.066	.799	.002	.066	.057
ETHNICIT	3531.306	3	1177.102	1.308	.288	.104	3.925	.317
AGE	1967.998	4	492.000	.547	.702	.060	2.188	.165
STKHD_GR * GENDER	1263.493	3	421.164	.468	.706	.040	1.405	.134
STKHD_GR * ETHNICIT	953.098	2	476.549	.530	.594	.030	1.059	.130
GENDER * ETHNICIT	171.429	1	171.429	.191	.665	.006	.191	.071
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	1861.943	2	930.971	1.035	.366	.057	2.070	.216
GENDER * AGE	2741.354	4	685.339	.762	.557	.082	3.047	.219
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	3827.876	3	1275.959	1.418	.254	.111	4.255	.342
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	30586.508	34	899.603					
Total	276274.000	64						
Corrected Total	56313.000	63						

a Computed using alpha = .05
b R Squared = .457 (Adjusted R Squared = -.006)

Tests of Between-Subjects Effects

Dependent Variable: S14

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	30742.318(b)	29	1060.080	1.213	.293	.508	35.173	.738
Intercept	70277.192	1	70277.192	80.407	.000	.703	80.407	1.000
STKHD_GR	286.414	3	95.471	.109	.954	.010	.328	.068
GENDER	94.316	1	94.316	.108	.745	.003	.108	.062
ETHNICIT	5412.590	3	1804.197	2.064	.123	.154	6.193	.482
AGE	3279.821	4	819.955	.938	.454	.099	3.753	.265
STKHD_GR * GENDER	756.664	3	252.221	.289	.833	.025	.866	.100
STKHD_GR * ETHNICIT	1047.619	2	523.810	.599	.555	.034	1.199	.142
GENDER * ETHNICIT	4.762	1	4.762	.005	.942	.000	.005	.051
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	1596.146	2	798.073	.913	.411	.051	1.826	.195
GENDER * AGE	4120.252	4	1030.063	1.179	.338	.122	4.714	.329
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	3912.012	3	1304.004	1.492	.234	.116	4.476	.358
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	29716.667	34	874.020					
Total	298725.000	64						
Corrected Total	60458.984	63						

a Computed using alpha = .05
b R Squared = .508 (Adjusted R Squared = .089)

Tests of Between-Subjects Effects

Dependent Variable: S15

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	39801.393(b)	29	1372.462	1.680	.073	.589	48.731	.897
Intercept	62628.527	1	62628.527	76.679	.000	.693	76.679	1.000
STKHD_GR	2126.026	3	708.675	.868	.467	.071	2.603	.219
GENDER	2242.414	1	2242.414	2.745	.107	.075	2.745	.363
ETHNICIT	7858.816	3	2619.605	3.207	.035	.221	9.622	.688
AGE	9491.307	4	2372.827	2.905	.036	.255	11.621	.722
STKHD_GR * GENDER	5285.152	3	1761.717	2.157	.111	.160	6.471	.501
STKHD_GR * ETHNICIT	455.364	2	227.682	.279	.758	.016	.558	.091
GENDER * ETHNICIT	629.762	1	629.762	.771	.386	.022	.771	.137
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	400.246	2	200.123	.245	.784	.014	.490	.085
GENDER * AGE	14639.282	4	3659.820	4.481	.005	.345	17.924	.904
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	3607.244	3	1202.415	1.472	.239	.115	4.417	.354
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	27769.841	34	816.760					
Total	302675.000	64						
Corrected Total	67571.234	63						

a Computed using alpha = .05

b R Squared = .589 (Adjusted R Squared = .238)

Tests of Between-Subjects Effects

Dependent Variable: E&A2

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	27124.461(b)	29	935.326	1.422	.161	.548	41.246	.823
Intercept	53898.106	1	53898.106	81.958	.000	.707	81.958	1.000
STKHD_GR	542.622	3	180.874	.275	.843	.024	.825	.097
GENDER	18.139	1	18.139	.028	.869	.001	.028	.053
ETHNICIT	5605.477	3	1868.492	2.841	.052	.200	8.524	.629
AGE	6175.399	4	1543.850	2.348	.074	.216	9.390	.616
STKHD_GR * GENDER	3830.918	3	1276.973	1.942	.141	.146	5.825	.456
STKHD_GR * ETHNICIT	2454.848	2	1227.424	1.866	.170	.099	3.733	.361
GENDER * ETHNICIT	119.048	1	119.048	.181	.673	.005	.181	.070
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	427.410	2	213.705	.325	.725	.019	.650	.098
GENDER * AGE	3491.299	4	872.825	1.327	.280	.135	5.309	.368
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	1459.805	3	486.602	.740	.536	.061	2.220	.191
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	22359.524	34	657.633					
Total	200125.000	64						
Corrected Total	49483.984	63						

a Computed using alpha = .05
b R Squared = .548 (Adjusted R Squared = .163)

Tests of Between-Subjects Effects

Dependent Variable: E&A3

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	24609.282(b)	29	848.596	1.544	.112	.568	44.790	.862
Intercept	51336.553	1	51336.553	93.434	.000	.733	93.434	1.000
STKHD_GR	53.202	3	17.734	.032	.992	.003	.097	.055
GENDER	903.235	1	903.235	1.644	.208	.046	1.644	.238
ETHNICIT	5984.609	3	1994.870	3.631	.022	.243	10.892	.747
AGE	2481.286	4	620.321	1.129	.359	.117	4.516	.316
STKHD_GR * GENDER	649.195	3	216.398	.394	.758	.034	1.182	.120
STKHD_GR * ETHNICIT	4077.567	2	2038.784	3.711	.035	.179	7.421	.641
GENDER * ETHNICIT	1376.190	1	1376.190	2.505	.123	.069	2.505	.337
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	743.961	2	371.981	.677	.515	.038	1.354	.154
GENDER * AGE	4200.763	4	1050.191	1.911	.131	.184	7.646	.517
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	5540.955	3	1846.985	3.362	.030	.229	10.085	.711
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	18680.952	34	549.440					
Total	217075.000	64						
Corrected Total	43290.234	63						

a Computed using alpha = .05
b R Squared = .568 (Adjusted R Squared = .200)

410

Tests of Between-Subjects Effects

Dependent Variable: E&A4

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	24583.349(b)	29	847.702	1.267	.252	.519	36.750	.762
Intercept	30036.431	1	30036.431	44.902	.000	.569	44.902	1.000
STKHD_GR	2103.132	3	701.044	1.048	.384	.085	3.144	.259
GENDER	171.370	1	171.370	.256	.616	.007	.256	.078
ETHNICIT	3078.766	3	1026.255	1.534	.223	.119	4.603	.368
AGE	3160.991	4	790.248	1.181	.336	.122	4.725	.330
STKHD_GR * GENDER	545.978	3	181.993	.272	.845	.023	.816	.097
STKHD_GR * ETHNICIT	2754.590	2	1377.295	2.059	.143	.108	4.118	.394
GENDER * ETHNICIT	3344.048	1	3344.048	4.999	.032	.128	4.999	.584
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	1439.976	2	719.988	1.076	.352	.060	2.153	.223
GENDER * AGE	3056.830	4	764.208	1.142	.353	.118	4.570	.319
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	5464.404	3	1821.468	2.723	.060	.194	8.169	.609
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	22743.651	34	668.931					
Total	174776.000	64						
Corrected Total	47327.000	63						

a Computed using alpha = .05

b R Squared = .519 (Adjusted R Squared = .110)

411

Tests of Between-Subjects Effects

Dependent Variable: E&A5

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	21982.763(b)	29	758.026	.956	.546	.449	27.730	.600
Intercept	36411.395	1	36411.395	45.931	.000	.575	45.931	1.000
STKHD_GR	991.649	3	330.550	.417	.742	.035	1.251	.124
GENDER	406.510	1	406.510	.513	.479	.015	.513	.107
ETHNICIT	3570.494	3	1190.165	1.501	.232	.117	4.504	.360
AGE	1857.440	4	464.360	.586	.675	.064	2.343	.175
STKHD_GR * GENDER	840.607	3	280.202	.353	.787	.030	1.060	.112
STKHD_GR * ETHNICIT	2541.939	2	1270.970	1.603	.216	.086	3.207	.315
GENDER * ETHNICIT	804.762	1	804.762	1.015	.321	.029	1.015	.165
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	17.290	2	8.645	.011	.989	.001	.022	.052
GENDER * AGE	3766.341	4	941.585	1.188	.334	.123	4.751	.331
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	7052.714	3	2350.905	2.966	.046	.207	8.897	.650
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	26953.175	34	792.740					
Total	190500.000	64						
Corrected Total	48935.937	63						

a Computed using alpha = .05
b R Squared = .449 (Adjusted R Squared = -.021)

Tests of Between-Subjects Effects

Dependent Variable: E&A6

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	34759.242(b)	29	1198.595	.968	.532	.452	28.081	.607
Intercept	45432.181	1	45432.181	36.703	.000	.519	36.703	1.000
STKHD_GR	3538.308	3	1179.436	.953	.426	.078	2.858	.237
GENDER	456.317	1	456.317	.369	.548	.011	.369	.091
ETHNICIT	1420.483	3	473.494	.383	.766	.033	1.148	.118
AGE	6701.896	4	1675.474	1.354	.271	.137	5.414	.375
STKHD_GR * GENDER	1017.093	3	339.031	.274	.844	.024	.822	.097
STKHD_GR * ETHNICIT	4294.234	2	2147.117	1.735	.192	.093	3.469	.338
GENDER * ETHNICIT	1296.429	1	1296.429	1.047	.313	.030	1.047	.169
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	2633.072	2	1316.536	1.064	.356	.059	2.127	.221
GENDER * AGE	5996.307	4	1499.077	1.211	.324	.125	4.844	.338
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	10579.590	3	3526.530	2.849	.052	.201	8.547	.631
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	42086.508	34	1237.838					
Total	274426.000	64						
Corrected Total	76845.750	63						

a Computed using alpha = .05
b R Squared = .452 (Adjusted R Squared = -.015)

413

Tests of Between-Subjects Effects

Dependent Variable: E&A7

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	40494.298(b)	29	1396.355	1.926	.034	.622	55.842	.942
Intercept	52378.970	1	52378.970	72.231	.000	.680	72.231	1.000
STKHD_GR	2879.689	3	959.896	1.324	.283	.105	3.971	.320
GENDER	125.155	1	125.155	.173	.680	.005	.173	.069
ETHNICIT	2781.516	3	927.172	1.279	.297	.101	3.836	.310
AGE	8516.586	4	2129.146	2.936	.035	.257	11.744	.727
STKHD_GR * GENDER	164.709	3	54.903	.076	.973	.007	.227	.062
STKHD_GR * ETHNICIT	2464.400	2	1232.200	1.699	.198	.091	3.398	.332
GENDER * ETHNICIT	19.048	1	19.048	.026	.872	.001	.026	.053
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	2659.519	2	1329.759	1.834	.175	.097	3.667	.356
GENDER * AGE	11838.643	4	2959.661	4.081	.008	.324	16.326	.872
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	6907.086	3	2302.362	3.175	.036	.219	9.525	.683
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	24655.452	34	725.160					
Total	251342.000	64						
Corrected Total	65149.750	63						

a Computed using alpha = .05
b R Squared = .622 (Adjusted R Squared = .299)

414

Tests of Between-Subjects Effects

Dependent Variable: E&A8

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	45557.274(b)	29	1570.940	1.903	.036	.619	55.187	.939
Intercept	59045.639	1	59045.639	71.526	.000	.678	71.526	1.000
STKHD_GR	4080.435	3	1360.145	1.648	.197	.127	4.943	.393
GENDER	189.161	1	189.161	.229	.635	.007	.229	.075
ETHNICIT	5942.392	3	1980.797	2.399	.085	.175	7.198	.549
AGE	4831.914	4	1207.978	1.463	.235	.147	5.853	.404
STKHD_GR * GENDER	852.487	3	284.162	.344	.793	.029	1.033	.110
STKHD_GR * ETHNICIT	4536.776	2	2268.388	2.748	.078	.139	5.496	.506
GENDER * ETHNICIT	2976.190	1	2976.190	3.605	.066	.096	3.605	.454
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	586.133	2	293.067	.355	.704	.020	.710	.102
GENDER * AGE	9036.054	4	2259.013	2.736	.045	.244	10.946	.692
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	3041.352	3	1013.784	1.228	.315	.098	3.684	.299
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	28067.460	34	825.514					
Total	237751.000	64						
Corrected Total	73624.734	63						

a Computed using alpha = .05
b R Squared = .619 (Adjusted R Squared = .294)

Tests of Between-Subjects Effects

Dependent Variable: E&A9

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	35518.657(b)	29	1224.781	1.647	.081	.584	47.769	.890
Intercept	53797.823	1	53797.823	72.352	.000	.680	72.352	1.000
STKHD_GR	3630.575	3	1210.192	1.628	.201	.126	4.883	.388
GENDER	5.083	1	5.083	.007	.935	.000	.007	.051
ETHNICIT	792.762	3	264.254	.355	.786	.030	1.066	.112
AGE	5237.639	4	1309.410	1.761	.160	.172	7.044	.480
STKHD_GR * GENDER	81.487	3	27.162	.037	.990	.003	.110	.056
STKHD_GR * ETHNICIT	1250.717	2	625.359	.841	.440	.047	1.682	.182
GENDER * ETHNICIT	4.762	1	4.762	.006	.937	.000	.006	.051
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	4195.953	2	2097.976	2.822	.074	.142	5.643	.517
GENDER * AGE	5252.661	4	1313.165	1.766	.159	.172	7.064	.482
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	2505.059	3	835.020	1.123	.353	.090	3.369	.275
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	25280.952	34	743.557					
Total	271825.000	64						
Corrected Total	60799.609	63						

a Computed using alpha = .05
b R Squared = .584 (Adjusted R Squared = .230)

Tests of Between-Subjects Effects

Dependent Variable: E&A10

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	37288.194(b)	29	1285.800	1.601	.094	.577	46.430	.878
Intercept	60949.021	1	60949.021	75.892	.000	.691	75.892	1.000
STKHD_GR	4540.795	3	1513.598	1.885	.151	.143	5.654	.444
GENDER	3742.093	1	3742.093	4.660	.038	.121	4.660	.555
ETHNICIT	6501.352	3	2167.117	2.698	.061	.192	8.095	.604
AGE	2054.188	4	513.547	.639	.638	.070	2.558	.188
STKHD_GR * GENDER	366.157	3	122.052	.152	.928	.013	.456	.075
STKHD_GR * ETHNICIT	5610.786	2	2805.393	3.493	.042	.170	6.986	.613
GENDER * ETHNICIT	2519.048	1	2519.048	3.137	.086	.084	3.137	.406
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	4582.216	2	2291.108	2.853	.072	.144	5.706	.522
GENDER * AGE	5908.974	4	1477.244	1.839	.144	.178	7.358	.500
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	7052.507	3	2350.836	2.927	.048	.205	8.782	.644
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	27305.556	34	803.105					
Total	230650.000	64						
Corrected Total	64593.750	63						

a Computed using alpha = .05
b R Squared = .577 (Adjusted R Squared = .217)

417

Tests of Between-Subjects Effects

Dependent Variable: E&A11

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	40537.940(b)	29	1397.860	1.678	.074	.589	48.662	.897
Intercept	61828.520	1	61828.520	74.219	.000	.686	74.219	1.000
STKHD_GR	3389.680	3	1129.893	1.356	.273	.107	4.069	.328
GENDER	510.262	1	510.262	.613	.439	.018	.613	.118
ETHNICIT	6451.016	3	2150.339	2.581	.070	.186	7.744	.583
AGE	2662.540	4	665.635	.799	.534	.086	3.196	.229
STKHD_GR * GENDER	735.217	3	245.072	.294	.829	.025	.883	.101
STKHD_GR * ETHNICIT	5400.459	2	2700.229	3.241	.051	.160	6.483	.579
GENDER * ETHNICIT	2519.048	1	2519.048	3.024	.091	.082	3.024	.394
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	4627.376	2	2313.688	2.777	.076	.140	5.555	.511
GENDER * AGE	3545.688	4	886.422	1.064	.389	.111	4.256	.298
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	9448.615	3	3149.538	3.781	.019	.250	11.342	.766
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	28323.810	34	833.053					
Total	255054.000	64						
Corrected Total	68861.750	63						

a Computed using alpha = .05
b R Squared = .589 (Adjusted R Squared = .238)

418

Tests of Between-Subjects Effects

Dependent Variable: E&A12

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	31253.429(b)	29	1077.704	1.523	.119	.565	44.173	.856
Intercept	34570.393	1	34570.393	48.862	.000	.590	48.862	1.000
STKHD_GR	1947.115	3	649.038	.917	.443	.075	2.752	.230
GENDER	1587.309	1	1587.309	2.243	.143	.062	2.243	.307
ETHNICIT	1065.257	3	355.086	.502	.684	.042	1.506	.141
AGE	657.573	4	164.393	.232	.918	.027	.929	.094
STKHD_GR * GENDER	54.669	3	18.223	.026	.994	.002	.077	.054
STKHD_GR * ETHNICIT	3508.893	2	1754.446	2.480	.099	.127	4.959	.464
GENDER * ETHNICIT	2304.762	1	2304.762	3.258	.080	.087	3.258	.418
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	928.233	2	464.116	.656	.525	.037	1.312	.151
GENDER * AGE	4577.647	4	1144.412	1.618	.192	.160	6.470	.444
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	10428.238	3	3476.079	4.913	.006	.302	14.739	.874
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	24055.556	34	707.516					
Total	208875.000	64						
Corrected Total	55308.984	63						

a Computed using alpha = .05
b R Squared = .565 (Adjusted R Squared = .194)

Tests of Between-Subjects Effects

Dependent Variable: E&A13

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	32401.366(b)	29	1117.288	1.491	.132	.560	43.225	.846
Intercept	42765.606	1	42765.606	57.051	.000	.627	57.051	1.000
STKHD_GR	2583.353	3	861.118	1.149	.344	.092	3.446	.281
GENDER	680.335	1	680.335	.908	.347	.026	.908	.153
ETHNICIT	5685.499	3	1895.166	2.528	.074	.182	7.585	.573
AGE	3958.309	4	989.577	1.320	.282	.134	5.281	.367
STKHD_GR * GENDER	869.563	3	289.854	.387	.763	.033	1.160	.118
STKHD_GR * ETHNICIT	3940.389	2	1970.194	2.628	.087	.134	5.257	.488
GENDER * ETHNICIT	2742.857	1	2742.857	3.659	.064	.097	3.659	.460
STKHD_GR * GENDER * ETHNICIT	.000	0	.	.	.	.000	.000	.
STKHD_GR * AGE	71.307	2	35.654	.048	.954	.003	.095	.057
GENDER * AGE	6237.242	4	1559.310	2.080	.105	.197	8.321	.557
STKHD_GR * GENDER * AGE	.000	0	.	.	.	.000	.000	.
ETHNICIT * AGE	14975.194	3	4991.731	6.659	.001	.370	19.977	.957
STKHD_GR * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
STKHD_GR * GENDER * ETHNICIT * AGE	.000	0	.	.	.	.000	.000	.
Error	25486.571	34	749.605					
Total	208626.000	64						
Corrected Total	57887.937	63						

a Computed using alpha = .05

b R Squared = .560 (Adjusted R Squared = .184)

APPENDIX H: NEW INDICATORS FROM STAKEHOLDERS

Student Stakeholder Input

-concern that the costs were the same, believed that online courses should be less
    expensive
-students should have the opportunity once or twice a semester to meet as a class
-There should be something about how long a teacher has to respond to a student, and
    also about them providing support to the student (via telephone, e-mail, etc.)
-It seems as though because it is an online class some teachers do not feel that they
    need to return the grades back to the students within a reasonable amount of time.
    This is not acceptable.
-If all or most students fail the class then maybe the teacher's job standings or
    teaching methods should be assessed.
-I love online classes. They are as challenging if not more than attending at the
    school. The convenience and flexibility is necessary in today's world. Thanks for
    providing the online option. The teachers have been great!!
-Many times blackboard has kicked me offline while I was in the middle of a test. I
    wrote my teacher and she would not let me re-take the test. This gave me an "F" on
    my test. I was and still am very frustrated.
-There should be more Internet classes such as Math 40 and others that are for
    starting students. it should be easier to find internet classes without having to go
    through all the non-internet classes.

Faculty

-concern raised about possibility of developmental courses being offered online

Administrators

-need to include Peer Review in evaluations

Tech Support - none submitted

421

The following Factors versus Indicators instruments were developed from the results of the Delphi and Stakeholder Surveys. The questions were taken from the Stakeholder Instrument, but split between the two instruments so that each had a representative set of items by classification (i.e. the seventeen Institutional Support items were divided so that nine were on A and eight on B). Version A consists of thirty-nine indicators, and version B consists of the remaining thirty-eight.

Revisions to the Instruments

Version B was sent to a potential participant in the Factors versus Indicators study, and this individual was asked to review the instructions, complete the survey, and monitor the time needed to complete the instrument. Upon receipt of the completed instrument, the participant was contacted regarding their experiences. The following interview was used to gauge their experiences. This individual is a community college professional with numerous publications on community colleges and the application of technology to teaching. IN indicates the interviewer and P the participant.

Interview Transcript

Goal 1-Navigation and Usability

IN - Was the layout of the instrument clear and were the directions easy to follow?

P- I found it very easy to follow. Both the definitions and examples were very helpful.

IN - Was there any point where the directions became unclear?

P- No.

Goal 2-Clarity of the Survey

IN - Was there any place that you needed more instruction or directions?

P – Only question was how long it would take to complete, but that is why I am doing this.

IN - Were the directions for completing this instrument clear?

P – Very, and I appreciated the pre-labeled columns for noting my answer.

IN - Did you feel the need for additional information before responding to any question?

P – Not really, though some of the items need to be rewritten. A few grammatical errors,

but a couple are not clear.

Goal 3 – Time Required

IN- Were you able to measure how long it took for you to complete the Instrument? If so, how long?

P- I did not use a timer, but it took between twenty and twenty-five minutes

Wrap Up Question

IN – Is there anything else you would like to say about this instrument?

P – Yes, I was actually surprised that there were very few indicators. Almost all were factors, thought there were a couple of others. Seems like a lot of extra work.

AS A RESULT OF THIS FEEDBACK, THE INSTRUCTIONS FOR BOTH

INSTRUMENTS WERE ADJUSTED TO INDICATE THAT IT WOULD TAKE NO

MORE THAN THIRTY MINUTES TO COMPLETE.

FACTORS VERSUS INDICATORS INSTRUMENT A

Instructions:

You are being provided a set of 39 items to review and classify as a Indicator, Factor, or Other based upon the following definitions.

> **Indicators** are signs of success that the community college has a quality program and can be identified as outputs that are directly related to the quality of the program.

> **Factors** are inputs consciously made by the institution that contribute to the quality of the online program, whether through resources, policies, or requirements.

Use "Other" to classify any items that do not meet the Indicator or Factor definitions.

Here are some examples to assist with the classification process:

Factors:

The institution provides technical assistance via a 7x15 help desk. This would be an example of a factor as it is an input provided by the organization in support of its program.

The college utilizes a standard course template for all new courses. This would be classified as a factor as it is a requirement of the institution that would contribute to ac consistent look for students.

Indicators:

The institution compiles and regularly reviews help desk communication, and then use this information to improve support services, modify the learning environment, and identify program needs. This item fits the definition of an indicator as the institution compiles output (collects data) that indicates institutional performance and may be used to improve performance.

The college measures student success rates in online courses and compares the results with traditional classroom sections. This would be classifies as an indicator as this is an output measure of the program.

If you wish to submit your input electronically, then place a mark in the column corresponding to your interpretation as to whether the item is an Indicator, Factor, or Other.

Items	Indicator	Factor	Other
A professional manager with sufficient institutional authority to organize and support the academic and support services necessary for student success oversees the college's online program.			
The college has developed an infrastructure for the efficient archiving and restoring of courses from semester-to-semester.			
The institution support online faculty participation in professional development courses addressing online methodology.			
The community college supports the philosophy that faculty use each technology for what it does best in meeting the needs of the course or program, emphasizing effective teaching and learning over technology.			
The college provides enrolment procedures that are easy and accessible to online students.			
Evaluations of online programs are consistent with that used for on campus programs.			
The online programs offered by the community college is consistent with the institution's mission and needs of the community served.			
The institution provides online faculty with the technology needed to adequately develop and deliver their online courses.			
The college requires that online courses adhere to the same learning outcomes as traditional classes.			
The college has compiled a set of institutional best practices for online courses and encourages its use by new online faculty during course development.			
An effective, self-directed online orientation is available for new students.			
Regular evaluations of distance learning courseware, instructional philosophy, pedagogical methods, and faculty use of the technology take place.			
In all aspects of the distance education program, the college's administration promotes the use of best practices for online programs and instruction published by regional and national organizations.			
The college provides a technical support center with hardware, software and trained staff to provide technological support for all students, faculty and staff members.			
Faculty are provided training on a variety of software programs to enhance student learning.			
The community college supports new online faculty by providing instructional designers to assist with an instructor's initial experience teaching online and help solve teaching difficulties.			
Students are able to register and pay fees without having to visit the			

425

Items	Indicator	Factor	Other
college.			
Faculty evaluation criteria are adjusted to account for online delivery, instructional methods, and practices.			
The community college's policies and procedures demonstrate consistency across all forms of instruction.			
The institution provides integrated access to electronic resources in support of online education.			
Faculty "advancement" criteria recognize online instruction and reward faculty for innovation and risk-taking.			
Online students have the opportunity to complete a technical skills screening prior to enrolment in online classes.			
Periodic program evaluations are used for program improvement, to aid in institutional decision-making, to provide program outcomes for funding agencies, stakeholders access to technology, the range of services provided, course offerings, and barriers and challenges to online instruction.			
The community college is committed to supporting the scheduling of online courses that meet the degree requirements of all students currently enrolled in an online program.			
Planning for new technology resources for the college includes and integrates online program needs into the budget and execution cycles.			
The college demonstrates respect for faculty member's academic freedom by allowing him or her to develop the course in a way that coincides with his or her teaching style.			
The community college supports faculty with the assistance of instructional designers or through training that will help faculty to become instructional designers.			
The college provides online faculty training and support related to the legal rights and responsibilities of faculty and the institution (i.e. copyright and intellectual property rights, FERPA, ADA).			
The college provides students with multiple communication options (telephone, email, US mail, etc.) for obtaining assistance and contacting support services.			
Student learning outcomes in online courses are assessed and compared with student outcomes achieved by other delivery methods.			
The community college's leadership demands that online programs meet the same programmatic requirements of on-campus programs.			
The college encourages faculty involvement in peer-to-peer organizations and conferences where issues related to online instruction are discussed.			
Online testing accommodates the range of student Internet access from			

| dial-up to high-speed connectivity. | | | |

Items	Indicator	Factor	Other
Classroom assessment includes projects and portfolio building assessments, not just multiple-choice tests.			
The college's marketing plan includes promotion of online courses and programs.			
The college library provides electronic reserves in support of online programs and takes advantage of local and regional college partnerships to guarantee students the opportunity to access learning resources online.			
The college fosters collaboration across all institutional services that may impact instructional and learning success.			
Student courseware is available and consistent from semester to semester.			
Articulation agreements are pursued with area four-year colleges to create seamless transfer opportunities for students in online programs.			

Instructions:

You are being provided a set of 38 items to review and classify as a Indicator, Factor, or Other based upon the following definitions.

Indicators are signs of success that the community college has a quality program and can be identified as outputs that are directly related to the quality of the program.

Factors are inputs consciously made by the institution that contribute to the quality of the online program, whether through resources, policies, or requirements.

Use "Other" to classify any items that do not meet the Indicator or Factor definitions.

Here are some examples to assist with the classification process:

Factors:

The institution provides technical assistance via a 7x15 help desk. This would be an example of a factor as it is an input provided by the organization in support of its program.

The college utilizes a standard course template for all new courses. This would be classified as a factor as it is a requirement of the institution that would contribute to ac consistent look for students.

Indicators:

The institution compiles and regularly reviews help desk communication, and then use this information to improve support services, modify the learning environment, and identify program needs. This item fits the definition of an indicator as the institution compiles output (collects data) that indicates institutional performance and may be used to improve performance.

The college measures student success rates in online courses and compares the results with traditional classroom sections. This would be classifies as an indicator as this is an output measure of the program.

If you wish to submit your input electronically, then place a mark in the column corresponding to your interpretation as to whether the item is an Indicator, Factor, or Other.

Items	Indicator	Factor	Other
The community college provides the financial resources necessary to support the technical infrastructure, training and support personnel, and full range of faculty and student support services required for online courses and programs.			
The institution provides appropriate levels of technical support via a range of technologies and over a broad range of times.			
Faculty training addresses the function of technologies available to the instructor, to the students, and addresses the need for contingency plans (for when the technology doesn't work).			
The college provides faculty sufficient time to develop an online course before it is delivered to students.			
Access to traditional on-ground services for on-line students, including library, career services, and opportunities for professional development and networking are provided to students, both online and on-ground.			
The college solicits input from online faculty regarding the range of services and policies supporting online learning.			
The community college has obtained the necessary accreditation for online programs.			
The institution provides sufficient network infrastructure (backbone, bandwidth, servers) necessary to deliver online classes.			
The community college follows an application process and training procedures for all faculty pursuing online teaching.			
Faculty respond to online student inquiries and manage grading of assignments and testing in a timely fashion.			
All pertinent information related to the college such as schedules, catalogue, policies and procedures, are available in a range of user-friendly formats on the college's web site.			
Student and faculty regularly complete satisfaction surveys about the online courses and programs.			
The community college's leadership openly defends the quality and equivalence of online courses and programs.			
The college invests in and support information management systems (student information, course management, e-mail, etc.) that interface smoothly across the institution.			
The college supports online faculty in the development of their online classes through a design department equipped with the hardware, software, and technical staff to assist with the incorporation of audio and visual content.			
The college communicates a regular schedule of training courses focusing on the technical aspects of on-line courses for both faculty and			

Items	Indicator	Factor	Other
students.			
Potential students have access to training about the expectations, needed skills, guidelines, policies regarding testing, program requirements and prerequisites, and technical support available to students taking online classes.			
Faculty receive regular and objective feedback from students about their courses and instruction.			
The community college communicates recognition of the value and academic equivalence of online programs to all stakeholders.			
The institution invests in a user-friendly course management system for the delivery of on-line coursework.			
The college recognizes work that instructors have done advancing their own degree (or other professional development activities) obtained through online programs.			
The institution provides adequate online technical, design and pedagogical support for faculty in the development of their online courses.			
The college provides web-based information geared toward the needs of online and prospective online students, including expectations related to online courses, FAQs about the online program and common technical problems, explanations of online terminology, and easy-to-find information on support services and courses offered.			
The college utilizes assessment methods recommended by accrediting bodies for distance courses (e.g. North Central Association, Higher Education Commission, Distance Education Standards).			
The college promotes the use of standardized Internet tools in the delivery of online courses.			
The college supports faculty in pilot projects investigating alternative scheduling, remote teaching, or other innovations.			
New online courses are reviewed by the department or program to insure quality of subject matter and verify that it meets program outcomes.			
Student academic honor and service programs accept online and traditional coursework.			
The college requires periodic review of courses delivered online.			
The tuition and fees of online courses and programs are comparable to those on campus.			
The institution has a clear policy as to the ownership of the content of its online courses.			
The college provides on-site testing services or off-site proctored testing services to meet the needs of online students and faculty.			
Online assessment and evaluation tools are password protected to insure			

the anonymity of respondents.			
Items	Indicator	Factor	Other
The community college's leadership acknowledges their commitment to the needs of online and on-campus students, programs and employees.			
Campus lab and library personnel are familiar with distance learning applications and trained to offer assistance.			
The online program staff actively works with student services to insure awareness of online student needs and program requirements.			
Student persistence and attrition in on-line classes are monitored in comparison to institutional trends.			
Marketing of online programs emphasizes the skills needed for student success and clearly articulates that the academic expectations and time commitment in online courses are consistent with traditional classroom instruction.			

Items Classified as Institutional Support	Indicator	Factor	Other
I1. The college's online program is overseen by a professional manager with sufficient institutional authority to organize and support the academic and support services necessary for student success.	0	5	0
I2. In all aspects of the distance education program, the college's administration promotes the use of best practices for online programs and instruction published by regional and national organizations.	1	3	1
I3. The online programs offered by the community college is consistent with the institution's mission and needs of the community served.	1	3	1
I4. The community college is committed to supporting the scheduling of online courses that meet the degree requirements of all students currently enrolled in an online program.	0	5	0
I5. The community college's leadership acknowledges their commitment to the needs of online and on-campus students, programs and employees.	1	4	0
I6. The community college provides the financial resources necessary to support the technical infrastructure, training and support personnel, and full range of faculty and student support services required for online courses and programs.	0	5	0
I7. The college's marketing plan includes promotion of online courses and programs.	1	4	0
I8. Marketing of online programs emphasizes the skills needed for student success and clearly articulates that the academic expectations and time commitment in online courses are consistent with traditional classroom instruction.	1	4	0
I9. The community college communicates recognition of the value and academic equivalence of online programs to all stakeholders.	2	2	1
I10. Articulation agreements are pursued with area four-year colleges to create seamless transfer opportunities for students in online programs.	0	4	1
I11. The community college has obtained the necessary accreditation for online programs.	2	3	0
I12. The online program staff actively works with student services to insure awareness of online student needs and program requirements.	0	5	0
I13. The community college's policies and procedures demonstrate consistency across all forms of instruction.	2	2	1
I14. The community college's leadership demands that online programs meet the same programmatic requirements of on-campus programs.	1	4	0
I15. The community college's leadership openly defends the quality and equivalence of online courses and programs.	0	1	5
I16. The college fosters collaboration across all institutional services that may impact instructional and learning success.	0	4	1
I17. The tuition and fees of online courses and programs are comparable to those on campus.	0	3	2

Items Classifies as Technical Support	Indicator	Factor	Other
T1. The institution provides online faculty with the technology needed to adequately develop and deliver their online courses.	0	5	0
T2. The institution provides integrated access to electronic resources in support of online education.	0	5	0
T3. The institution provides sufficient network infrastructure (backbone, bandwidth, servers) necessary to deliver online classes.	0	5	0
T4. The college has developed an infrastructure for the efficient archiving and restoring of courses from semester-to-semester.	1	4	0
T5. The college provides a technical support center with hardware, software and trained staff to provide technological support for all students, faculty and staff members.	0	5	0
T6. The institution provides appropriate levels of technical support via a range of technologies and over a broad range of times.	0	5	0
T7. The college invests in and support information management systems (student information, course management, e-mail, etc.) that interface smoothly across the institution.	0	5	0
T8. The institution invests in a user-friendly course management system for the delivery of on-line coursework.	0	5	0
T9. Planning for new technology resources for the college includes and integrates online program needs into the budget and execution cycles.	1	4	0
T10. The college promotes the use of standardized Internet tools in the delivery of online courses.	0	5	0

Items Classified as Curriculum & Instruction	Indicator	Factor	Other
C1. The community college supports the philosophy that faculty use each technology for what it does best in meeting the needs of the course or program, emphasizing effective teaching and learning over technology.	0	4	1
C2. The institution provides adequate online technical, design and pedagogical support for faculty in the development of their online courses.	0	5	0
C3. The community college supports faculty with the assistance of instructional designers or through training that will help faculty to become instructional designers.	0	4	1
C4. The community college supports new online faculty by providing instructional designers to assist with an instructor's initial experience teaching online and help solve teaching difficulties.	0	5	0
C5. The community college follows an application process and training procedures for all faculty pursuing online teaching.	0	5	0
C6. New online courses are reviewed by the department or program to insure quality of subject matter and verify that it meets program outcomes.	4	1	0
C7. The college provides faculty sufficient time to develop an online course before it is delivered to students.	0	4	1
C8. The college provides online faculty training and support related to the legal rights and responsibilities of faculty and the institution (i.e. copyright and intellectual property rights, FERPA, ADA).	0	4	1
C9. The college encourages faculty involvement in peer-to-peer organizations and conferences where issues related to online instruction are discussed.	1	4	0
C10. The college communicates a regular schedule of training courses focusing on the technical aspects of on-line courses for both faculty and students.	0	5	0
C11. The college requires that online courses adhere to the same learning outcomes as traditional classes.	1	3	1
C12. The college has compiled a set of institutional best practices for online courses and encourages its use by new online faculty during course development.	1	4	0
C13. Faculty respond to online student inquiries and manage grading of assignments and testing in a timely fashion.	1	2	2
C14. The institution has a clear policy as to the ownership of the content of its online courses.	0	4	1

Items Classified as Faculty Support	Indicator	Factor	Other
F1. The institution support online faculty participation in professional development courses addressing online methodology.	0	5	0
F2. Faculty are provided training on a variety of software programs to enhance student learning.	0	4	1
F3. Faculty training addresses the function of technologies available to the instructor, to the students, and addresses the need for contingency plans (for when the technology doesn't work).	0	5	0
F4. Faculty "advancement" criteria recognize online instruction and reward faculty for innovation and risk-taking.	1	3	1
F5. The college recognizes work that instructors have done advancing their own degree (or other professional development activities) obtained through online programs.	1	4	0
F6. The college demonstrates respect for faculty member's academic freedom by allowing him or her to develop the course in a way that coincides with his or her teaching style.	0	2	3
F7. The college supports faculty in pilot projects investigating alternative scheduling, remote teaching, or other innovations.	1	4	0
F8. The college supports online faculty in the development of their online classes through a design department equipped with the hardware, software, and technical staff to assist with the incorporation of audio and visual content.	0	5	0

Items Classifies as Student Support	Indicator	Factor	Other
S1. The college provides enrollment procedures that are easy and accessible to online students.	0	5	0
S2. Students are able to register and pay fees without having to visit the college.	1	3	1
S3. Access to traditional on-ground services for on-line students, including library, career services, and opportunities for professional development and networking are provided to students, both online and on-ground.	0	5	0
S4. Potential students have access to training about the expectations, needed skills, guidelines, policies regarding testing, program requirements and prerequisites, and technical support available to students taking online classes.	0	5	0
S5. Online students have the opportunity to complete a technical skills screening prior to enrollment in online classes.	1	4	0
S6. An effective, self-directed online orientation is available for new students.	1	3	1
S7. All pertinent information related to the college such as schedules, catalogue, policies and procedures, are available in a range of user-friendly formats on the college's web site.	0	5	0
S8. The college provides web-based information geared toward the needs of online and prospective online students, including expectations related to online courses, FAQs about the online program and common technical problems, explanations of online terminology, and easy-to-find information on support services and courses offered.	0	5	0
S9. The college provides students with multiple communication options (telephone, email, US mail, etc.) for obtaining assistance and contacting support services.	0	4	1
S10. Student academic honor and service programs accept online and traditional coursework.	2	2	1
S11. Online testing accommodates the range of student Internet access from dial-up to high-speed connectivity.	0	5	0
S12. The college provides on-site testing services or off-site proctored testing services to meet the needs of online students and faculty.	0	5	0
S13. Campus lab and library personnel are familiar with distance learning applications and trained to offer assistance.	0	4	1
S14. The college library provides electronic reserves in support of online programs and takes advantage of local and regional college partnerships to guarantee students the opportunity to access learning resources online.	0	5	0
S15. Student courseware is available and consistent from semester to semester.	0	4	1

Items Classified as Evaluation & Assessment	Indicator	Factor	Other
E1. Regular evaluations of distance learning courseware, instructional philosophy, pedagogical methods, and faculty use of the technology take place.	3	2	0
E2. Evaluations of online programs are consistent with that used for on campus programs.	1	3	1
E3. The college solicits input from online faculty regarding the range of services and policies supporting online learning.	2	2	1
E4. Student and faculty regularly complete satisfaction surveys about the online courses and programs.	3	2	0
E5. Faculty evaluation criteria are adjusted to account for online delivery, instructional methods, and practices.	1	3	1
E6. Faculty receive regular and objective feedback from students about their courses and instruction.	1	3	1
E7. The college utilizes assessment methods recommended by accrediting bodies for distance courses (e.g. North Central Association, Higher Education Commission, Distance Education Standards).	3	2	0
E8. Classroom assessment includes projects and portfolio building assessments, not just multiple-choice tests.	1	3	1
E9. Online assessment and evaluation tools are password protected to insure the anonymity of respondents.	0	5	0
E10. Student learning outcomes in online courses are assessed and compared with student outcomes achieved by other delivery methods.	3	1	1
E11. Periodic program evaluations are used for program improvement, to aid in institutional decision-making, to provide program outcomes for funding agencies, stakeholders access to technology, the range of services provided, course offerings, and barriers and challenges to online instruction.	3	2	0
E12. The college requires periodic review of courses delivered online.	4	1	0
E13. Student persistence and attrition in on-line classes are monitored in comparison to institutional trends.	3	2	0

VITA

Leo J. Hirner was born July 27, 1962, in Hannibal, Missouri. After attending parochial schools in Kansas City, Missouri, he received the following degrees: B.S. in Physics from the University of Missouri-Kansas City (1987); M.S. in Physics from the University of Missouri-Kansas City (1989). He is married to the former Dianne Pyles of Ballwin, Missouri, and he is currently the Director of Distance Education for the Metropolitan Community Colleges, Kansas City, Missouri.